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THE
ARCHITECT
AND
CONTRACT REPORTER.
VOL. LXIX.

THE ARCHITECT

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THE
ARCHITECT

AND

Contract Reporter.

A WEEKLY

ILLUSTRATED JOURNAL

OF

ART,

CIVIL ENGINEERING,

AND

BUILDING.

L'architecture, c'est le monde reconstruit par l'homme, adapté à sa taille et rendant visible à son âme l'ordre invisible dont il rêve.—VICTOR CHERBULIEZ.

VOL. LXIX.

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THE ARCHITECT

AND CONTRACT REPORTER.

A JOURNAL OF ART, CIVIL ENGINEERING & BUILDING.

THE WEEK

THE speech which was delivered by Lord CURZON in Delhi at the opening of an exhibition of Indian workmanship on Tuesday may be considered as an appeal for forgiveness for the offences against Indian art which were committed by Government officials. When it is remembered that South Kensington sent out a number of teachers, who had just gone through the curriculum of that institution in order to reveal the mysteries of form and colour to Indian artists and craftsmen, a system which was fatal to all, some sort of atonement is called for. It should be remembered also that many of the native crafts were degraded by having them practised in prisons by the criminals. The destruction of Indian buildings by English officers was additional evidence of our indifference to native art. Lord CURZON has declared that since he went to India he has lamented the deterioration of the arts and handicrafts. One of the causes he maintains is the ascendancy of commercialism and the employment of machinery. Indian art, according to his lordship, can never flourish if the chiefs and aristocracy decline to patronise it. So long as they prefer to fill their palaces with flaming Brussels carpets, Tottenham Court Road furniture, cheap Italian mosaics, French oleographs, Austrian lustres, German tissues and cheap brocades, his Lordship feared there is not much hope. Unfortunately, the Indian chiefs and aristocracy could reply they were only imitating English practice, and were endeavouring to make their homes correspond with those in England. The outcome of a long course of South Kensington teaching is represented in that way. For the beautification of an Indian house or the furniture of an Indian home his Lordship considered there is no need to rush to European shops in Calcutta or Bombay, but in almost every Indian State or province, in most Indian towns and many Indian villages, there still survives art, there still exist artificers who can satisfy the artistic as well as the utilitarian tastes of their countrymen, and who are competent to keep alive this precious inheritance which we have derived from the past. If after so many years meddling with native art there is a survival of that kind, what must have been the state of India forty years ago, when the South Kensington missionaries attempted the conversion of artists and workmen to the Departmental creed? Lord CURZON's efforts are praiseworthy, but he must have the conviction that his efforts are too late.

WHY should public bodies be so often doubtful about the overtures of architects? That is one of the questions to which no satisfactory answer can be given, unless in the Shakespearean manner, "We could, an if we would—If we list to speak—there be an, if there might." On Tuesday an example of doubt without a base was afforded by the Steyning Guardians. They propose to erect hereafter infirmary buildings. Messrs. CLAYTON & BLACK, who have carried out much work, were asked to prepare a scheme. In reply it was stated by the architects that they assumed preparatory plans rather than complete working drawings were contemplated, but a complete workhouse infirmary with all modern requirements would have to be considered. Messrs. CLAYTON & BLACK also mentioned that the plans would be regarded as the necessary preliminary sketch

plans of the ultimate buildings, which they quite understood might be deferred for some considerable time, and any payment would consequently merge in the usual commission when the work at some future date should be carried out. The reply was fair in all its parts. Why should any architects be asked to prepare plans for an important work and be satisfied with having them treated as mere sketches? A discussion arose from which it was evident that the Guardians desired to possess and pay for the preparatory plans without incurring any liability to the architects. A resolution was proposed that the clerk be instructed to obtain the fees payable to the architects for submitting a scheme for the future buildings in connection with the workhouse, and that thereby the Board be not bound to any special scheme or firm. With all respect to the Guardians, we must say the proposal arises from a complete misunderstanding of an architect's rights. It is possible to obtain by competition a number of plans, and the Guardians can study them all without incurring the least responsibility to the authors. But when architects are requested to investigate the requirements of a particular case their plans are different from those which would be submitted in competition, and should be valued accordingly. Eventually it was decided to defer the consideration of the subject for a fortnight.

IN 1885 Professor NISSEN, of Bonn, concluded a series of investigations about the orientation of Christian churches, and especially those dedicated to martyrs in the early period of Christianity. He was satisfied that on the anniversary of the saint to whom the building was dedicated, either at sunrise or sunset, the beams were cast along the axis. Before Professor NISSEN's inquiries it was supposed the churches were only oriented in a general way, just as it is said a district lies north, south, east or west of another, without much regard to the actual bearing. More recently a connected subject has been discussed in Göttingen by Dr. CHARLIER. If we assume orientation to be arranged as exactly as Professor NISSEN maintains, is it possible from the angle formed by the axis with a fixed north line to arrive at the date of the building? At first sight that may seem as absurd as the old yarn about discovering the name of the captain of a ship when the length, breadth, height of main mast, tonnage, &c., are the data. But as it is possible for astronomers to calculate the positions of the heavenly bodies at certain times in past years, the question has at least some grounds to rest on. An experiment has been tried with the cathedral of Lund, in Sweden, which has been very little changed since the time of its erection in the twelfth century. It is dedicated to St. LAURENCE, the martyr, whose feast falls on August 10. It was found that the axis of the church was $24^{\circ} 3'$ north of the west point, and would thus run in a W.N.W.—E.S.E. direction. The altar would appear from that reckoning to have been set up 768 years before the time of calculation a couple of years ago, which would make the date of the foundation A.D. 1132. The ceremony, according to the record, was performed in A.D. 1143. Calculations were made with several other churches with results no less approximate. The correspondence in this respect between Christian churches and Egyptian temples is remarkable.



"EUROPE"—"AMERICA." BY SIR EDWARD J. POYNTER, P.R.A.

WORCESTER CATHEDRAL.

IN one of the little diaries which Dr. JOHNSON used to keep whenever he departed from his cherished London, we have an entry relating to a visit to the cathedral of Worcester. It is as follows:—"Thursday, Sept. 15, 1774.—We went to Worcester; a very splendid city. The cathedral is very noble, with many remarkable monuments. The library is in the chapter-house. On the table lay the *Nuremberg Chronicle*. I think of the first edition. The cathedral has a cloister. The long aisle is, in my opinion, neither so wide nor so high as that of Lichfield." The remarks are suggestive. JOHNSON, with his weak vision, was not well adapted to criticise architectural details, but he was possessed of sensibility, and the impression of nobility which he received from the cathedral was an acknowledgment of the merits of the building. Apparently it revived no associations in him. The fact is Worcester Cathedral was not the scene of historical or legendary incidents with which a scholar like JOHNSON would be acquainted.

The diocese is no doubt ancient. There is a list of bishops, without any break, from A.D. 680: in the most troubled times the chair was never long without an occupant. Among them were such ecclesiastics as St. DUNSTAN, St. WOLSTAN, St. OSWALD, JULIUS DE MEDICI, HUGH LATIMER, JOHN WHITGIFT, but their renown was derived from their actions in other places. The early OTTORS, EATHOREDS, KINEWOLDS, THEULPHS, MAUGERS, &c., may all have been distinguished men who ruled the diocese justly, and set examples to clerics and laymen of the Christian life. But Worcester was too remote to receive much attention from the Historic Muse, and the references to the buildings are too uncertain to be accepted with confidence.

Bishop TANNER of St. Asaph, who wrote in the beginning of the eighteenth century, gives the following account of the origin of the see:—"Upon the division of the once great kingdom of Mercia, an episcopal see, with a chapter of secular clerks, was placed here by King ETHELRED and Archbishop THEODORE, about the year 680, in a church dedicated to St. PETER, which came in the next century to be generally called St. Mary's. Upon the pretended reformation of these ecclesiastical societies, by the expulsion of the seculars, in the time and by the command of King EDGAR, Bishop OSWALD, before A.D. 964, founded a new cathedral in the old churchyard to the honour of the Blessed VIRGIN, and placed therein a prior and monks. Soon after the Conquest this convent from the number of twelve increased to fifteen of the Benedictine order, by the zeal and munificence of good Bishop WOLSTAN, who built for them a new and large monastery, A.D. 1082." There is a legend about a stone for the building which eight men were unable to move owing to a demon having selected it as a seat. He was exorcised by OSWALD, and the difficulty was at once ended. The legend has been relied on as evidence that in the tenth century masonry was employed in the construction of churches in preference to timber.

A few of the entries relating to the early buildings may here be summarised. In 1084, according to WILLIAM OF MALMESBURY, a new church was commenced to take the place of one which had been destroyed during a Danish invasion. That building succumbed to fire in 1113. In 1160 there was a reconstruction; the tower fell in 1175, but for this no cause is assigned, "*Turris nova Wigorniae corruit*." Five years afterwards there was another fire. In 1201 there is a similar entry, "*ecclesia Wigornensis est combusta*." The canonisation of Bishop WOLSTAN in 1203 must have attracted many devotees to Worcester. Among them was King JOHN, and he gave 100 marks towards the restoration. A few years later there was a revolt against JOHN, and the crown of England was offered to LOUIS, eldest son of the king of France. He departed from Calais with an army in 680 ships and boats. In the war which ensued Worcester sided with the French Prince. The Earl of CHESTER was, however, able to overcome the opposition and the city was sacked. The monks were fined and were compelled to melt the shrine of the saint in order to raise the money. It is remarkable that when JOHN died within the succeeding twelve months his body was buried according to his injunctions in the cathedral, near the shrine of St. WOLSTAN.

In 1218 the new cathedral was dedicated, the patrons being the Blessed VIRGIN, St. PETER, St. OSWALD and St. WOLSTAN. In 1220 the bells were blessed. Two towers were cast down by a storm two years later. An entry of 1224 is suggestive of new works undertaken by Bishop WILLIAM DE BLOIS, and a change from Norman to the style of the period:—"Inceptum est novum opus frontis Wigorn. Ecclesie Episcopo Willelmo jaciente fundamentum." Professor WILLIS concludes that the work was carried out "without disabling the Norman presbytery and the high altar; so that the services of the church continued in their original place, until the completion of this first portion of the work made it necessary to pull down the Norman presbytery, and erect the hollow soffit work in its room, by which the Early English structure was connected with the tower." The successor of WILLIAM DE BLOIS was WALTER DE CANTELUPE, who was related to THOMAS DE CANTELUPE, the Bishop of Hereford, one of the great English ecclesiastics. There is no record of operations by WALTER at Worcester. GODFREY GIFFART, who acted as bishop from 1268 to 1301, introduced metalwork, which has given rise to some discussion. He presented not only marble columns, but rings of brass or copper. "*G. GIFFART exornavit columnas orient. partis ecclesie columnellis marmoreis cum juncturis aereis deauratis*." The purpose of the rings is not stated, and WILLIS arrived at the opinion that they were intended to conceal the clumsy joining of the shafts, or it may be to strengthen the columns where slight fractures had occurred. NICHOLAS of Ely, the predecessor of GIFFART, who had been translated to Winchester, bequeathed in 1280 60 marks towards the rebuilding of the tower, an indication of a renewed necessity for expenditure on that part of the building. Bishop COBHAM, who ruled the diocese between 1317 and 1327, is credited with the north aisle,

and Bishop WAKEFIELD, who died in 1394, with alterations at the west end of the building, including the window, the cloister, vaulting of choir and the stalls. It is not improbable that he may also have completed the tower.

It cannot be said that many changes were made in the building at the time of the Reformation. The history of that period is, however, as obscure as that of the earlier time. Prince ARTHUR TUDOR, who was married in his fifteenth year to KATHERINE of Spain, died at Ludlow Castle in 1502, and was buried with great pomp in the cathedral. A chantry chapel has been erected, and forms one of the most interesting features in the building. HENRY VIII. may have been kindly disposed towards the cathedral containing the remains of his elder brother. HUGH LATIMER, as chaplain to ANNE BOLEYN, was able to obtain the bishopric, but he resigned the office after four years. He is stated to have had the shrines of St. OSWALD and St. WOLSTAN destroyed; whether other parts of the building suffered cannot now be determined.

In 1642 the Parliamentary army held possession of Worcester, and much damage was inflicted on the cathedral. Four years subsequently there was a siege of the city; it was captured and over 6,000 prisoners were confined in the cathedral. After the Restoration the building was visited by JOHN EVELYN, who tells us how he found "the cathedral much ruined by the late wars, otherwise a noble structure." The impression on him corresponded with that on JOHNSON 120 years afterwards. In the early part of the eighteenth century many repairs were rendered necessary, and the work was continued from time to time. But it was not until 1857 that a systematic restoration was commenced by Mr. A. E. PERKINS, one of RICKMAN'S pupils, and it was completed under the direction of Sir GILBERT SCOTT in 1874.

It is a peculiarity of Worcester Cathedral that in its indications of inventive power are to be traced. It is pointed out by PARKER as a remarkable fact that in the crypt "no settled form of base seems to have been agreed upon, though the capitals are all alike. In this crypt of Worcester there are six different forms of bases." Mr. E. S. PRIOR explains the position which Worcester holds in the development of Gothic. In describing profiles of the pier arches, he says:—"At Worcester effect is obtained by a deep-cut cavetto and delicately contoured rollwork, with an accent of sharp arris and modelled surfacing—what was quickly elaborated in the mason's craft of the Cistercian Dore and Strata Florida, and had a still greater reduplication of bead and hollow in the cathedral naves of Wells and Dublin; as, too, in the parish church of St. Mary's, Shrewsbury, and the Cistercian nave of Cwm-hir." In another part Worcester is compared with Lincoln in the following manner:—

From Worcester west bays to Lincoln quire was a space of thirty-five years. In the former Gothic art is to be seen blocked out, in the latter finished and polished. Worcester had: first, complete subordination of wall structure to the vault, with a use therein of the Pointed arch; secondly, the emphasis of this subordination by a lightening and refinement of the structural detail. Its monoliths and the distinctions of coloured material foreshadow the uses of Purbeck; its triforium is a study for the double arcadings which played so large a part in the thirteenth-century style, and, finally, it has carvings and mould sections, rough, indeed, but still showing the path of Gothic sculpture. At Lincoln all are carried to extreme refinement, and the scheme is consistent throughout. The round abacus crowns every pillar, and every arch is now Pointed, in window, door-head and wall arcade, as in the constructional service of vault and arching.

It may also be recalled how FERGUSON explains the experiment at Worcester of a chapter-house consisting of a circular chamber with a central pillar. He adds, "and the design was so much approved of that it became the typical form of the English chapter-house ever afterwards."

Worcester Cathedral has not been fortunate enough to find an enthusiast who was competent to claim due recognition for it. The result has been that it is usually treated with more or less reserve, as if there were defects in it which did not allow of a comparison between it and other cathedrals. The illustrations which we are about to publish will, we hope, have the effect of modifying if not changing popular opinion on the subject. If considered

in its connection with the history of Gothic architecture, Worcester Cathedral becomes a most remarkable work, for in it we see the aspiring efforts which should always be regarded as the chief glory of the Gothic architects.

ARCHITECTURE IN 1902.

THE great events of the past year in the national history have not proved, as was fondly hoped by many members of the architectural profession, to be the portals immediately leading to that period of renewed activity which, sooner or later, will no doubt succeed to the depression under which we are still suffering.

PEACE

has been proclaimed and the Coronation, though delayed by the sudden and alarming illness of our SOVEREIGN, has come and gone. The results of the costly and, it must be confessed, extravagantly conducted war in South Africa have not yet passed away. The fruits of our dearly-bought victory have not yet matured. The millions that have been expended in the struggle have scarcely commenced to return by the resumption of commercial and industrial activity.

CAPITAL AND LABOUR

are not at the present time so proportioned that speculation in bricks and mortar is sufficiently tempting to justify the expectation of another boom in building for some time to come. Capital has been hard hit, labour has not up till now completely accommodated itself to the altered aspect of the national economic position. With Consols below 93 and brickwork at 17½ or 18½ per rod, it is hopeless to look for a renewal of the flourishing conditions that architecture enjoyed in the halcyon times "before the war." The high wages and diminished output that were labour's share of national prosperity, the increase of luxury, leisure and laziness that marked the whole national life when times were good must give way before our present circumstances can improve. Let us hope for the sake of us all that labour will accept the inevitable without involving the waste of the national power by internecine struggle in strikes, such as is now threatened in South Wales.

The most striking event of the past year in English architecture has been the selection of the architects chosen to compete for the

LIVERPOOL CATHEDRAL,

a selection that has, by the departure of the assessors from the spirit of the promoters' invitation, excluded many of the most capable church architects of the present day. The selected competitors were Messrs. AUSTIN & PALEY, Mr. C. A. NICHOLSON, Mr. G. GILBERT SCOTT, Mr. MALCOLM STARK and Mr. W. J. TAPPER; whilst honourable mention was accorded to Sir THOMAS DREW, Mr. J. OLDRID SCOTT, Mr. A. H. SKIPWORTH, Mr. H. C. CORLETTE, Mr. C. A. NICHOLSON, Mr. F. WALLEY, Mr. JAMES H. COOK, and Messrs. REILLY & PEACH. Whether the selected competitors can truly be termed fortunate the future alone can show us, but in the light of the experience of the past and of the present evidence of local hostility to the selected site and apathy to the subscription list, the outlook is dark for those who are devoting their energies to the production of their designs for the proposed cathedral.

Apart from that for the Liverpool Cathedral the past year has not been very remarkable for the competitions that have been decided. That for

NEW BATHS AND LIBRARY, LEEDS,

resulted in the premiation of Mr. H. AYSCOUGH CHAPMAN first, Mr. WILLIAM BAKEWELL second, Mr. PERCY ROBINSON third. For the

NEW OFFICES FOR HEARTS OF OAK BENEFIT SOCIETY, Messrs. ESSEX, NICOL & GOODMAN were first, Messrs. MEABY & WEBBE second, and Messrs. LANCHESTER, STEWART & RICKARDS third. In a competition limited to local architects for

CEMETERY BUILDINGS, WITHINGTON, MANCHESTER, the premiated designs were those of Mr. ERNEST WOODHOUSE first and second, Messrs. ALFRED H. MILLS & ROGER OLDHAM third. For the

QUEEN VICTORIA MEMORIAL, LIVERPOOL, the premiums were awarded to Mr. R. LINDSAY CLARKE first, Messrs. ALLEN, SIMPSON, WILLINK & THICKNESSE second, Mr. H. C. FAHR third, but the second premiated design was subsequently adopted. For

BATHS AT BRAMLEY, LEEDS, the successful competitors were Mr. J. LANE FOX first, Mr. WILLIAM BAKEWELL second, Messrs. DIXON & HILL third. For

NEW ART SCHOOL, HULL, Messrs. LANCHESTER, STEWART & RICKARDS were placed first, Messrs. SPENCER W. GRANT & JAMES BOWDEN second, Mr. FRANCIS J. SMITH third. For the

QUEEN VICTORIA MEMORIAL, NEWPORT, ISLE OF WIGHT, Mr. PERCY G. STONE was first, Mr. ISAAC JONES second, the Hon. ARCHIBALD MCGAREL HOGG third. The competition for

CHELSEA BATHS was the cause of much heart-burning and animadversion, due to the variance of opinion as to the precise order of merit entertained by the assessor, Mr. NORMAN SHAW, and the baths committee, who placed the design of Messrs. HARNOR & PINCHES first, that of Messrs. WILLS & ANDERSON second, and that of Mr. F. J. SMITH third.

This competition and the feeling it excited led to the formation of the

COMPETITION REFORM SOCIETY by a number of our younger architects who are most keenly interested in competitions, and who have been actively engaged by remonstrance with promoters, followed where considered necessary by abstention, in the endeavour to bring about more satisfactory terms in open competitions. The second competition for

SOUTH SHIELDS MUNICIPAL BUILDINGS resulted again in the victory of Mr. ERNEST E. FETCH, whose design was placed first by the assessor, Mr. BELCHER. The

ROYAL NORFOLK AND SUFFOLK YACHT CLUB-HOUSE, LOWESTOFT, was won in open competition by Messrs. G. & F. SKIPPER, with Mr. H. W. COLMAN second, and Messrs. BISSHOPP & CAUTLEY third. In a limited competition for

PUBLIC LIBRARY AT KINGSTON-ON-THAMES the design of Mr. ALFRED COX was placed first by the assessor, Mr. BASIL CHAMPNEYS. For the

WOLVERHAMPTON WOMEN'S HOSPITAL the first premium was awarded to Mr. A. EATON PAINTER, the second to Mr. G. H. STANGER, and the third to Mr. F. H. LYNES by the assessor, Mr. T. W. ALDWINCKLE. The competition for

BURSLEM ISOLATION HOSPITAL resulted in Messrs. SUTCLIFFE & SUTCLIFFE being placed first, Mr. E. C. H. MAIDMAN second, Mr. W. H. WALLEY third, and Mr. R. T. LANGDON fourth. For

INFIRMARY AT LEIGH, LANCASHIRE, Mr. J. C. PRESTWICH was placed first, Mr. HARRY W. PYE and Mr. ROGER F. BACON second, Mr. T. A. BUTTERY and Mr. S. B. BIRDS third. The competition for

HARROGATE TOWN HALL was won by Mr. H. T. HARE, with Messrs. WADDINGTON, SONS & DUNKERLEY second, and Messrs. HEAZELL & SON third. In the competition confined to local architects for

NORFOLK MARKET HALL, SHEFFIELD, Messrs. HOLMES & WATSON were first, Mr. H. J. POTTER second, and Mr. JOSEPH SMITH third. The successful competitor for

NURSES' HOME, NORTH STAFFORDSHIRE INFIRMARY, STOKE-ON-TRENT, was Mr. R. STEPHEN AYLING, amongst 38 competitors. The recent movement in favour of open-air treatment for consumptive patients led to the competition for

THE KING'S SANATORIUM, in which essays by medical men were conjoined with designs by architects, and on the advice of an advisory committee consisting of Sir WILLIAM BROADBENT, Sir R. DOUGLAS POWELL, Sir FELIX SEMON, Sir HERMAN WEBER and Dr. THEODORE WILLIAMS, the first premium was awarded to Dr. ARTHUR LATHAM and Mr. WILLIAM WEST, the second to Dr. F. J. WETHERED and Messrs. LAW & ALLEN, and the third to Dr. E. C. MORLAND and Mr. G. MORLAND; whilst honourable mention was accorded to Dr. P. S. HICHENS and Mr. R. WEIR SCHULTZ, Dr. TURBAN and Herr J. GROS, Dr. JANE WALKER and Messrs. SMITH & BREWER, Dr. J. P. WILLS and Mr. WILLS. In a limited competition for the

CARNEGIE LIBRARY, COATBRIDGE, the plans of Mr. ALEXANDER CULLEN were adopted, and premiums were awarded to Mr. A. N. PATERSON, Messrs. GEORGE ARTHUR & SONS, and Mr. ALEXANDER MACGIBBON. For the

CREWE MUNICIPAL BUILDINGS Mr. H. T. HARE was successful, and the second premium was divided between Mr. ALBERT DIXON, Messrs. BANISTER FLETCHER & SONS, and Messrs. RODNEY & DENNING. In the competition for

POLICE BUILDINGS AND FIRE STATION, SUNDERLAND, the award was Messrs. W. & T. R. MILBURN with Messrs. WILLS & ANDERSON first, Messrs. STONES & STONES with Mr. W. EDWARDES SPROATES second, Mr. ALFRED E. CORBETT third. For the

ASYLUM AT LANGHO, the designs of Messrs. GILES, GOUGH & TROLLOPE were placed first, those of Mr. E. P. HOWARD and Mr. E. R. DOLBY second, and those of Mr. J. SMITH, Mr. F. J. PARKINSON and Mr. W. STIRRUP third. The competition for

CENTRAL LIBRARY, BRISTOL, was won by Mr. H. PERCY ADAMS, the second and third premiums being given respectively to Messrs. NOTT & COLLINS and Mr. A. T. BUTLER. For

WORKMEN'S DWELLINGS IN LIVERPOOL 45 sets of designs were submitted, and on the recommendation of the assessor, Mr. THOMAS BLASHILL, the first premium was awarded to Mr. JAMES DOD, the second to Messrs. BROCKLESBY, MARCHMONT & EAST, and the third to Mr. A. MITCHELL TORRANCE. For

MUNICIPAL BUILDINGS AND LIBRARY, BARRY, the successful competitors were, first, Messrs. E. E. HUTCHINSON & E. HARDING PAYNE; second, Mr. WILLIAM H. ASHFORD; third, Mr. GEORGE DRECHIN LEWIS. The adjudication of Mr. JOHN SLATER in the competition for

WORKING CLASS HOUSES, BERMONDSEY, places first the designs of Messrs. BROCKLESBY, MARCHMONT & EAST; second, those of Messrs. HUMPHRY, DAVIS & CO.; third, those of Messrs. SILLS & LEEDS. Two of the selected competitors for the Liverpool Cathedral have come again to the fore in the competition for a new

CHURCH, CLERGY HOUSE AND HALL, Mr. W. J. TAPPER being successful, and honourable mention being made by the assessor, Mr. G. F. BODLEY, R.A., of the designs by Messrs. LUCAS & STRATTON, and of those by Mr. C. A. NICHOLSON. The competition for

MUNICIPAL BUILDINGS, PUBLIC BATHS AND LIBRARY, TOTTENHAM, elicited but a small response, nine sets of designs only having been submitted, from which were selected those of Messrs. A. S. TAYLER & A. R. JEMMETT first, Messrs. LANCHESTER, STEWART & RICKARDS second, and Messrs. CROUCH & BUTLER third.

Some important architectural works have REACHED COMPLETION in the past year. The new Opera House at York, from the designs of Mr. J. P. BRIGGS, was opened early in the year.

The new school at Horsham for Christ's Hospital, erected from the designs of Messrs. ASTON WEBB & INGRESS BELL, has been completed and occupied. The Town Hall at Colchester, by Mr. JOHN BELCHER, was opened in May. The National Physical Laboratory at Teddington, contrived out of the old Royal residence, Bushey House, has been formally opened by the Prince of WALES. A new Industrial School at Portslade for the London and Brighton School Boards has been completed. The restoration of the west front of Peterborough Cathedral has been brought to a successful termination. The new Technical School at Southend, from the designs of Mr. H. T. HARE, has been opened; and though perhaps scarcely appertaining strictly to architecture, save in its widest sense, the great walls for the regulation of the River Nile, the dams at Assiout and Assouan, have given to the world another completed monument to British energy and technical skill.

Of notable buildings actually

COMMENCED IN THE PAST YEAR

may be mentioned the Baptist Church House, Southampton Row, Holborn, from the designs of Mr. ARTHUR KEEN; a new hospital at Longridge, at a cost of over 100,000*l.*, for the Metropolitan Asylums Board; the Birmingham University, from the designs of Messrs. ASTON WEBB & INGRESS BELL; a new asylum for York, to accommodate 362 patients; the superstructure of the Royal College of Science, South Kensington, for which the lowest tender was 175,540*l.*; the Walsall Municipal buildings, from the successful competition designs of Mr. J. G. S. GIBSON; the Royal Naval College, Dartmouth, from the designs of Messrs. ASTON WEBB & INGRESS BELL; the Mount Vernon Hospital, Northwood, for the open-air treatment of 100 consumptive patients; Newport Borough Lunatic Asylum; and the new Criminal Courts in the Old Bailey, designed by Mr. E. W. MOUNTFORD.

Amongst important

WORKS IN PROGRESS

may be mentioned the extension of the new Admiralty offices; the new Government offices in Whitehall and Parliament Street; the Cardiff Town Hall; and several large speculative buildings, such as those around Finsbury Square, London, whose inception dates back to more prosperous times than the present.

A noteworthy calamity of the past year has been the

COLLAPSE OF THE CAMPANILE OF ST. MARK'S, VENICE, on July 14. A loss to Venice, to Italy, to architecture, to history, the Campanile may be rebuilt, but can never be restored. Originally not too well erected, either as regards foundation or superstructure, repeatedly struck by lightning and shaken by earthquakes, the ultimate cause of the disaster would seem to be the cutting of a chaise 35 centimetres deep across the east side for the purpose of inserting a flashing to cover the abutting roof of the Loggia, which has shared in the destruction—an instance of the evils of divided authority, of recklessness and happy-go-lucky treatment of a structure whose very survival of severe trials had apparently led to an unwise confidence in its impregnability. In our own country, the

COLLAPSE OF STAND, IEROX PARK, GLASGOW, afforded an object lesson as to the exceedingly severe stresses brought to bear on structures when a crowd is assembled and begins to sway. The lesson thus learnt was not forgotten when the stands were erected for the expected spectators of the KING'S Coronation procession, and though these, by reason of the unfortunate postponement, were less than was anticipated, the absence of disaster reflects credit on the authorities whose duty it was to see that the safety of the public was adequately safeguarded. The stresses set up in mills, factories, and workshops by the extraordinary risks caused by heavily loaded floors, and the vibration and impact of machinery in motion, received a calamitous illustration in the

FALL OF A MILL AT BELFAST,

occupied by the Smithfield Flax-Spinning and Weaving Company, emphasising the necessity not only of an ample margin of strength in the original construction, but of con-

tinuous watching and periodical inspection of such buildings. In the erection of buildings accidents are all too common, and the

MEMORANDUM OF THE HOME OFFICE AS TO ACCIDENTS ON BUILDINGS

is a document containing sound advice on detailed arrangements in the conduct of building works, which should be religiously studied and followed by all concerned, whether as contractors, workmen or architects. The

GREAT FIRE IN BARBICAN

and the even more lamentable

DISASTER IN QUEEN VICTORIA STREET, LONDON, have taught us the lesson, obvious to all fair-minded men, that neither our legislation nor our Fire Brigade administration are entirely satisfactory for the purpose of preventing undue and avoidable risk to property and to life in the Metropolis. The

ASSOCIATED FIRE OFFICES' REGULATIONS

for buildings intended to be fire-resisting contain much that is good, though it may be objected that the counsels are rather those of perfection than of commercial practicability. The loss entailed on all owners and occupiers of factories and warehouses is, however, so far beyond the mere destruction of property by fire, which is ordinarily fairly covered by insurance, that almost any expenditure of capital is wise which will obviate the ruinous loss of business during the work of reinstatement. The

HOUSING OF THE WORKING CLASSES

has continued to exercise the activity of local authorities. Some schemes have, as above noted, formed the subject of competitions, but these are scarcely indicative of the extent of the energy which is being shown throughout the country by municipalities, borough and district councils, following the lead of the London County Council, the Corporation of Glasgow, and other great bodies.

EDUCATION,

both general and special, has made several steps forward, which may be trusted to affect in the future architecture, in common with all other branches of the national life. As we have already noted, Birmingham is building an university, whilst London University has assumed the rôle of a teaching body. Liverpool has advanced towards the establishment of its university. The British Academy for the Promotion of Historical, Philosophical and Philological Studies has been incorporated, whilst, lastly, the Education Bill of the Government has reached its final stage. The bequest of Mr. CECIL RHODES, though important, will perhaps scarcely affect architecture directly. The publication of the tenth edition of the "Encyclopædia Britannica" has certainly a bearing on architecture from the value of the articles on artistic matters, which reflect the latest phase of modern thought and activity.

THE GREAT PROBLEM OF INTERCOMMUNICATION

in our congested Metropolis has somewhat, but not greatly, advanced towards solution in the past year. The new Thames Tunnel has been opened. London Bridge is in progress of being widened. Vauxhall Bridge is going on slowly, having been the subject of an engineering *faux pas* by the formation of a mistaken opinion as to the capabilities of the subsoil. The Great Northern and Strand "Tube" Railway has been commenced. On the other hand the widening of Piccadilly has for the moment been shelved, and the construction of much-needed lines in London has been postponed by the contesting tactics of financiers. The possibilities of shallow tunnels have formed the subject of a report by Lieut.-Colonel A. H. YORKE at the instance of the Board of Trade on the Chemin de Fer Métropolitain de Paris. The scheme of Sir JOHN WOLFE BARRY for a bridge across the Strand has excited considerable attention and may some day become an actuality.

THE SANITARY CONGRESS

was held at Manchester, where many useful and interesting papers were read, and a notable resolution adopted as to the value of "Garden Cities" as a solution of the housing problem and the congestion in crowded centres. The

exhibition, in conjunction with the congress, was held at St. James's Hall, Manchester, and was of more than usual interest.

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

met during the past year at Belfast, and afforded an opportunity for the study of many remarkable works of modern architects in the Ulster capital.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS has steadily progressed without sensational incidents during the past year, and is now so financially strong that, with a capital of 11,500*l.*, and a balance of revenue over expenditure of more than 1,000*l.* a year, the question of more suitable housing is within the range of practical consideration.

THE SOCIETY OF ARCHITECTS

is still working away at the great subject of the registration of qualified architects, which, under the energetic guidance of its present president, Mr. SYLVANUS TREVAIL, it may possibly attain in the near future, more especially as it has taken the wise step of forming a committee, not limited to its own members, for pushing the matter forward. A Registration Bill for architects, promoted solely by the Society, might be expected to become law on the Greek kalends; but, backed by all those practitioners who are to-day in favour of the principle, it might take an early place amongst the statutes of the present reign.

THE ARCHITECTURAL ASSOCIATION

has successfully established its day classes, but has thrown overboard the grandiose scheme of its late president, Mr. SETH-SMITH, for new premises, and has accepted—what it might have had during the presidency of Mr. LEONARD STOKES—the gift of the Royal Architectural Museum and its white elephant, the magnificent collection of casts which the enthusiasm of the great men of the Gothic Revival brought together. All honour is due to Mr. MAURICE B. ADAMS for having seized the psychological moment to offer to the best possible custodian the valuable collection, and to solve at one stroke the problem which has vexed the souls of many successive committees of the Architectural Association by providing for it a home that should meet its needs for many a year to come.

The past year has seen in the tactfulness of our present KING the recognition of many phases of national life, and amongst them architecture has not been omitted, for in the persons of

SIR WILLIAM EMERSON and SIR CASPAR PURDON CLARKE, two architects and Fellows of the Royal Institute at the heads of their respective spheres of activity, suitable honour has been granted. Architecture has also been honoured by the election of

MR. GEORGE FREDERICK BODLEY
as a Royal Academician, and the bestowal upon

MR. THOMAS E. COLLCUTT
of the Royal Gold Medal.

Death has visited somewhat lightly the ranks of prominent architects during the past year, the most notable losses being Mr. JOHN FRANCIS BENTLEY, Mr. DAVID MACGIBBON, Mr. GOYMOUR CUTHBERT, Mr. THOMAS OLIVER, Mr. CHARLES EDWARD DAVIS, Mr. GEORGE HARRY POWNALL and Mr. JOHN HUNGERFORD POLLEN.

PROFESSOR BLACKIE AND ARCHITECTURE.

PROPOS of the title, it may be said at once that architecture to the author of "Self-Culture" was one of many topics handled by him at intervals with characteristic assurance. Usually he brought freshness and originality with him, and in this case his tastes entitled him to speak. He had a European knowledge of buildings. As a tourist, *hic et ubique* seems to have been his motto, and at fourscore he had not seen his last of the Continent with its architectural treasures. After viewing them with a travelling student's enthusiasm, he decided, and few will object, that no style is wrong or right in itself, but that

circumstances alter cases. His ideas were freely given forth whether as lecturer or author. There is the eloquent, Platonic book "On Beauty," written, he says, with his head full of pictures, statues, churches and other beautiful objects. It is a sort of pot-pourri of æsthetics. He brings the principles of congruity, variety, perfection, the sublime to bear on many matters from architecture to women's dress. Among much to which the architect will say, *Cui bono?* we find a rather happy table of architectural "harmonies." Architecture has come far since the day when it was needful to put forth some of the following dogmas. In the first place a building, while agreeing in its own parts, should harmonise with the site. A building set on a hill, *e.g.* the Calton Hill in Edinburgh, must not resemble a Manchester factory, a Prussian barracks, the palace of OTHO, king of Greece, at Athens, nor, be it said, the Calton Gaol. Secondly, a building should be in harmony with its purpose. The aspect of school grounds and architecture should be that of healthy boyhood—free, open and cheerful. Thirdly, a building must suit with climate and national character and habits. British Doric should not be polychromatic like its Greek original. Lastly, the occupant's taste should be studied, as in fact it is by a growing class of adepts.

"On Beauty," too, adduces the practical dicta of one versed in the best architecture shown by France, Germany, Italy and Greece. Its statements are occasionally more curious than convincing, *e.g.* granite is said to be always an element of the sublime. He objects that little has been done in this country to bring out the æsthetic character of brickwork, surely a hasty opinion in view of Hampton Court and WREN, that master in the medium, or the granges and cottages of Southern England. Whose taste can we trust on learning from BLACKIE that Abbotsford, "pepper-boxes" and all, was a fitting abode for Sir WALTER, the apostle of Mediævalism? Apropos of Edinburgh; he thinks that streets may be too wide, though, by the way, Princes Street, not the least fine thoroughfare in Europe, is one-sided. He is very short with shop architecture, particularly with the putting in of beams whereby old fronts give way to plate-glass. RUSKIN upbraided Classic builders for elaborating the top of their structures into cornices, &c., whereas the church artists kept the finish at eye-level. BLACKIE is not less severe on those who convert ground floors into shops thick with meretricious ornament, while the upper storeys retain their simplicity.

After all, he owns, it is not so easy to erect a perfect building. It may console some to hear that an architect who must economise on his plans is not likely to fall into gross sins of taste. But taste is all when the ambitious client gives *carte blanche*. Somewhat on the lines of HOGARTH'S view, "The False Perspective," BLACKIE gives his caricature of bad taste. A medley of styles meet in the same mansion. The windows are severally Doric, Tuscan, Ionic, Corinthian, Byzantine, Gothic. There are plain, fluted, twisted pillars; elliptical, circular and horseshoe arches; mullions, Moorish tracery. The front is topped by a pediment in one part, by eaves or balustrading in another. Lecturing once, the Professor said that buildings and women obey one law. A woman to dress well must know three things—her age, her stature and her points. As to stature, a small woman can only be pretty. An up-to-date cut and carved villa cannot vie for architectural effect with mere bulk such as Stonehenge. Size is fundamentally noble and essential in the highest forms of architecture. It is told, not very consistently with this, perhaps, that from the top of the Khufu Pyramid the Professor conceived a great contempt for its arithmetical sublimity.

Widely as BLACKIE'S taste ranged, he had a strong bent to Greek and Classic style. Now an amateur may favour Greek and Gothic indifferently because he is an amateur, but BLACKIE because of that self-styled "Grecian equipose" which resulted from his studies in the true Greek spirit. The late eighteenth-century archæologists, not to mention CHAMBERS and other practitioners, took a somewhat narrow view of style from their study of Greek monuments, which BLACKIE interpreted in a more liberal way. The Edinburgh Professor of Greek was so little a formalist that Greek syntax was said to be the only thing unlearned in his class. There the Attic tongue was less insisted upon than the

Attic genius. The relics of ancient art did not obsess him any more than say PLATO, who never cites the native temples during his inquiry on beauty. That the Greeks' legacy is adaptability, not a mode of building, is a point which needs no labouring; it is the moral of their philosophy. It was in his just sense of this that BLACKIE, admitting no hard and fast rule of style, came down upon what he considered RUSKIN's Gothic intolerance.

RUSKIN went to Edinburgh and lectured, eliciting a reply from BLACKIE on behalf of his beloved Greeks and their art. Possibly in his zeal the latter depreciated Gothic more than might otherwise have been, for he did not share the Classic GOETHE's radical dislike of that art. RUSKIN told his audience that their civic architecture went on a wrong principle. To quote BLACKIE:—"He came, like St. PAUL, to tell them that they were all given to superstition, and to say to the modern Athenians, 'I perceive that you are all particularly pleased with your beautiful city, and altogether besotted in that goodly style of architecture which we call Greek.'" RUSKIN, we know, was prepared to raze all that part of the city—the New Town—which had risen under the Greek taste of various architects. He could have joined HUGH MILLER in naming Edinburgh as one of the few great cities that would be lovely country were the buildings away. Given such a site, to find the appropriate architecture was the problem of his lectures. The actual state of things offended both taste and utility. One type of window was repeated no less than 678 times, as he found, in a single street, an abuse of Classic unity. The pillared porticoes, which lent a certain variety, were not even weatherproof. Let the next house built have a walled Gothic porch, he said, and see how the workman's fancy and skill will be elicited. As Sir R. ROWAND ANDERSON has lately repeated, inspiration must percolate downward from the artist to the craftsman. The cold taste of Edinburgh public buildings was equally reprehended, and their sculpture found wanting in the zest and fidelity of Gothic. Even from a constructive point of view, the Greek lintel was more weakly barbarous than any other system that could be named. They had the true, the Gothic models in their midst, he said, pointing to Trinity Church, since demolished. In short, the features proper to the site were those of Italian Gothic—towers, turrets, spires and belfries.

In a subsequent lecture BLACKIE probed these anti-Classic prejudices, which were due, he thought, to the prevailing rage for Mediævalism:—

Mediævalism is the grand Utopia, the cloud-cuckoo land as the Greeks called it, where we have been taught to seek for human perfection by Novalis, Frederick Schlegel, Carlyle and Ruskin, and because Gothic architecture was a glory at that period nothing else was to be tolerated now. I tell you that this talk about the Middle Ages is all pure nonsense. Who are the heroes of these times? Club law, iron fists, Jeddart justice, bleeding Waldenses, Willie Armstrong, Meg Merrilies and Rob Roy Macgregor. As to Catholic art, the Renaissance was a very sane interruption of its course though itself both pagan and profane, and as for looking on the pictures of Titian with a squeamish eye, I look on them as a very great relief after these long galleries of monks, these white-eyed, grim-faced, stupid-looking monks praying on their knees to pictures more stupid than themselves. . . . Why does Protestantism not produce as much art as the Greek religion? Because Ruskin is wrong in supposing any necessary connection between faith as faith and art as art. The more intensely faith burns the more it excludes art. Don't we all know that such a faith burned with the most gloomy and terrible earnestness on these very brown hills which we can see from our streets? The old Jew and the modern Covenanter are not artistic races. They require to get art from abroad.

RUSKIN did not strike BLACKIE as a philosopher, a historian, a logician, but as an artistic apostle and missionary. To the man who was not religious he would be apt to appear puerile. This character was the reason of his animus against the Classics and their work. HORACE, CICERO, TACITUS and LUCRETIVUS were certainly not remarkable for fervour in their country's faith. The most talented Greeks in the time of PHIDIAS were tried for atheism or irreligion. We may object to BLACKIE that for RUSKIN piety had no constructive effect upon any fabric from cathedrals downward. It operates more naturally in

detail upon ornament that is largely symbol and image. Faith must be referred from the master-builder as it were to the handiworker. He carefully adds that ornament is precisely the feature of architecture. Strip the Parthenon of colonnades, metopes and tympana, you leave a featureless face—a white box. Ornament being so important, it seems, *pace* RUSKIN, as if Grecian were not less piously meant than Gothic after all. The ox-head and patera of the entablatures repeated in so many Christian fanes were sacrificial emblems. The sculpture in the pediments conveyed parables. The eastern pediment of the Parthenon set forth the birth of Wisdom, or ATHENE. Nymphs carried the tidings, and the chariot of HELIOS, the Sun, rose over the world to proclaim it, while that of Night or ignorance descended. ATHENE strove with NEPTUNE in the western pediment which should make the worthier offering to mankind. The scandalous fables of the poets were everywhere absent, and the gods were seen obtaining homage as gods ought to do. Gothic shows, as fairly typical of western symbol, the gargoyles of Notre-Dame. So BLACKIE says that, while the Greek theology was crude and puerile, their paintings, their sculptures, even the trivial garniture of daily life were more religious than ours. If they had less morality in their temples, they had more devotion in their pictured porticoes and statued streets:—

Their religion, like all polytheism, being merely a pictorial personation of the most striking powers of nature and of the human soul, and created altogether by the devout working of imagination, could never come into hostility to any purely imaginative art; but did rather, by its very nature, constantly invite and stimulate the exercise of that devout plastic faculty, which the one-eyed sternness of certain forms of monotheism pitilessly denounces. . . . Though Christianity does in no wise expressly forbid the practice of the fine arts, it confines its soul-stirring appeals so exclusively to the conscience, and plants everything human and sensuous at such an infinite distance from what is divine, that we need not be at all surprised when we stumble on the plain historical fact, that the most intimate union of the religion of Christ with the arts of representation took place in an age and in a country where the native tendencies of the Christian faith were neutralised by a strong admixture of the outward pomp and ceremonial of heathenism.*

This has been said elsewhere, but perhaps never better. An eclectic and a modern, BLACKIE thought the RUSKIN cult of critics very unfortunate in point of their nativity as born some centuries too late. The open mind in criticism is even more a want to-day when architects can pass readily from style to style, so much so sometimes that one has seen a Gothic design become Free Classic at the expense of a little "faking" and tracing paper when it was thought proper to send in alternatives. As BLACKIE puts it enthusiastically, in a passage which it is a pleasure to revive:—

Why should the world of art be more monotonous than the world of nature? Classicalism, Mediævalism, Modernism, let us have and hold them all in one wide and lusty embrace. Were all the flowers made of one pattern to please the devotees of the rose or the lily, and all the hills with the green folds of their queenly mantles of one slope to suit the anglo-meter of that most mathematical decorator, Mr. D. R. Hay? I trow not. Let us go and do likewise. For our pictures and our poems, and our statues and our buildings, our true excellence consists not in excluding anything, but in including as much as may be of that various and exhaustless wealth of form, colour and expression in which the beautiful world has been created.

THE SCREENS IN NANCY.

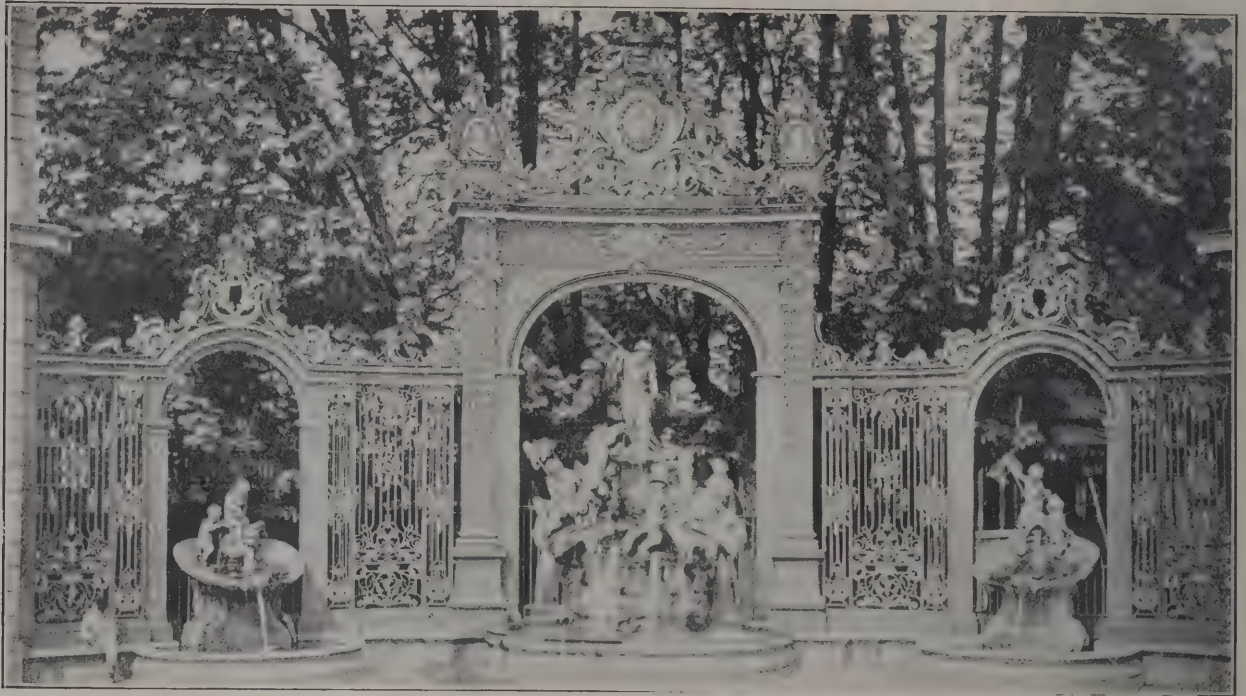
AT the present day in England there is a good deal of talk about the rearrangement of streets and the formation of open spaces where two or more join. In most cases the difficulty arose out of the rapacity of land-owners. For a great many years in England they have had but one desire, and that was to use every square foot of ground for building sites. Now, when an improvement is desirable, it has generally to be obtained by a costly price to the culprits who began the wrong by laying out streets regardless of the future or of any interests but their own.

For any projector who cares to study the problem there

* *On Beauty.*

is no better object-lesson than is to be found in the streets of Nancy. It is now one of the advance guards of the French defence. There are soldiers everywhere, immense quarters to contain them, and vast open spaces for their manoeuvres. Nancy is one of the few places in France

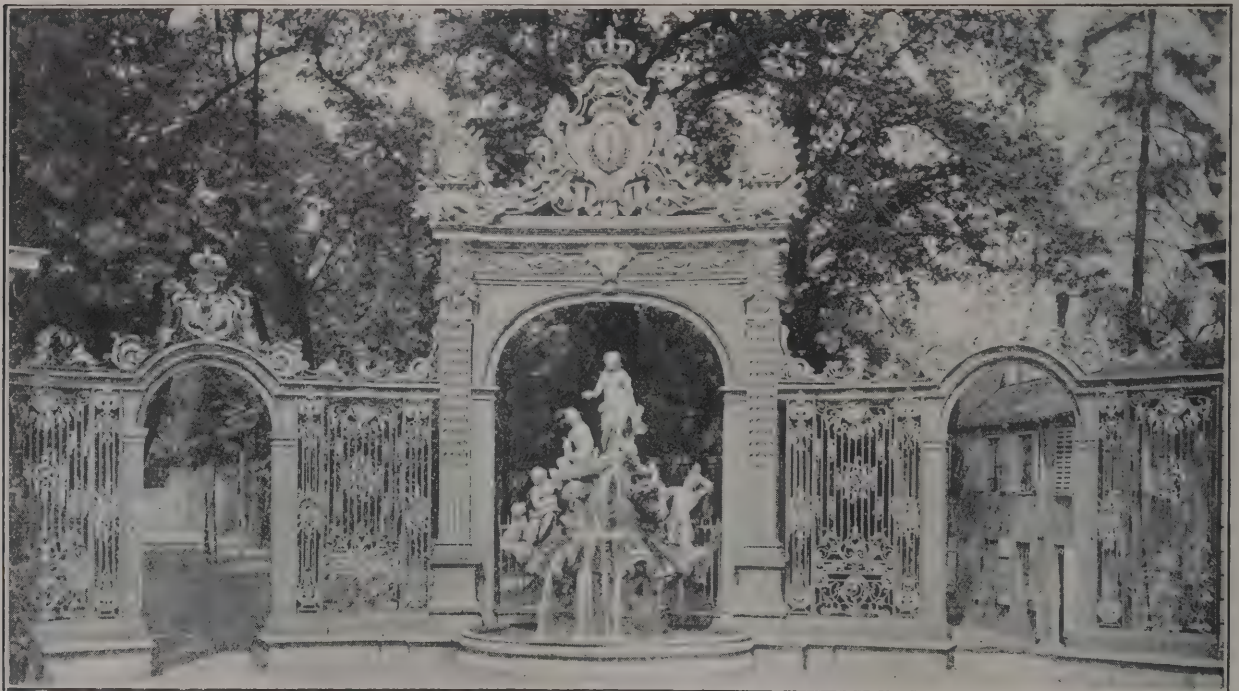
STANISLAUS was originally a Palatine of a Polish district, but CHARLES XII. insisted on making him a king. He was unable, however, to withstand Russian and other invaders, and was therefore obliged to run away from Poland. On obtaining a life tenancy of Lorraine, his



FONTAINE DE NEPTUNE, NANCY.

where the population is increasing at a remarkable rate. The reason is, it is the nearest refuge for inhabitants of Alsace who prefer French methods of government, with all their defects, to the rigorous system which has been imposed on the country by the Germans. The existing conditions

natural benevolence inspired him with the resolve to do whatever was possible for the benefit of his subjects. He seems to have had a presentiment that the century would not close without bringing calamities to kings, and he endeavoured to remove the causes of discontent from



FONTAINE D'AMPHITRITE, NANCY.

of Lorraine are unlike those which prevailed in the eighteenth century, when King STANISLAUS of Poland was selected to be the ruler, the last who was destined to hold that dignity, for after his death the country with Nancy was united to France.

Nancy. There was in the town at that time a metal-worker named JEAN LAMOUR, many of whose works are represented in the book known as the "Recueil des Ouvrages de Serrurerie de Jean Lamour." STANISLAUS, who seemingly had a weakness for craftsmen of that class,

became a friend of the smith, and used often to visit his forge. JEAN LAMOUR, it should be observed, was the official serrurier of Nancy, and in virtue of his appointment received a retainer of 2 francs 60 centimes. The friendship of STANISLAUS for him was of the practical kind, which consisted in the giving of commissions. The first was rather curious. STANISLAUS, although Duke of Lorraine, was compelled to guarantee that he would not be buried in the chapel of the Hereditary Dukes, in the church of the Cordeliers. Hence it was necessary for him at the beginning of his reign to look out for a burial-place. He found a ruined chapel in the Faubourg St. Pierre, which he restored. In order to mark the spot where he was to repose he ordered JEAN LAMOUR to make a beautiful screen, which unfortunately has disappeared, for it was sold to a broker during the first Revolution. The success of the first screen led to orders for several others. STANISLAUS was not satisfied with setting them up in public places of the city. He made presents of screens, balcony railings and ornamental iron-work to several of the inhabitants.

MASTERS OF ART: ARCHITECTS.*

IT is not, we hope, necessary to recall at length the history of the Albert Memorial in Hyde Park, from the podium of which we have taken an illustration. When it was decided to erect the structure the design was sought through a limited competition. One by the late Sir GILBERT SCOTT was selected. In his autobiography he tells us how he experienced little difficulty in determining the class of memorial which he deemed most eligible. His first thought suggested a work of the character which is now familiar. No doubt the idea generically corresponded with an Italian ciborium; but what modern architectural work is without relationship to another of an earlier date?

At the time it was suggested that an imitation of an Eleanor Cross would be more appropriate. There were, however, reasons for the adoption of an Italian model. The Eleanor Cross was essentially a stone structure. It was recognised as likely to be more symbolic of the general interest taken by the PRINCE CONSORT in a variety of arts if scope were allowed for the display not only of stone-



APPROACH TO CATHEDRAL, NANCY.

In order to utilise his screens he made alterations in the town; one is the Place Stanislaus. In this fine open space there are some of the public buildings of Nancy, and at two of the angles we see the fountains of AMPHITRITE and NEPTUNE, the design in one instance allowing of gateways. The effect of these is not easily described. The metalwork is in part gilded, and the avenues and trees obtain a new charm when only partially seen, for curiosity is in that way excited. Another gateway shows the approach to the cathedral. Owing to the works which were ordered by STANISLAUS, Nancy has an architectural appearance which seems to be out of proportion to its importance. The population is about 100,000, but the streets possess a dignity worthy of a capital. When it was found that the last Duke was eager to expend money on the embellishment of the thoroughfares and public places the inhabitants co-operated, and the result is a small city which must be a puzzle to political economists, for there seem to be no manufactures which could support such costly buildings. The experience gained in Nancy is enough to suggest to ground landlords the advantage of generosity which may require a little sacrifice at first, but brings afterwards success.

working, including sculpture, but of various other crafts. Sir GILBERT SCOTT's design gave openings for not only architectural but engineering construction, metalwork, mosaic, gilding, inlaying, &c. The sculptor's work is mainly confined to the statue of the PRINCE CONSORT, the groups typifying the four quarters of the globe, and the podium representing the architects, sculptors, painters, musicians and poets of all ages. With such a structure as the Scott monument in Edinburgh, the numerous niches which were a necessity of its Gothic character could be filled with figures of the creations of the Wizard of the North. We can suppose that they were all visions which floated before the poet and romancist. It was impossible to have figures of a like kind surrounding the PRINCE CONSORT. It would also be contrary to British etiquette to display portraits of his auxiliaries in realising the Exhibition of 1851. The figures available for representation were rather aloof from him personally, and therefore the Italian style, with its broad planes, was better adapted to the peculiarities of the problem. Every spectator must have a different feeling before the gorgeous structure in Hyde Park compared with

* See Illustration.

that he experiences in front of one of the Italian monuments, or the memorial of FREDERICK THE GREAT in Berlin, or the Scott monument in Edinburgh. The loneliness of the PRINCE, surrounded only by types or abstractions or figures of vanished artists, few of whom are known even by name to the multitude, is suggested by the monument, and we see the—

Far-sighted summoner of war and waste
To fruitful strifes and rivalries of peace—
Sweet Nature, gilded by the gracious gleam
Of letters, dear to Science, dear to Art,
Dear to thy land and ours—a Prince indeed.

A work of the nature of the Albert Memorial was unknown in this country, and it was therefore difficult to arrange the price to be paid for the realisation of Sir GILBERT SCOTT'S design. Mr. JOHN KELK made an offer which was most creditable to him. He proposed to construct the Memorial entirely at cost price, and if after meeting all expenditure any sum remained, it was to be returned to the Trustees. It was determined that Mr. KELK should become the general contractor for the constructive parts, and include all the necessary sub-contracts in his tender. The eight groups of figures and the statue of the PRINCE were to be excluded. The price named was 85,508*l*.

In the preparation of Sir GILBERT SCOTT'S model, Mr. H. H. ARMSTEAD had given the benefit of his skill and experience. Mr. J. B. PHILIP had carried out several of the works of sculpture required in the architect's restorations of cathedrals and churches. It was therefore arranged that the two sculptors should be entrusted with the great task of the podium, which was to comprise no less than 169 figures. There is so much unity of spirit in the arrangement, the names of Mr. ARMSTEAD and Mr. BIRNIE PHILIP are likely to be always conjoined in every description of the memorial. It is well, however, to note that the series of Architects, of which we publish an illustration, as well as the series of Sculptors, were executed by Mr. BIRNIE PHILIP, while the Painters, Poets and Musicians were undertaken by Mr. ARMSTEAD. Elaborate models of various sizes had to be made by the artists, and much deliberation was necessary in order to overcome the difficulties. Among the Poets, for example, it was possible to have a central group expressive of the sovereignty of HOMER, but what man held a similar position among Architects? It may be doubted whether the representatives of the art who appear on the slab would be willing to admit any individual superiority.

In the selection of types it will be observed that historical sequence is recognised. It is a noble line of artists beginning with HIRAM of Tyre and ending with WELBY PUGIN. Sir GILBERT SCOTT is shown modestly in the background, thus suggesting that the time had not arrived for enrolling him among the masters. Opinions may differ about the impartiality of the selection of the figures. Numerically, England at one end is as largely represented as ancient Greece at the opposite end. Frenchmen consider there are not enough of their own masters. The Spaniards have still more reason to complain. It must, however, be admitted that in all similar groupings of artists, such as those of DELAROCHE, INGRES, DE KEYSER, national bias is allowed to be influential. If the relief is considered as suggesting the near and remote influences which have given character to English architecture there will be little cause for cavilling.

The position of HIRAM, or HURAM, in the relief is suggestive of his fame. As long as the world endures men will read about the Tyrian artist who prepared plans which kept 150,000 men and 3,600 overseers busy, although it may be no longer possible to form a definite vision of the buildings on Mount Moriah. So far as is known, HIRAM'S work did not affect the architecture of Europe, and it is well therefore to represent him as a solitary figure whose gaze is not in the direction pursued by the genius of architecture.

It is otherwise with the Greek artists. THEODORUS, RHOEKOS and SMILIS must have been partners, for they co-operated in the construction of the Labyrinth of Lemnos. MNESICLES was the architect of the Propylæa of Athens. METAGENES and his father, CTESIPHON, erected the Temple

of Diana at Ephesus. ICTINUS was the architect of the Parthenon, and CALLICRATES was associated with him. CALLIMACHUS is usually thought to have been a sculptor, but according to the Vitruvian legend he was the originator of the Corinthian capital. APOLLODORUS is seen bearing Trajan's Column, which he designed, as well as other works for that emperor and his successor HADRIAN. It has been said he was murdered for criticising a design of the latter. ANTHEMIUS must always be considered as one of the creators of architecture, for he was the architect of Sta Sophia. He is a connecting link between the Classical and the Mediæval periods.

SUGER entered the abbey of St. Denis when he was a child of ten; he rose to be abbot, and his name is inseparable from that monastery. He was a statesman rather than an architect, and as regent he was for a time the true ruler of France. From his position he was able to render the greatest services to art. It was not unlikely that Romanesque would become a gaunt, rigid, penitential style if SUGER had not persuaded men that sculpture and painting were not out of place in a Christian church. WILLIAM of Sens and WILLIAM the Englishman were engaged in Canterbury Cathedral; their other buildings have not been determined. ERWIN of Steinbach is another of the Mediæval architects whose names have survived. The façade of Strassburg Cathedral is a sufficient memorial of his talents, but he is commonly supposed to have designed the entire building, although he was only one among several architects who laboured there. ARNOLFO, GIOTTO, BRUNELLESCHI and WILLIAM of Wykeham stand for the other phases of Italian and English Gothic.

The Italian School is well personified by BRAMANTE, SAN GALLO, PERUZZI, SANSOVINO, VIGNOLA and PALLADIO. PHILIBERT DE L'ORME is introduced among them. That is not an error, for he was engaged for some years in Italy, and his style was more Italian than French. Next we have the Englishmen who derived inspiration from Italy—THORPE, JONES, WREN, VANBRUGH, CHAMBERS. BARRY and COCKERELL were indebted to Greece and Rome as well as to Italy. MANSART is fittingly introduced near WREN. Lastly, we have the second PUGIN, who in the nineteenth century looked on himself as the disciple of WILLIAM of Wykeham rather than of any later master.

In modelling the figures BIRNIE PHILIP endeavoured to follow portraits whenever they were available. All his figures have remarkable animation, and might be taken from life. In DELAROCHE'S "Hémicycle" the artists are supposed to be present at a distribution of prizes to students of the Académie des Beaux-Arts. It does not become monotonous when so many are seen looking in one direction, for the attention might be simultaneously attracted by a student. With the architects who appear on the podium of the Albert Memorial there could be no common purpose, indeed, there was no reason for their assembling. The sculptor accordingly was obliged to divide his figures into groups, and to represent them as if engaged in the serious discussion of principles which they held in common. About his success there can be no question. It is to be regretted that, after attaining such a height, J. BIRNIE PHILIP did not live to obtain the honours to which he was entitled.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE members of the Association paid a visit on Saturday afternoon to the exhibition of drawings in the National Galleries executed by students of the School of Applied Art. The exhibition is this year of exceptional interest, and the works hung are of an unusually high standard. Sir R. Rowand Anderson, who was expected to act as leader, was unable through indisposition to be present. Mr. Alfred Greig read a letter of apology for his absence, in which Sir R. Rowand Anderson suggested that the Architectural Association should appoint a committee to draw up a memorial on art education for presentation to the Parliamentary committee which is at present considering the subject of art education in Edinburgh.

Mr. A. Hunter Crawford, in moving that the secretary be instructed to call an early meeting of the Council of the Association for the purpose of considering Sir R. Rowand Anderson's suggestion, said that the work in the School of Applied Art was started with the intention of educating young men not only in architectural design and draughtsmanship, but also, and largely,

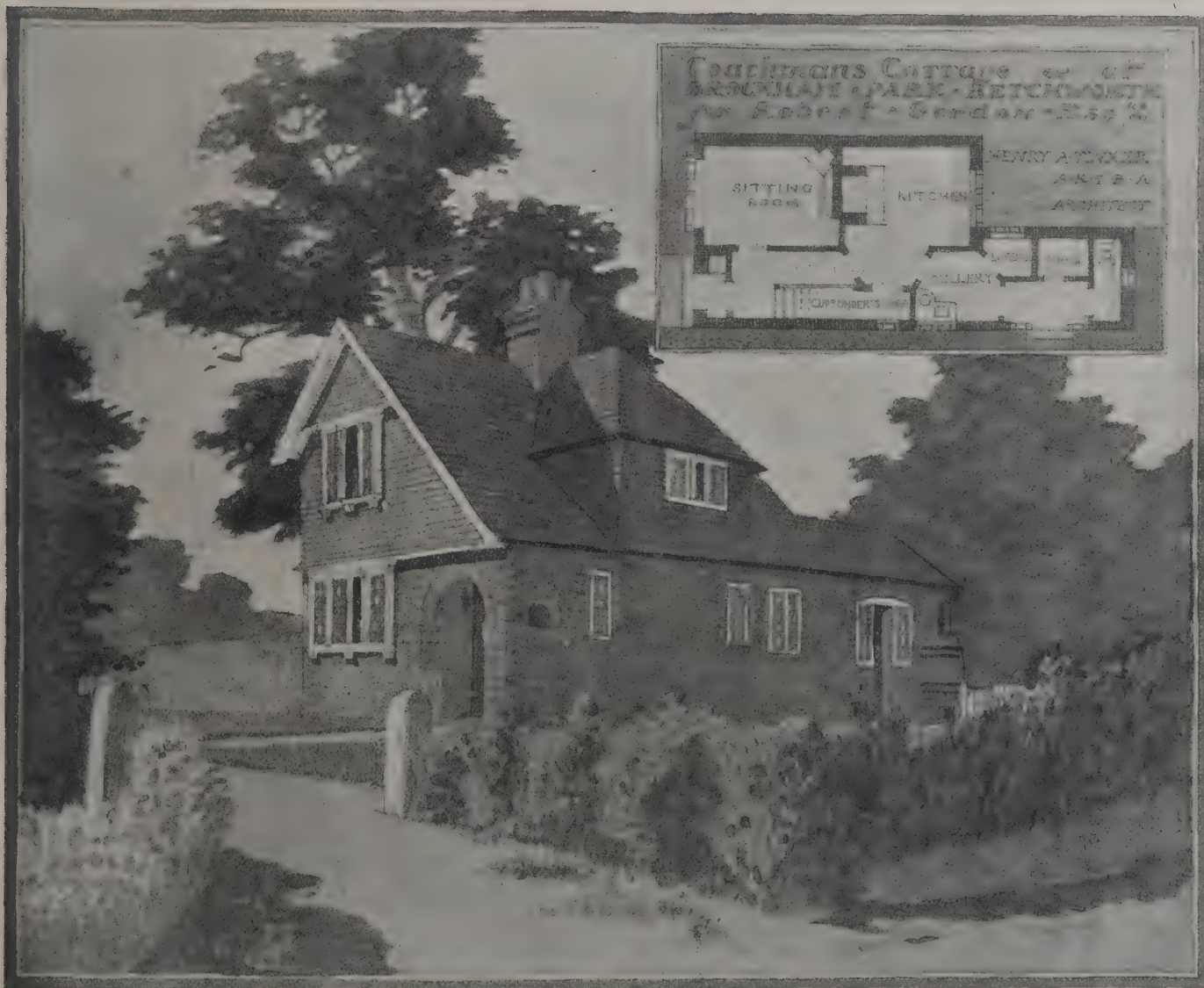
with the definite policy of teaching those desirous of preparing themselves thoroughly for the design of jewellery, furniture, stained glass, decoration, &c. That that policy had been carried out they might in that exhibition see for themselves. Certain critics, town councillors among them, had said that while they realised the excellent teaching given in the school, they were of opinion that the school was too much of an architectural academy, and that the course of instruction given in the architectural orders and styles was too prolonged and uninteresting for those who hoped to devote themselves to the allied or applied arts. Putting aside the wonderful results achieved by the architectural students of such a comparatively small school in competition with the students of all the other architectural schools in the kingdom, surely, in the first place, the director was the man to say how and what instruction should be given in order best to prepare the student for his work, and he was sure that those who had prepared for any of the applied arts in that school would realise what a benefit the teaching had been to them. Further, it should be remembered that a large proportion of architectural students never engaged in the practice of architecture, but were diverted to the drawing offices of furniture-makers, glass-stainers, silversmiths, &c., and their preliminary training formed the very best groundwork for good design in these arts. If those specially interested in the numerous applied arts desired efficient teaching in these arts, teaching on the principle originally laid down, given by those in the active practice of the work they taught, money must be spent, and if the purse-strings were held too tight they should not blame those in control of the school if they could not give all the teaching each individual student should obtain.

Professor Baldwin Brown, in seconding Mr. Hunter Crawford's proposal, said that he at first had the impression that architecture bulked too largely in the work of that school, but it was interesting to see how the school had worked steadily in the direction of study of the various industrial arts. There was, he thought, room for further development in that direction, and also that more accommodation and appliances were required. Everything in connection with art education was in the crucible, and no one knew exactly what would come out, but it would be a thousand pities if the traditions of that school should now be allowed to drop.

The motion was adopted. The members afterwards inspected the exhibits.

INTERNATIONAL SOCIETY OF ART.

THE first general meeting of the International Society of Sculptors, Painters and Gravers has just been held. Mr. John Lavery, the vice-president, in the unavoidable absence of Mr. Whistler, the president, was in the chair. Some thirty members and Associates attended and listened to the vice-president's address and the reports of the hon. secretary, Mr. Sauter, and the hon. treasurer, Mr. Webb. Mr. Sauter stated in his report that five gold medals were awarded to members of the Society who showed at Munich, and that a large number of works were sold there, as well as at Budapest, mostly for national collections, proving that, within the last eighteen months, the Society has made itself into a genuinely international exhibiting body. Mr. Webb said the Society was in a flourishing condition.



THE above cottage is built of local bricks of a good brownish colour, the margins round arches, angles, &c., only being red, tile hanging and roof of red tiles. The work was carried out by Messrs. GEO. CUMMINS & SONS, of Betchworth, from the designs of Mr. H. A. TINKER, A.R.I.B.A.

NOTES AND COMMENTS.

WE announced three months ago that the committee appointed to raise funds for the restoration of St. Thomas of Canterbury Church, in Salisbury, had entrusted the work to Mr. T. G. JACKSON, R.A. The building is in a deplorable state, and Mr. JACKSON estimates the cost of all the works required at 5,000*l.*, but the absolutely essential part could be carried out for 3,000*l.* It is not always easy to obtain even the latter sum, and the Society for the Protection of Ancient Buildings, by proposing works which are estimated to cost only 2,500*l.*, are likely to retard the reparation. The committee will, we hope, realise that the smaller sum comes from an irresponsible authority. The nave arcades have settled westward, and all the columns have an inclination in the same direction. Mr. JACKSON's remedy is the addition of substantial buttresses to the west end. The Society say the only serious cracks are at the west end, and when the movement is arrested the walls can be grouted up. The western buttresses are declared to require only underpinning, and the use of modern material as a core. The roof of the south chancel aisle, according to Mr. JACKSON, will need reconstruction. The Society affirm it can be repaired with straps and angle irons. The Society, in fact, make so little of the works demanded we are surprised to find the estimate working out at 2,500*l.*

By an arrangement with the Duke of NORFOLK, the Town Council of Arundel have acquired about 40 acres of land at Tortington, a district lying to the south of the town. In it stood a priory of the Augustinian canons which existed before King JOHN's time, but of which the date of the foundation is uncertain. It is also remarkable that the vicar of Tortington had a corrody, or right of board and lodging for himself and a servant boy in the priory; this is the more noteworthy because the parish of Tortington is of small extent, and no part could be regarded as far from the vicarage. The ground is of great use, for it will allow of an extension of Arundel, which has long been desired. The Town Council lately offered prizes for designs and estimates for laying out the ground as building sites. Thirty-three plans were sent in. Mr. C. P. WHITELEY served as assessor, and on his report the first premium of 50*l.* has been awarded to Messrs. HENNEL & SONS, 8 and 9 Essex Street, Strand, W.C., estimated cost, 6,710*l.*; and the second of 20*l.* to Mr. B. B. FRANKLIN, 21 Market Hill, Luton, estimated cost 7,698*l.* Mr. E. F. FARRINGTON, the borough surveyor of Arundel, obtained third place. The two designs and reports become the property of the Town Council. It has to be determined what use will be made of them, for it is not arranged whether the laying-out of the estate will be undertaken by the Council or by speculators.

THE Vice-Chancellor of the University of Oxford has issued a statement which suggests the necessity of an immediate outlay for building works. At the Bodleian Library additional storage is required, and the plan of an underground chamber is suggested which, with shelves, will cost 9,400*l.* The library also needs money for heating, electric lighting and fireproof shutters. The keeper of the Ashmolean Museum estimates that not less than 3,500*l.* will be required in the near future for additional cases and upper galleries to meet the rapid increase of the collections. Eventually it will be necessary to erect new exhibition rooms, basement rooms for storage, a coin room and lecture theatre. The committee of the picture galleries and the keeper of the HOPE collection of engravings also seek extension of the building. The want of lecture rooms for the use of the public teachers of the University is dwelt on. The desirability of instituting and maintaining a laboratory for experimental research in the field of psychology is urged by several professors. The urgent needs of the several departments of the University Museum would at the present time involve an additional capital expenditure of 33,000*l.*, and an annual expenditure of 3,050*l.* (representing a capital of 100,000*l.*); the future needs specified show that a further capital sum of 60,000*l.*, and an annual outlay of 4,000*l.* will eventually be necessary.

THE report from the Philadelphia Chapter which was read at the convention of the American Institute of Architects referred to the law proceedings with one of the members, Mr. ADDISON HUTTON. We have already described the circumstances of the dispute. The conditions of the competition for the Pennsylvania State Capitol were not approved by the Chapter, and notice was given to the members that the taking part in it would be considered as unprofessional conduct. Mr. HUTTON sent in designs, and when requested to resign in consequence he refused. Twenty-three members voted for his expulsion and four were opposed to the proposal. Mr. HUTTON then brought an action in the law courts for reinstatement, on the ground that the action of the Chapter in expelling him was an attempt to restrain his liberty of action, an unwarranted interference with the conduct of his business, and was beyond the powers conferred in the charter of the Chapter. A mandamus of reinstatement was issued by the Court. Mr. HUTTON was, therefore, reinstated. The Chapter, it is announced, is now taking steps for the amendment of its charter so as to prevent the recurrence of a similar defeat. That will not be an easy undertaking, for in the Courts of the United States there is a disposition to be hostile to any arrangements which will interfere with the liberty of an individual to conduct his business or profession in any way he thinks advantageous.

WHEN subscriptions are sought, as at the present time, towards the expenses of exploration in Crete, it is well that people should not forget that other countries are pursuing similar work in the island. Even the Italians, who have not surplus funds at command, are liberal in the support of their archaeological representatives. They are able to claim discoveries which are almost as interesting as those of Mr. EVANS. The Italians have also revealed a palace of a later date than that of Knossos, which is supposed to have been the summer residence of the ruler of Phæstos. In the centre of the court stood a little *megaron* or sanctuary with walls covered with stucco and which were surrounded by other walls. Near it are two rooms, one adorned with a fresco and the other with slabs of terra-cotta bearing insignia. At the entrance to the *megaron* stone candelabra were attached to the door-posts, suggesting ceremonies at night. West of the enclosure is a room containing frescoes. The subjects are landscapes, forest scenes and animals. One fresco which was injured by flames represents a man richly clad who seems to have stood up from his chair. Several objects have been unearthed, including about four hundred seals. A large fragment of black steatite is carved with several figures in excellent style, representing a band of warriors. Altogether the results of the year's work are so encouraging there will be little difficulty in obtaining funds to continue the excavations.

ILLUSTRATIONS.

THE MASTERS OF ART: ARCHITECTS.

CATHEDRAL SERIES: WORCESTER.—FROM NORTH-EAST.

SKETCHES IN EDINBURGH.

IT is one of the advantages of Edinburgh that it presents several points of aspect from which views may be taken which are beautiful. But "Scotia's darling seat" can also be presented in detail, and these elements will be found unusually attractive. The High Street at one time ranked among the finest in Europe, but although it no longer holds pre-eminence, there is no doubt of its picturesqueness. In the illustration various buildings are introduced, and every lover of Edinburgh must wish that care will be taken in the future, and that no structure will be permitted to be erected in any prominent position which is not at least equal in architectural merit to those which now exist.

SKETCH SCHEME FOR TREATMENT OF AUDITORIUM, NEW GAIETY THEATRE.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER I.

INTRODUCTORY REMARKS.

IN a previous work the writer dealt with the principles underlying good planning,* and it will be well to essay a companion treatise showing the steps to be taken, though at times perhaps intuitively, to produce elevations suitable for any given plans.

It may be premised that the term "Design" is for convenience in the present work restricted to the treatment of the elevations, whether sectional or otherwise.

Some architects are said to be exceptionally adept at picturing on the "retina" of their brain the scheme in its complete form, and, it is said, can consequently lay down on paper the plans, elevations and sections without the aid of rubber—or of expletives more or less violent. These architects are, however, few in number, nor does the present writer claim to rank amongst them. To the extent that they develop truthfully and artistically the elevations from the lines and purposes of the plans, their power is an enviable one. It is not of any moment whether the successful evolution of the scheme is obtained as a result of the possession of native genius or whether it is due to a quality that is more desirable—that is, a patient training of the faculties to the requisite degree of capable knowledge; this is truly another form of genius. According to the dictum of a celebrated author, "Genius is the infinite capacity for taking pains." Even should critics demur as to the literal accuracy of this remark, it cannot be denied that there is at least a considerable substratum of truth.

Without attempting to establish in this work a standard that few would maintain in its integrity, it may yet be asserted with confidence that it is a comparatively rare occurrence at the present day for any building outside the range of ecclesiastical architecture to *combine*, in its elevations, the expression of its *raison d'être* and the truthful development of its plans. Examples there are, it is true, as witness the Natural History Museum and King's Cross railway terminus, in London, and a few others might be mentioned. And though it would be urged that, in the domain of domestic work, it is generally possible to identify houses (there are exceptions even here, be it noted), yet the interpretation of the plans in the lines of the elevations is more generally countenanced in the breach than in the observance.

Should there be any found to contest the accuracy of these views—though it can scarcely be credited that their correctness should be challenged—the objectors will be well advised to put them to the proof by instituting a critical and thoroughly impartial examination of the illustrations of buildings (with the plans attached) as shown week by week in the professional papers; the mode of reproduction is often excellent, but the designs are too frequently open to frankly adverse criticism. It must, however, be emphasised here that more attention has been given during recent years to the production of good plans than was the custom previously, and it may be hoped that the improvement will be further developed, and likewise supported by the frank expression of the buildings' plans in their elevations.

It is satisfactory to recognise our present-day freedom from the Classic shackles in which our forefathers were fettered—shackles considered more or less injurious than those of Gothic design, according to the artistic predilections of each critic. All fetters are irksome, and it is far better that a man should have the free use of his limbs (physical and intellectual) and practise restraint than that he should be restrained perforce in his practice. Can anything be more humiliating in its degree than the result of contemplating the anæmic offspring produced by architects during the earlier decades of the last century? Humiliating, it is true, but at the same time (standing on the brink of a new epoch, and glancing back across the chasm bridged by half a century of progress) there is encouragement in the perception that architects are making more or less successful

efforts to infuse vigour into their productions, and that the general public is slowly awakening from its lethargy in regard to art, and is more inclined to demand of architects a thoughtful rendering of the problems submitted to them for solution. Indeed, much that was, and still is, wrong is attributable to the general public that, wanting largely, gives but scanty, and fain would have designs sold by the yard, with a liberal cash discount allowed by the architect. This, however, is not a personal complaint, nor is this a suitable place for airing professional grievances. It is merely mentioned as being part cause of a serious evil.

It should not prove discouraging that perfection is yet so far off, and to all appearances unattainable; more benefit results from the honest effort to do good and be good than from the actual accomplishment, where effort is not needed; paradoxical as this may sound, it is, however, true, and applying forcibly to moral actions is equally valid in business affairs. Life is so restless that people confidently assert that standing still is impossible in the pathway from ignorance to the Knowledge Perfect. It must, so it is said, be a matter of either progression or retrogression. The argument will not bear too close an examination, as it leads to the inevitable conclusion that the attainment of perfection would be commensurate with the end of life, or as an alternative this quality of perfection would have to be sacrificed by retrogradation on the path to knowledge; whereas it is evident that the same qualities and activities that enable a man to obtain perfection will enable him to retain it. All that needs to be remembered is that endeavour acts beneficially both on the moral and mental fibre; and many, who through force of circumstances are unable to attain the higher reaches of intellectual progress, are carried further forward by endeavour. Dr. JOHNSON, in one of his darker moods and finer poems, wrote, "Slow rises worth by poverty depressed." Had his friend GOLDSMITH written the poem the line would more probably have read, "Sure rises worth by perseverance blessed," which is a much more cheerful thought, and acts as the pole-star on many a pilgrim's journey.

CHAPTER II.

ENUNCIATION OF THE VARIOUS PRINCIPLES.

BEFORE enlarging upon the considerations affecting design, it will be advisable to bring the principles together and to describe each concisely for the moment.

Whilst urging the simultaneous consideration of plan, elevation and section, yet it is the first that should govern the whole scheme; it is but to a modified extent that design should influence the plan. Granting this, the first points to note are that the design (a) should *express the nature* of the building, and (b) should *emphasise the plans*. One or two examples may serve at this place to illustrate these remarks; the individuals are few in number and of minor intelligence who, when walking along the Old Bailey thoroughfare in London, would fail to identify the nature of Newgate Gaol (now, unfortunately, being razed to the ground); the stern majesty of the building, the small and grated loopholes, the narrow and iron-studded doors and the heavy masonry, all serve to express the punitive character of the edifice. The Bank of England, in Threadneedle Street, is another admirable exponent of a building's purpose, just as aptly expressing an important banking establishment as Newgate suggested a gaol. For the former the requirement is not a paucity of entrances, but good centralised control, and whilst the Bank of England possesses adequate means of entry from and exit to the street for business purposes, unauthorised means, such as windows would supply in opening on to the public streets, are entirely denied to the ground floor; and if only in this respect, the building more aptly expresses a banking establishment of importance than do most of such structures, and is consequently more expressive than in the days when it possessed ground-floor external windows.

Birmingham Town Hall may be instanced as failing to express the purpose of the building.

Emphasis of plan is one of the guiding principles of correct design, but does not need enlargement at this stage.

* *The Principles of Planning.* (Batsford: 1901.)

The relation of a building to its immediate neighbours has to be considered, not so much respecting "style" (for both contrast and uniformity have their respective advocates and advantages) as on account of *scale* and *perspective effects*.

Balance, Unity, Variety, Contrast are all most valuable qualities in design.

Proportion is second to none in importance. The relation that "scale" implies between two adjacent or neighbouring buildings in regard to size and status, Proportion similarly implies respecting the interrelation of the various component parts of any building.

Projections and *Chiaroscuro* may be fitly associated here in the enumeration of the "principles."

Applied decoration and its limitations provides ample food for thought, and is to be considered under the headings of surface, relief, inset and sunk-relief treatment.

Fitness requires inclusion, and is intimately associated with the "expression" of a building, as elsewhere dealt with, and implies that a building should be scaled in accordance with its own status.

The adjustment of attenuated and latitudinal effects will require notice, and the treatment to be accorded to *Utilitarian features* will be dealt with.

1. Expression of the building.
2. Emphasis of the plans.
3. Fitness of the elevations.
4. Balance and Proportion.
5. Consideration of sections and of roofing system.
6. The effects of economy.
7. The limitations imposed by materials.
8. Unity, Variety and Contrast.
9. Perspective effects.
10. Permissible modifications of plans.
11. Scale.
12. Adjustment of attenuated and latitudinal effects.
13. Treatment of utilitarian features.
14. Individuality.
15. Projections and Chiaroscuro.
16. Applied decoration.

It may be mentioned here that, wherever feasible, the author has introduced, amongst others, in this work the designs of those buildings whose plans appeared in the former book written by him on the subject of Planning. Some of the designs are plain in the extreme, as witness King's Cross railway terminus (fig. 1), but in this example, and in others, the recommendation lies in the successful expression of the purpose of the building.



FIG. 1.

GREAT NORTHERN RAILWAY TERMINUS, KING'S CROSS, LONDON. [Lewis Cubitt, Architect.]

The consideration of *sections*, and of *roofing system* and *permissible modifications of plans* are notable factors in design. The limitations imposed on design by *materials* have to be noted, and a chapter is devoted to *fenestration* and *portalage*.

The use of *symbolism in art* is also dealt with, and may prove a valuable factor in design if employed sympathetically.

Such matters as monotony, recurrence, deception, conceits and *Individuality*, and the treatment to be accorded to terrace houses are also introduced.

The effect that *economy* has on design is probably more marked than the effect produced on planning, at least, to the casual observer, and its consideration has to be pursued on very different lines.

The qualities included in the foregoing paragraphs vary considerably in importance, and will be dealt with in the following pages without close regard to priority in that respect; but it will be well to attempt at this place to tabulate them in order of precedence—an attempt that can be only partially successful, as may be readily understood:—

CHAPTER III.

EXPRESSION, EMPHASIS, SCALE AND ECONOMY.

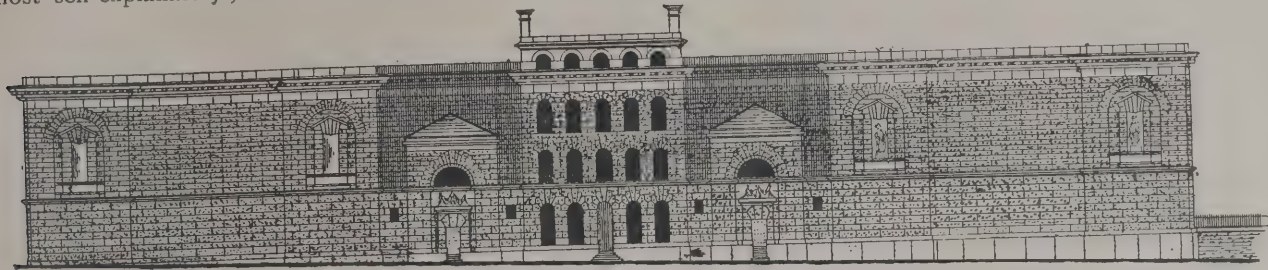
OF the principles mentioned in the previous chapter there are four that with justice may be termed altruistic, as in their cases they strive to consider in the first place interests other than their own. This quartette consists of:—(1) Design to express the nature of the building, (2) design to emphasise the plans, (3) scale, and (4) economy.

By the term "expression" is to be understood the quality that accentuates the purpose of any building, so that the use for which the latter is destined may be readily understood. Mention has been already made of Newgate Gaol (erected 1770-82 from designs by GEORGE DANCE the younger), and an illustration will be better than prolonged comment (fig. 2).

It may be asked, "What are the qualities which, in the first instance, stamp a feature or a defined assemblage of features of a building as being appropriate to or indicative of some specific purpose?" The answer to such a question depends to a great extent on the particular

features, but it may be stated briefly that expression of purpose may result from (a) inherent suitability, (b) conjunction of features, (c) prescriptive use, or (d) from any combination of the preceding. The first is almost self-explanatory; for the second, the use of tower

recognised as belonging to a church, whilst (b) might equally well be attached to public buildings, though it is actually a church tower. The contention will be still further supported by noting the tower in the next figure, belonging to Cardiff Castle (fig. 4).



Front Elevation of Newgate, London.

FIG. 2.

and lofty spire as a unit may be cited. There are many examples of towers used for secular, collegiate and other buildings, but the combined use of tower and lofty spire

Expression of purpose by means of prescriptive use has little to recommend it logically, but is of great sentimental value, and where disregarded can scarcely fail to produce



FIG. 3.



FIG. 4.

at once suggests an ecclesiastical edifice. In the accompanying fig. 3, if seen from a distance, (a) would at once be

an unpleasing impression on all who value this quality. The writer has in mind a rectory house in the City of

Cobbold Road Board School,
Chelsea, London:
Architect: T. J. Bailey, F.R.I.B.A.

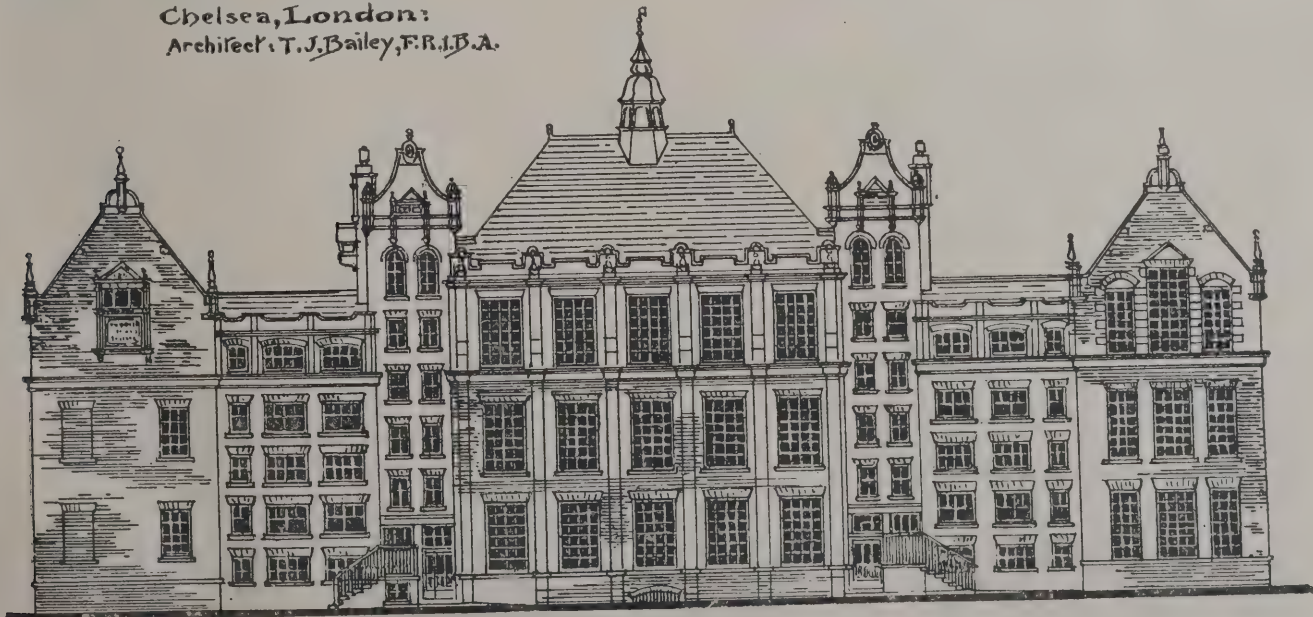


FIG. 5.



FIG. 6.

London that has externally the appearance of having been formerly a church, and its present use as a dwelling-house is repugnant to good taste, even in the absence of definite knowledge of its previous condition.

Some further illustrations will be advantageous. Firstly, consider a typical Board school; the requirements are plenty of properly-disposed window-lighting, central hall (or halls), classrooms and schoolrooms, separate departments for infants, girls and boys, good playgrounds, economical planning and design, &c. If therefore a building is observed divided into three storeys, each one a replica of the others, important central block, and with a treatment evincing a regard to economy, isolated, and in the midst of playgrounds, a school building is at once suggested, and, at the same time, one that is based on a cut-and-dried system. But it may be urged that schools other than those of the public elementary type have requirements of a nature more or less similar, and are also worked on a cut-and-dried system (as, for instance, those belonging to the Girls' Public Day School Company), and, consequently, an element of uncertainty would be introduced. A difference of great import should be at once apparent, for in the rate-supported buildings the object should be to obtain a plain serviceable structure. Another distinction would be that the system of teaching in the higher-class schools differs from that employed in elementary schools, being less hide-bound, and the separation into departments is, of course, non-existent; the stereotyped open playgrounds would likewise be absent from these higher-class schools. Illustrations of a Board school (fig. 5), and a private school (fig. 6), appear in the accompanying figures.

(To be continued.)

ELECTRIC-LIGHTING ARRANGEMENTS IN FLATS, OFFICES AND RESIDENCES.

By F. J. WARDEN-STEVENS, A.M.I.M.E., A.M.I.E.E.

THE arrangements herein described for the supply of electricity for lighting purposes are worthy of consideration by architects and owners of residential flats, offices and such like buildings.

There is no reason why the tenants should not be provided with all necessities such as hot and cold water, heating and lighting, the rates or charges being paid with the rent. This relieves the tenants of the trouble of dealing with independent rates and other parties than the landlords.

Hot and cold water are generally dealt with in such a manner, and heating is usually arranged by open fires, except for the corridors, and in some cases pipe or radiator heating is arranged for in the individual rooms, a quarterly charge being made with the rental of the flat or suite of rooms.

Now as regards lighting, this is most frequently dealt with in a manner similar to ordinary buildings, the charges being collected by the supply company or by the landlords

as collectors on behalf of the supply authority. If, however, the supply authority deals directly with the landlords and the landlords attend to the individual tenants, there is an advantage to all concerned, as will be herein shown. By such a system the supply company or authority avoid the expense and inconvenience of individual meter reading and maintenance, also the collecting of small accounts, and have only one meter and one large consumer to deal with (the landlords). The landlords can no doubt arrange special terms with the supply authority and thus obtain their advantage in, as it were, retailing the supply, although the tenants do not have to incur any greater expense than they would if dealing direct with the supply company. A further considerable advantage can be insured by the landlords if the supply is obtained on the "maximum demand" system.

In connection with the maximum demand system it will be well to give an example of what can be done without any detriment whatever to the tenants where the supply is given on this now almost universal system. The owners of the buildings can purchase all the electricity required for the whole of the buildings on this system, and supply to the individual tenants at the same rate and yet insure financial advantage. The reason for this is that a number of tenants combined do not produce as large a maximum demand on the main meter as the sum of the individual maximum demands would amount to, owing to the fact that the times of the maximum demand of the individual tenants do not coincide. This being the case, the owners purchase a greater proportion of electricity at a lower price than each tenant could do. As an example the following case might be cited, based on the actual figures obtained in a private residence.

Assume thirty tenants each having twenty-four lamps of 8 candle-power, using as a maximum fifteen lamps at one time in the summer and seventeen at one time in the winter. The total consumption is seventeen units per lamp per annum, five in the summer half-year and twelve in the winter half-year, which is equal to three hours in the winter and 1¼ hour's use of maximum demand in the summer. If the charge is 6d. per unit for the first 1½ hour's use of maximum demand per day and 2d. per unit for all further use, the thirty tenants themselves combined would have to pay for 3,600 units in the summer half-year and 8,640 units in the winter half-year.

The summer half-year units being all at 6d. (not more than 1½ hour's maximum demand)	£90
The winter half-year units being half at 6d.	108
and half at 2d.	36

Exclusive of the individual meter rentals £234

Now the maximum demand on the main meter would amount to about three-quarters of that on the small individual meters, so in the summer the maximum demand for all the tenancies would be three-quarters of 450

lamps, that is, 338, and in the winter three-quarters of 510, that is, 383 lamps. The 338 lamps would use 2,960 units if in use $1\frac{1}{2}$ hours a night, and the 383 lamps 3,355 units. The year's account would thus be:—

Summer half-year, 2,960 units at 6d.	. £74 0 0
and 640 „ 2d.	. 5 5 8
Winter half-year, 3,355 „ 6d.	. 83 17 6
and 5,285 „ 2d.	. 44 0 10

£207 5 0

The owners thus pay 26*l.* 15*s.* less than the tenants would have to do individually, and the difference would pay for the corridor and staircase lighting if no charge is made to the tenants for this. The owners may provide the tenants with meters at rentals insuring 10 per cent. on the capital expenditure of the same as charged by the company, so they have no extra capital to provide for out of the profit. In blocks of industrial dwellings there are cases where a somewhat similar arrangement is carried out with prepayment meters; thus electricity is obtained at say 6*d.* and 2*d.* per unit on the maximum demand system and supplied to the tenants at a uniform rate of 6*d.* per unit, which includes meter rental and hire of electric-light fittings. The charges are collected by the owners, who are sure of payment in advance, and the reduced rate obtained by the landlords on the maximum demand system pays interest on the cost of fittings, meters and wiring. Again, an example may be of interest.

With a set of twenty dwellings in a building, each having five lights, the cost of wiring 100 lights, including plain fittings, lamps and shades will be about 80*l.*, the cost of twenty prepayment meters about 60*l.*, making a total cost of about 150*l.* with extras. The electricity account received will be approximately as follows:—

Summer, 100 lights at 5 units per lamp	. 500
Winter, 100 lights „ 12 „ „	. 1,200
	1,700

that is, 1,700 units at 6*d.* per unit—42*l.* 10*s.* collected from the meters.

The actual maximum demands would be 46 and 53 respectively on the main meter, allowing three-quarters of the sum of the total. The payments made by the owners thus amount to the following:—

Summer, 46 lamps, $1\frac{1}{2}$ hour a night,	
use 403 units at 6 <i>d.</i>	. £10 1 6
and 97 „ 2 <i>d.</i>	. 0 16 2
Winter, 53 lamps use 464 units at 6 <i>d.</i>	. 11 12 0
and 736 „ 2 <i>d.</i>	. 6 2 8
	£28 12 4
Meter rental 0 16 0
	£29 8 4

Leaving a balance of 13*l.*, or over 8 per cent., on the 150*l.* capital outlay.

There is yet another method by which a saving may be effected, applicable for such a number as, say, a minimum of twenty tenants. This is by the installation of a battery of accumulators on the premises supplied on the maximum demand system. Taking the first case again, it is easy to arrange that the maximum demand shall be very low indeed, or really just sufficient to take the electricity required in, say, 18 hours at a steady rate. By having a battery involving an outlay of about 350*l.*, the maximum current required is equal to that necessary to deliver 2 units per hour in the summer and $4\frac{1}{2}$ units per hour in the winter; 20 per cent. extra units may be allowed on account of losses in the battery. The cost of current would thus be:—

Summer { 548 units at 6 <i>d.</i>	. £13 14 0
3,772 „ 2 <i>d.</i>	. 31 8 8
Winter { 1,233 „ 6 <i>d.</i>	. 30 16 0
9,135 „ 2 <i>d.</i>	. 76 2 6

£152 1 2

The tenants pay as before 234 0 0

Balance £81 18 10

Depreciation of battery 35 0 0

£46 18 10

This system allows a profit of 10 per cent. on the capital invested, after allowing, say, 10*l.* for attendance (occasional). It may be here mentioned that the higher the first rate and the lower the second rate of the maximum demand system, the more advantageous these arrangements become. A very usual figure is 7*d.* per unit for the first hour and a half, and $1\frac{1}{2}$ *d.* for all further units used, and in this case the above figures would show even more favourable results, because by these means the quantity paid for at the higher price is reduced. Further, the benefit is, of course, universal where the diversity of the times of maximum demand of the tenants is greater. For instance, in a building or block containing both offices and residential flats, the former have their maximum demand at about 5 P.M. in the winter and the latter much later in the evening. The maximum demand on which the owners would pay is therefore not by any means the sum of the office and residential maximum demands.

It is always advisable to adopt the first-mentioned system, but there is a further advantage with the battery system, as it prevents absolutely a cessation of light if the public supply should fail temporarily, and this must be taken into consideration—in fact, in most cases the battery should be adopted additionally in any large buildings, merely to insure this, if the scheme is properly investigated by an engineer and he reports that no loss will be incurred. The figures which should be carefully noted each quarter are the following:—

Each tenant's maximum demand as shown by the indicator, and the units used in that quarter. The same information must be noted for the owner's main meter and demand-indicator.

The staircase and lavatory lighting should be connected to a separate meter, and treated just as another tenant would be, to insure proper results.

In any case, whether the supply company or the landlords deal with the individual tenants, it is necessary to have the wiring in the building carried out from the point of entry of the company's mains to the individual flats, and usually it is necessary to wire the various tenements, although fittings are not necessarily provided. The carrying out of this wiring is a most important matter, and as the distances are often considerable it is most advisable for the owners to obtain expert advice for the design and supervision of the work. The fire risk is also an important point requiring attention, and with properly designed electrical work insurance companies will in a large building grant specially low rates. The advantages of electric lighting to the landlords are safety, cleanliness and attractiveness. The second point, that of cleanliness, is one of great importance, and the sole use of electricity can be insisted upon, the tenants carrying out their own decorative work as an alternative.

The system of wiring adopted for each building will depend so much upon local conditions that it is useless to discuss it. It is an important point, however, to remember that the placing and proper control of staircase and corridor lights will be a great factor in the working expenses of the establishment. As regards lavatory lighting, it is not advisable to leave these either continually illuminated or under the control of the tenants, and it is very necessary to provide automatic door switches so that they are only alight when actually required.

If the demand is of sufficient amount or the supply authorities' rates somewhat high, then it becomes a great question whether considerable advantage cannot be gained by the landlords in adopting their own plant and dispensing with the supply from the public mains. This is of course a question for an expert to decide, and depends on the particular conditions. It is always necessary in such buildings to have mechanics to look after the general structural repairs and renovations, also to attend to the water fittings, heating and hot-water supply, so that it is possible to have electric lighting from private plant with a very slight increase in the wages account. In anticipation of such a course being adopted at any time it is always wise when designing the buildings to allow for or to build a large chimney and provide space in a suitable position for the plant sufficient to supply the lighting privately. The chimney will, of course, be required for the heating plant, &c., and the extra outlay when building will not

be considerable. This leaves it open for the introduction of the electric-lighting plant later with little outlay beyond its own cost. It must be remembered in this connection, however, that there is every prospect of a combined plant for heating, lighting, water supply and lifts being successful where either item taken by itself would be expensive. The writer has for some time given special attention to the financial aspect of combination schemes such as these for large buildings, and it has been found by him that there are many cases where it is really economical to discard the supplies of water, electricity or hydraulic power from the public supply companies. The reason is that heat and hot water cannot be purchased in this country, and in consequence boilers and chimneys have to be provided, steam must be supplied for radiators, skilled men are permanently engaged, and a department should be established to control the services. Consequently it involves comparatively little extra capital outlay to have an electrical and pumping plant, and the fact that the exhaust steam from the pumps and electric-light engines usually is sufficient to supply all the heat wanted, makes such economies possible that the result is generally satisfactory from all points of view.

The writer trusts that he has succeeded in bringing forward the importance of such arrangements and the advisability of owners and architects having the question carefully considered by an expert, bearing in mind the development of the large blocks of residential and office buildings, and that it is most essential in these days of competition for working economies to be effected.

IMPROVEMENT OF BRIDGES.

ON the subject of the recent decisions by various Highway Authorities affecting bridges, of more or less historic interest, under their control, a correspondent sends us the accompanying photographs, taken with the object of throwing some light on the merits of one or two cases in point. Kingston Bridge, the subject of figs. 1 and 2, already, it is said, condemned to destruction, is in point of architectural merit much superior to Richmond (fig. 3), while the latter, far inferior in artistic merit, has recently been granted a new lease of life. A holiday ramble in the Yorkshire dales (where the demands of the traffic of the last

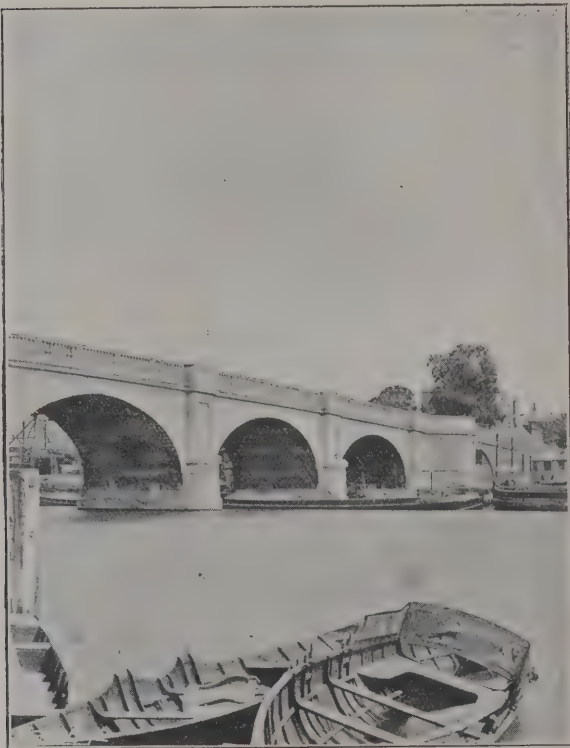


FIG. 1.—KINGSTON BRIDGE.



FIG. 3.—RICHMOND BRIDGE.



FIG. 2.—KINGSTON BRIDGE.



FIG. 4.—OLD YORKSHIRE BRIDGE.

two centuries, upon the rather inadequate bridges of the fourteenth and two following centuries, has caused them to be widened and regraded) provides fig. 4, which suggests a possible way of avoiding the destruction of bridges such as Kingston (of which there must be not a few still capable of centuries of good work), and at the same time providing for modern requirements of traffic at less cost, material and æsthetic, than building a new bridge by destroying an existing one of artistic merit and sound construction. Fig. 4 shows the old Yorkshire bridge widened, new parapet added, and approaches regraded by adding an arch at each end, thus reducing the steep ascent and descent on either side.

THE CRETAN EXPLORATION FUND.

IN a letter to the *Times*, Mr. George A. Macmillan, treasurer of the Cretan Exploration Fund, writes:—You were good enough to print in your issue of December 22 a summary of the brief report recently issued by the managers of the Cretan Exploration Fund, giving in outline the work hitherto accomplished and what still remains to be done.

My excuse for troubling you with this letter is that by an oversight it is nowhere stated in the report in question to whom the further subscriptions which are so much needed should be sent. May I then say that subscriptions can either be paid direct to the account of the Cretan Exploration Fund, at Messrs. Robarts, Lubbock & Co., Lombard Street, or be sent to myself, at St. Martin's Street, W.C.?

I cannot, as I am writing, omit to urge once more how important it is that funds should be forthcoming to complete the excavations at Knossos and to pursue the work of exploration on other Cretan sites.

Since Schliemann's great finds at Mycenæ no discoveries of the kind have excited so much attention in all parts of the world as those made by Mr. Evans in unearthing the marvellous prehistoric palace at Knossos. The work has been costly, but the results have far more than justified the outlay, and it would be little short of disgraceful if in this wealthy country adequate funds could not be provided to carry the work to a triumphant conclusion.

A year ago I felt obliged to point out to your readers that in his determination to prosecute his brilliant researches the explorer had drawn largely upon his own personal resources. This has again been true during the season of 1902, so that the managers of the fund desire to raise not only enough to complete the excavation of Knossos (certainly not less than 1,000*l.*), but also, if possible, at least another 1,000*l.*, and preferably 1,500*l.*, to recoup Mr. Evans so far for his outlay. It is certainly not right that he should be allowed to bear so large a proportion of the cost of his undertaking, besides giving, year after year, so many months of personal labour to its supervision.

It has been decided to set aside during the coming season the sum of 200*l.* for the further excavation, under the guidance of Mr. Carr Bosanquet, director of the British school at Athens, of the site of Palæokastro, on the eastern coast of Crete. Here there is every reason to hope for discoveries which will add much to our ever-increasing store of knowledge in regard to the early history of civilisation in the Levant.

To attain the various objects which I have touched upon we shall need during the next few months not less than 3,000*l.*, and we cannot at the present time reckon upon more than 300*l.* Need I say more to show the urgency of our case?

P.S.—Those who do not already know something of the discoveries at Knossos, and even those who do, will have an admirable opportunity of examining the results at an exhibition to be held at Burlington House during the month of January, as part of the Winter Exhibition of the Royal Academy.

THE AMERICAN INSTITUTE OF ARCHITECTS.

THE thirty-sixth annual convention of the American Institute of Architects was held in Washington in the New Willard Hotel. The first session was opened with an address of welcome by Colonel John Biddle, U.S.A., engineer commissioner of the district of Columbia, and was followed by a short address by the Institute's president, Mr. Charles F. McKim. The remainder of the morning session was devoted to reports by various officers and committees. In the afternoon, following the appointment of several committees, papers were read on the "Improvement of Washington," by Messrs. Daniel H. Burnham, Frederick Law Olmsted, jun., and Charles Moore.

It has long been realised by those competent to judge that Washington cannot be favourably compared, in point of beauty, with the capitals of the larger foreign countries. The subject of the improvement of our national capital, says the

Engineering Record, has been strongly urged by many leading architects, and the admirable work of the Institute along this line deserves acknowledgment. As a step in the right direction it is a source of gratification to note that the House passed the Senate bill authorising the erection of the 4,000,000 dols. union railway station in Washington. In the evening the members assembled in the Congressional Library and viewed drawings and models submitted by the Park Commission, Messrs D. H. Burnham, C. F. McKim, Augustus St Gaudens and F. L. Olmsted, jun. An explanation of the proposed plans for the improvement of Washington's park system was made by one of the members of the commission.

The principal feature of general interest in the morning meeting of the second day was the paper by Captain John Stephen Sewell, Corps of Engineers, U.S.A., on "The Relations of the Architect and the Engineer." Captain Sewell, as an engineer, was closely associated with the architect in building the new government printing office, consequently his views had the weight of a personal experience. Among others, two points were particularly emphasised: the advisability of retaining a government engineer on all government buildings, rather than allowing the architect to select an outside engineer; and the desirability of having the work on government buildings entirely in the charge of a construction bureau, which could control all disbursements and secure the best possible co-operation among the architect, engineer and contractor. A paper by Mr. J. L. Smithmeyer on "The Development of Architecture" was read by Mr. George O. Totten, jun.

The "Development of Municipal Improvement" was the general topic considered during the afternoon session, December 12. Mr. W. B. de las Casas read a paper on "The Organisation for Municipal Improvements," the particular work treated being the Boston park system, of which he has had charge as chairman of the Metropolitan Park Commission. Under the subject "The Modern City" Mr. Albert Kelsey showed in what ways foreign city work is ahead of American, and urged the need of modern ideas along original lines in our architecture. Mr. Kelsey is in charge of the park improvement work in Philadelphia. A third paper, written by Mr. Owen Fleming, of London, was read by Mr. Glenn Brown. It dealt with the improvements put into effect in that city.

The next day's meeting was late in opening, as the earlier part of the morning was spent in visiting the White House. Mr. McKim, to whom the work of remodelling the White House was unreservedly committed, guided the delegation, and its members declared themselves greatly pleased with the results accomplished. The morning meeting closed the balloting for the election of officers. Last year's board of officers was re-elected, together with three elections to honorary membership. Cleveland was chosen as the place for the next convention, with St. Louis as the probable convening point for the year following. A paper by Capt. Charles D. Sigsbee on certain improvements in Washington was read by Mr. Arthur Totten. Capt. Sigsbee suggests the construction of a permanent reviewing stand on Lafayette Square in front of the White House, the stand to be made of marble and highly ornamental. The committee in charge of the subscription for the purchase of the historic Octagon house in Washington as a permanent institute headquarters reported that 17,000 dols. was in hand. After the purchase money (30,000 dols.) is raised, it is proposed to raise a sum of 250,000 dols. for the establishment of a benefit fund.

DUNSTAFFNAGE CASTLE.

WHETHER or not Dunstaffnage is entitled to be described (as it has been) as "our oldest Royal Scottish Castle," is a point, says Mr. I. Robertson in the *Scotsman*, as to which there is room for very grave doubt, but no one will question for a moment the claims of this ancient Highland fortress to historical interest. The famous stronghold which formed the original of Sir Walter Scott's "Ardenvoth" has figured in some stirring scenes not only in clan warfare, but in our turbulent national history. And those who seek to have the ruins restored, and the edifice put into a state similar to the English castle of Carisbrooke, will have the good wishes of all who take an interest in our Scottish history and antiquities—including those who have the temerity to hold that its claims to the status of an ancient royal residence rest on a foundation as unreal as the existence of those shadowy monarchs who are said to have inhabited it.

Truth to tell, the early history (so-called) of Dunstaffnage is as legendary as the early Scottish sovereigns whose portraits decorate the picture-gallery at Holyrood are mythical. In both cases we are indebted largely, if not chiefly, to the ingenious Hector Boece. The original castle is said to have been founded by Ewin, a Pictish monarch, who is alleged to have flourished about the same period as Julius Cæsar. Holinshed in his chronicles (following Hector Boece, of course) relates that this King Ewin "buided a castell not farre

from Beregonium, which he named after his own name, Eunionium; but afterwards it was called Dunstafage, which is as much as to say, as Steenens castell, which name it beareth at this moment." Ewin is said to have been buried at Dunstaffnage, and several subsequent monarchs are also alleged to have been buried at the same place. In the "Description of Scotland," which we derive from the same veracious source as the account of the foundation of Dunstaffnage, we are supplied with the information that "beyond Lochtie is the castell of Dunstafage, in time past named Eunionium; beyond Dunstafage also is the mouth of the water of Spanze, where it falleth (as I heare) into the Germane Ocean."

According to the legendary accounts of the castle, it was occupied as a royal seat by the later Dalriadan kings right down to the time of Kenneth MacAlpin in the ninth century. One of the traditions regarding the Coronation Stone, which now rests in Westminster Abbey, is that it was kept at Dunstaffnage, and was removed from that castle to Scone by Kenneth MacAlpin. That statement, however, rests upon the authority of Hector Boece alone. As Skene has pointed out, the older chronicles say nothing of this. Another account of the alleged "Lia Fail," or Stone of Destiny, is that it was taken from Iona to Scone. But there are many legends regarding the Coronation Stone, and the majority of persons probably are very sceptical as to it being the alleged "Lia Fail" at all—some holding that the Stone of Destiny never left Ireland. Be this as it may, there is little authority indeed for holding that the Coronation Stone (whether it is the veritable "Lia Fail" or not) was ever at Dunstaffnage. Skene declares very emphatically that it "never was anywhere but at Scone, the 'sedes principalis' both of the Pictish and of the Scottish kingdoms." The claims of Dunstaffnage to be regarded as a royal castle are dismissed contemptuously by the same high authority in his preface to the "Chronicles of the Picts and Scots," with the remark that "of Dunstaffnage as a royal seat, history knows nothing." In the face of a declaration so emphatic by such an expert as Skene, it requires some courage to continue to assert that the famous Celtic fortress was a royal castle. Still there are Highland enthusiasts who cannot believe that the legends and traditions so dear to them are mere fictions. Many of these legends are enshrined in old Celtic rhymes, which have become part of the faith of the people. A well-known Gaelic rune with reference to the M'Gregor runs:—

Offspring of our country's kings,
Whose seat was at Dun-staffnage,
That first the Crown of Alba wore,
And still have native claim to it.

It is really very doubtful, however, whether the neighbouring castle of Dunolly, at the entrance to the Bay of Oban, long "the chief stronghold of the tribe of Lorn," does not possess higher claims to antiquity, and even to an old royal connection, than that of Dunstaffnage. Dunolly is said to have been built by Selvach, Selbac, Selbagh, or Selnad, son of Fergus, king of Dalriada. In the ancient "Annals of Tighernac," we read that "Dunollaig construitur apud Selbacum. Ailen na ingen struebatur;" and the "Annals of Ulster" state that "Destructio Dumonlaigh apud Sealbach." In neither of these "Annals" is there any reference to Dunstaffnage. But it is unnecessary here to go into the claims of Dunolly as the rival in antiquity of the more famous castle.

At whatever date the original castle was built, there seems to be no doubt that there was a stronghold here as early, at least, as the ninth century. No doubt it was made use of in defending the country against the Vikings, who, about this period, made bold descents upon the western coasts, and ravaged the land. In all likelihood it was afterwards altered and enlarged, possibly also rebuilt to some extent at various times. It came into the possession of the Macdougalls, Lords of Lorn, and one of the most notable events in its authentic history was its siege by King Robert Bruce shortly after he defeated John of Lorn at Cruachan. Barbour, in "The Bruce," after giving his spirited account of the battle in the pass, goes on to say:—

The king that stout was, stark and bald,
Till Dunstaffnynch richt suddanely
He past, and segit it sturdely,
And assalzeit, the castell to get;
And in schort tyme he has thame set
In sic thrang, that tharin war than,
That, magie thairis, he is van;
And a gud vardane thair-in set,
And betaucht hym bath men and met,
Swa that he thair lang tym mycht be,
Magre thaim all of that cuntre.

Dunstaffnage was at this time the principal fortress of the Macdougalls and appears to have been a place of considerable strength, so that its reduction was a matter of great importance to Bruce. After it had been forced to surrender it was conferred on Sir Archibald Campbell of Lochaw. Sir Archi-

bald's descendant, Colin, first Earl of Argyll, in 1495 made a grant of Dunstaffnage to his younger son, Alexander, and since then it has continued to be held by a branch of the great family of Campbell. James I of Scotland, when trying to put down the anarchy and turbulence which existed in his time as in that of many of the later Scottish sovereigns, took up his residence in Dunstaffnage, and there received the submission of a number of the chiefs. The castle gave refuge to James, Earl of Douglas, after his forfeiture, in 1455, and here he took counsel with Donald, Earl of Ross and Lord of the Isles. But it was too remote to play any prominent part in later national history. During the Jacobite risings of 1715 and 1745 it was occupied by the Government troops as a military post, and perhaps the most noteworthy incident in this connection is its association with Flora Macdonald, who was confined here for a short time in the summer of 1746.

Among others who have assisted in giving an atmosphere of fictitious antiquity to Dunstaffnage Castle is James Hogg. In his "Queen Hynde" he depicts the young and beautiful queen as fleeing from Beregonium (the "Selma" of Ossian) to Dunstaffnage. This, be it remembered, in the time of Columba, who is a prominent character in the poem.

Situated on a small rocky promontory, close to the shore of the estuary of Loch Etive, and about 3½ miles N.N.E. of Oban, the ruins of Dunstaffnage Castle form a striking feature in the landscape. The insulated rock on which the castle stands is not of great height, but has been artificially scarped, so as to render it virtually inaccessible. Sir Walter Scott gives an excellent pen-picture of the castle in "A Legend of Montrose," in describing the arrival at Ardenvohr of the redoubtable Dugald Dalgetty:—

"Ardenvohr . . . rose high above him when he came upon the deck of the galley. It was a gloomy square tower of considerable size and great height, situated upon a headland projecting into the salt-water lake, or arm of the sea, which they had entered on the preceding evening."

In the near vicinity, on the east, is the peculiar round eminence on which Dalgetty insisted that a scone should be erected, and which formed the ground of his characteristic remonstrance with Sir Duncan Campbell "touching the round monticle of Drumsnab." To the left of Dunstaffnage are the ruins of a small chapel, which, according to legend, formed the burial-places of some of the ancient kings of Scotland, Pictland or Dalriada.

The castle probably acquired its present form—or rather the form in which it stood before it became a ruin—somewhere about the twelfth or thirteenth century, although parts of it are older. It is square, and the walls, externally, measure about 270 feet round, while the circumference of the crown of the rock on which it stands is 300 feet. The internal measurement of the castle from wall to wall is 87 feet. The walls are 9 feet in thickness and from 30 to 70 feet high. At three of the angles are circular towers, and there seems to have been a drawbridge at the main entrance, which faces the sea. At present the castle is simply a shell.

But a very picturesque and interesting old Highland relic is this ancient castle of Dunstaffnage. It requires no fabulous history to make it attract visitors. It is a matter for sincere regret that it should have got into its present condition, and the promoters of the scheme for its restoration will have many well-wishers.

THE RELATION OF NATURAL TO ARTIFICIAL BEAUTY IN LANDSCAPE.

THE late Mr. Walter Cope, the American architect, is described by the *Architectural Review* of Boston as exercising the kind of influence which goes far to elevate ideals. His architecture is said to be that of a master, devoid of plagiarism or of sensationalism, simple, direct, sincere, and with the added charm of the studious and earnest habit of the man and the refinement of his nature. Unembarrassed by the formulas of schools, and unsympathetic with the mere clothing of architectural styles, he seems to have grasped the fundamental axioms of his art, and then developed them with the delicate touch of his imagination. In this regard the eminent sanity of his work is as marked as its unusual artistic merit. A report is given in the same periodical of an address delivered by Mr. Cope before the Fairmount Park Art Association, Philadelphia. Part of it refers to local circumstances, but the following considerations deserve general attention at a time when the position of the architect in connection with the laying out of the grounds attached to his buildings is debated.

In announcing the subject for discussion this evening, I feel that I owe you an apology for using such a broad, comprehensive title. Certainly, I do not intend to inflict on you a comprehensive discussion of the subject. It is too broad, and touches too many details for me to attempt anything like a thorough treatment in one evening. "The Relation of Natural

to Artificial Beauty in Landscape" is, in fact, a subject on which volumes might be written.

And first, as to the word "landscape"—I intended to use it in its widest sense as applying to any scene, whether that scene contains any element of man's handiwork or not. At the present time the subject of "landscape gardening," "landscape design," "landscape architecture," or whatever it may be called, is receiving a great deal of attention, but in speaking of artificial interference with nature, I should like to abolish the word "landscape" and use instead the words "outdoor design," reserving "landscape" for that broader meaning which would cover every scene, whether natural, artificial, or partaking more or less of both, anything, in short, which the eye may meet under the open sky.

At this age we are in the midst of great structural and engineering undertakings to meet the practical needs of our present civilisation, with little thought as to their artistic expression. But times will change and the practical developments of applied science will some day give way to more definite efforts to make the face of the earth more beautiful. It may be a question only of a generation or two when the imagination of the multitude may cease to be moved, as it undoubtedly is to-day, by the great developments in transportation, the building of huge buildings and swift steamships, and by the constant improvements in electrical propulsion and communication. And when we shall have solved all these questions of applied science and are content with our achievements in that direction, we may turn our efforts to still greater achievements in an artistic way. To-day, those in whom the artistic sense is dominant are in the minority, and this has always been so and probably always will be. But to-day differs from past ages in this fact, that the great majority of people in this age do not really care for artistic expression, do not care as much for the beautiful as they do for what we commonly call "the practical." To-day the artist occupies a relation to the great mass of humanity almost analogous to that which the mediæval alchemist or scientist held in the day when it was the artist who counted and who captured the applause of the multitude. It is true that the support of the multitude is constantly increasing, but as yet this support has not swept everything before it, and a utilitarian and purely practical tendency is still dominant. The artist of to-day is not in need of better criticism. He has as good criticism as any age has produced, but he is in need of a greater amount of criticism and of the backing of the majority of the people, the criticism of the masses which finally, if not immediately, condemns the inartistic and upholds that which is sound and true in art.

Whatever scene our eyes may light upon, whatever landscape we may contemplate, there can be only two factors—two agencies—which determine its effect upon our minds, upon our sense of the beautiful—Nature and Man. Nature, of course, is a very wide term, but we know what we mean. It is the supreme, the eternal, ever-present factor. We cannot escape from it entirely if we would, for even man in his works is governed by nature's own laws. No one of them can he undo or abrogate. The primary laws of physics must govern everything which he builds, and the artistic expression of his building must reflect an acknowledgment of natural laws. But in distinguishing between these two agents, I mean to refer to nature as that which she does without the aid of man, what she would have done had man never lived upon the face of the earth. On the other hand, in many scenes and many things which we love to look upon, there is predominant the other agency, and our delight in its contemplation at times transcends even that which we feel in looking upon nature; the thought that this stone has been hewn and set, this building has been reared, this path has been cut, these trees have been planted by man and to satisfy man's needs and ideals. Perhaps no two of us could agree upon the intensity of pleasure derived from the contemplation of a great cathedral, on the one hand, or the majesty of a rock-ribbed mountain, or the boundless sea, upon the other, nor is it worth while that we should agree. To some of us nature appeals more than art, though I believe that to most of us each appeals with almost equal force, according to our varying moods.

It follows, then, that if we are to arrive at the true sources of artistic enjoyment, we must cultivate and love and study first of all nature, and after that man's history, man's ideals, all, in fact, that has led him to express his wants, his aspirations in physical form. This last is nothing more nor less than the study of architecture in its broadest sense. For all that man builds with an eye to use and beauty is architecture in the sense that it is governed by one system of principles and laws. From time immemorial man has built houses and temples and bridges, has hewn roads and laid out gardens and wrought whatever pleased him upon the face of the earth to satisfy his needs, material and spiritual. And from time immemorial it has pleased him, and it pleases us to-day and will always please our descendants, to follow certain methods, certain principles of dimension, direction, and propor-

tion in that which we lay out and build. These methods are no doubt deduced primarily from our innate sense of natural laws. But it is scarcely necessary to go into the source of them. Suffice it to say that it is an indisputable truth that man prefers to set stones level, to build walls straight, or, at least, symmetrically curving, to make level places on which to stand or walk, whether they be floors beneath a roof or terraces under the open sky. His sense of mastery over nature is expressed in doing things not as nature would do them. Nature upheaves and splits and tumbles down her rocks. Man hews them into blocks, and sets them level and true and rears them into walls. So it always has been—so it ever will be.

In every landscape, then, these two elements must remain distinct. We cannot absolutely unite them nor deceive ourselves into thinking that we can. We cannot modify to any extent worthy of consideration the process of natural growth, or at least such modification can be but temporary. Nature is absolutely continuous and persistent. We must then regard ourselves only as intruders—invaders. It is true that we can interfere with nature, but it is my purpose to point out that it is not as interferers that we should regard ourselves. As invaders we may, for we could not avoid the position if we would, unless indeed we return to absolute savagery.

About the middle of the century just passed, there grew up a school of landscape gardening, so-called, which was perhaps a natural reaction against the extreme and lifeless formalism into which architecture had descended. The school made a complete revolution in the principles which had always before that time governed all artificial interference with the face of nature. It did not propose to do merely what man had always been pleased to do in the way of laying out and building and planting, but instead proposed rather to imitate and follow nature on the lines which she has always reserved to herself. This school still has its disciples, and the results of its work are all about us, and have caused, to my mind, a most deplorable subversion of the laws and the principles upon which beauty in landscape must depend. Nature is entirely able to do without the aid of man, and it is equally true that it is impossible for man to imitate nature without making himself and his work more or less ridiculous. When he attempts it, he must cast to the winds all the methods, all the principles which he has developed in centuries past, and he must play at his game as a child would play at horse. But every once in a while he has to leave his play to attend to the serious matters of life, to build a house or a flight of steps, and these he has to do on the same good old lines that have always prevailed in architecture. He may build his silly little rockeries in would-be imitation of nature and cut his meaningless winding walks, but he cannot cease to build civilised buildings, he cannot be content to live in caves or rude, shapeless huts.

The moral of all this is, let nature alone, except where, to satisfy your own practical needs, to satisfy your own ideals of the beautiful, you invade her sacred domain with works that are frankly and freely designed upon lines not imitative or in competition with her, but rather on lines which have commended themselves to man as necessary, reasonable and beautiful from his own particular point of view, lines which embody all which he has ever developed as an expression of his own mastery over the earth.

Can we then intrude upon nature in anywise without destroying its charm? Decidedly we can. We may invade nature with our works and find the result all the more charming; and, in the same manner, nature may, and does, invade our works only to increase their charm. But the source and reason of our invasion must announce itself frankly. We must feel that this space through the forest has been cleared and levelled in order to meet some human need, that it reminds us of the existence of man and enforces the human element, and so serves as a foil or contrast to nature's work. To look at the other side, what can be more beautiful than the work of man overgrown by nature—the ruined abbey wrapped in ivy, or the old Italian garden, where the balustrades are half smothered in vines, and the vistas down the long paths and terraces are framed between giant cypresses, growing without restraint, long after the builders of those stately balustrades and fountains are forgotten?

Nature, in her own wildness and ruggedness and majesty, we cannot rival, and she, on her side, makes no attempt to rival us. The majesty and beauty of the lonely mountain side we cannot create, but we may invade it without destroying its charm. Nay, more, we may introduce the human element in a way only to heighten and increase that charm, and it is just where those two elements meet, each in its purity, its frankness, its directness, that we often find the very highest and keenest sense of the beautiful. Can anything be compared in beauty with the views from out the terraced gardens of the Italian lakes, across the deep, smooth surface of the water to the great mass of the Alps beyond? Is a flower ever more beautiful than where it has grown in the crevices of a mouldering ruin? And which is most desolate—the city street, devoid of one touch of natural growth, whether of leaf or flower, or the unbroken

expanse of a trackless plain? We have our moods when each of these may please us, and nature has every advantage both in majesty and beauty, but it remains that man is a social being, and, as a rule, he loves to be reminded of the existence of his fellow-man both past and present. He will never resent the evidences of that existence if they occupy a reasonable and proper place.

To come, then, to details, Where and how may we invade nature? First, we must build our houses, our cities, we must bridge our rivers and ravines, we must lay out our roads, even our railroads, and we must go even further. We must, if we are to satisfy our sense of eternal fitness, make our terraces and gardens where, while asserting our dominance, we can hand over a larger share to nature's decoration of trees and flowers. Nay, we can even take these trees and flowers and arrange them in formal lines, as we might build a wall, according to our own ideals of what man should do. Nature would never do so of her own accord. An avenue of trees planted at regular intervals, or a trimmed hedge, is as much and as confessedly artificial as the road which they skirt. The box-borders of a garden are, in a sense, as architectural as a stone balustrade. They are simply the works of man in a living medium instead of in a dead one. It is merely a question of how much we shall do of this sort of work, how much is appropriate in a given place to emphasise this mastery of man over nature. Manifestly, it must depend upon the dominance with which we wish to assert, the extent to which we wish to remind ourselves of, the human element. A planted avenue has no place in the midst of an uninhabitable plain. It belongs as part of a house, some human arrangement made for man's use and delight. But in proportion as we separate ourselves from centres of human life, should we restrain ourselves in making artificial arrangements of planting. A garden is nothing but a great outdoor room, a house, so to speak, under the open sky, in which the levels, the width of the paths, should be determined by the same principles of design as we would apply within our houses in the arrangement of our rooms, but whose decoration and colouring, so to speak, is turned over to nature. And a park made for the use of the multitudes of the city will, in the same way, find its greatest beauty in allowing man's work and nature's to follow each along its own lines. Why is an avenue of great trees more majestic than an equal number of trees equally spaced, but artificially dotted at random over a given area? The avenue in its arrangement, in its spacing, is man's way of arranging trees. It is like a peristyle of great columns, but an equal number of trees equally spaced and yet at random is neither man's way nor nature's. It expresses neither one thing nor the other, either to the lover of art or to the lover of nature. Nature does not plant her trees like a crop of corn at suitable intervals and of equal age and size, and it is only where there has been an unsympathetic and unnatural and Philistine interference on the part of man, whether in planting or in cutting down, that we find trees grouped aimlessly, but at equal intervals.

Nature does not build river-walls or bridges or roads any more than she does houses, much less does she make railroad cuts or embankments. What, then, should be our rule in dealing with these? The cuts and embankments for railroads our landscape gardeners have, fortunately, generally given up in despair. Surely if not discouraged, nature will take better care of these than man can possibly do. She will gradually shroud them in trees and thickets and hide the ugly bare dashes that the hand of the engineer has made. Nature will take care of them if she is left to herself, and as time goes on the ravages of man's hand will be lovingly hidden by moss and leaf, and there will be nothing to mar our sense of the reasonable and beautiful. But in a great city or its park or within the well-kept precincts of a country place close to the house, where man must be constantly reminded of his own existence, where people congregate, there it is appropriate that the greatest architectural perfection, the most careful study of design, should be given to every artificial work. We are so trained to think that what we build in the shape of a house must be carefully studied by men who have given their lives to the subject, whose life-work it is to design, that in this last century we have forgotten that all building, all artificial interference with the face of nature, as I said before, is a part of the same thing—is only the visible expression—the physical expression of man on the face of the earth. And the same principles of design that determine the proportions of a façade—whether an arch shall be a little higher or a little wider—those same principles govern the dimensions that we would spread out on the face of the ground. A flight of steps out under the open sky is just as much a matter of nice design and proportion as a façade of a building. We are not used to thinking so, especially here in this part of the world, but I believe we are coming to it, and everyone did think so before the beginning of the century just past. All outdoor design was considered as only a part of architecture, and the same nicety and skill applied to it as in the building of houses. The idea is not

only unfamiliar to us of the present day, but it is one I have myself found very hard to put into practice. We have all of us grown up in an atmosphere of believing that the work a man does with pick and spade is an entirely different thing from what he does with hammer and saw, but it should not have been so considered.

But let nature, so far as she will, clothe this work of ours—whether it be simple or elaborate—in her own way, and still the effect will be more and more beautiful. The two elements will stand in stronger and stronger contrast with each other, not in discord but in utter harmony and agreement. I by no means urge elaboration or over much ornament in that which we do. In this we should be governed by the same rules of good taste and restraint that should characterise every architectural work.

THE IMPERIAL INSTITUTE.

IN accordance with the Imperial Institute (Transfer) Act, 1902, the management of the Imperial Institute will be vested in the Board of Trade from January 1, 1903. In carrying out these duties under the Act the Board of Trade will be assisted by an advisory committee representing various Government departments and the Indian and Colonial Governments. The Institute will be managed by the Board of Trade through their Commercial, Labour and Statistical Department, of which Sir Alfred Bateman, K.C.M.G., is Comptroller-General.

The Board of Trade have appointed Professor Wyndham Dunstan, F.R.S. (now director of the Scientific and Technical Department of the Institute), to be director of the Imperial Institute at South Kensington. Professor Dunstan will continue in charge of the scientific investigation of economic products, and will supervise any other branches of work carried on by the Board of Trade in the building at South Kensington, including the collections of products of the Empire so far as they will be under the control of the Board.

The work carried on by the commercial intelligence offices of the Imperial Institute will be conducted by the Commercial Intelligence Branch of the Board of Trade, which, subject to the Comptroller-General, is under the direction of Mr. Thomas Worthington. The question of a City office for this branch (which is now located at 50 Parliament Street, S.W.) is receiving the attention of the Board, and, pending its establishment, verbal inquiries on commercial matters after January 1 may be addressed to the branch through the temporary inquiry office established in 49 Eastcheap, E.C., the City office of the Imperial Institute.

The above arrangements do not affect the parts of the collections and the information offices under the special charge of representatives of the India Office and of certain Colonial Governments.

CONSTRUCTION OF NEW ROADS.

A LETTER has been written by the Hon. Secretary of the Roads Improvement Association, in which he says:—Is it possible, without unnecessary or disproportionate expense, to adapt existing roads for modern vehicles and to build such new ones as are necessary? This is the real motor problem. The attempt to formulate workable regulations under which motor-cars, bicycles, traction engines and electric trams shall be accommodated satisfactorily upon roads grossly inadequate even for horse-drawn and pedestrian traffic, is one which in the circumstances of the case is bound to fail. It is impossible to get a quart into a pint pot.

Unfortunately, under existing conditions, it is as practicable to talk of uniting the earth with the moon as to propose to open up some of the country districts within twelve miles of the Bank of England by a new arterial thoroughfare. No new main roads have been constructed out of London for many generations. In the suburbs many hundreds of miles of mean streets have been built, but they take no share of the through traffic, and serve only to feed the previously existing main roads. Under our present system of highway administration trunk road construction is impossible.

This statement may seem extravagant. It is not so. If anyone doubt, let him formulate a definite scheme for building a new road ten or twenty miles long through country divided up for administrative purposes among eight or nine highway authorities, and then consider the obstacles to its realisation. He will find that they are insuperable. Such a scheme gained some publicity a few months ago under the title of "A Royal Road to Windsor." It was proposed to construct from a point on the Goldhawk Road—three-quarters of a mile distant from the terminus of the "Tube"—a direct road out of London between the Oxford Road on the north and the Bath Road on the south. The new road running due west would strike the Bath Road again at Slough. The extension from Slough to Windsor, although it gave the proposal its name, is not

material to it. It was pointed out that this scheme would (1) shorten the distance to Reading and the West of England, (2) relieve the congestion of traffic on the Bath Road on the one hand and the Oxford Road on the other, and (3) open up a new district over which London's population could spread itself, and in this way contribute to the solution of the housing problem. It was suggested that the road should contain separate tracks for (1) motor cars and bicycles, (2) electric trams, and (3) horse-drawn vehicles.

The urgent necessity for relieving the traffic through Brentford on the one side and Acton on the other by building a new road has been admitted by everybody. If space permitted I would show why (1) the Middlesex County Council, (2) the London County Council, (3) the local highway authorities, (4) the State, and (5) private capitalists cannot separately or in co-operation construct it.

At the present time all the direct main roads into Kent pass through New Cross. There is urgent need for a new trunk road into Kent. The saving in time and power which would result it is difficult to exaggerate. But however economically necessary it may be to relieve the pressure of the traffic on the main roads in the south-east of London and develop the adjacent rural districts for housing purposes, it is impossible to do so. Still more visionary is it to talk of constructing a properly engineered road between London and Dover, and so giving good road communication between London and an important commercial and military port. It may be possible to secure an electric railway between London and Dover, but no machinery exists for constructing a new road between the two places.

The difficulty is not confined to the Metropolis. Let anyone propose to connect two rapidly growing county boroughs, twenty or thirty miles distant from one another, by means of a new trunk road, and he will find the scheme, however desirable, quite impracticable. Let him propose to develop the suburbs of one of those boroughs by a carefully-thought-out scheme of radiating thoroughfares, he will find that equally impossible.

No public authorities have been constituted adequate to and equipped for the work of building new main lines of road communication. No machinery exists by which private enterprise can undertake the task. We are paralysed. Road-building energy is held in bond. Hence a motor problem; hence a housing problem; hence the growing difficulty and increasing cost of transporting goods by road, the vexatious delays, the innumerable street accidents.

How can these difficulties be overcome? How can the mistakes of the past be rectified? How, in short, can we, without any revolutionary legislative or administrative changes, secure the construction of the new trunk roads at a cost which will be proportionate to the results obtained and by methods which will not interfere unduly with existing interests?

TESSERÆ.

The Church of Aracœli.

ONE basilica of Rome, founded in A.D. 900, and therefore appertaining more to the tenth than the ninth century, is that of S. Maria-in-Aracœli. There still remain of this epoch the three vast naves, divided by columns bearing semi-circular arcades. Stems and capitals show the most grotesque confusion of picked-up marbles. Some of rough Ionic form hint at the time in which the church was built. Fragments of fasces and parapets of Italian Byzantine style may be seen in the interior of the ambo on the right side, and present the usual spirals, or else little arches holding crosses, roses, &c. Three interesting stems of columns, of unequal dimensions, that must have belonged to ancient ciboria, were discovered during the demolition of the old convent of Aracœli. They are striped one-third up vertically by large channellings filled up by cabling, and the other two-thirds are striped spirally by Doric channellings. That these elegant stems should be attributed to the Italian-Byzantine style is confirmed by other ciboria of Ravenna authentically of the ninth century, which are similarly adorned. Nothing Byzantine is revealed in them; they are absolutely Roman in character, for, strange circumstance, while the pagan Greeks never omitted to channel their columns (no matter of what dimensions they might be), the Christian Greeks, on the contrary, kept them invariably smooth, in order to enjoy all the beauty of veined or many hued marble. On the other hand, the Romans cared but little to channel columns of rough stone, but took much pains to channel those of white marble, in order to moderate their dazzling whiteness with reposeful shadow. At the end of the Empire the Roman architects of the decadence sought after bizarre channellings, which they often preferred gyrate or cut into various lengths, or fashioned into batons and gules rather than shell patterns. One would say that the stems of these Italian-Byzantine ciboria were copied from some Roman model of the third or fourth century.

Texture on Sculpture.

From the great numerical superiority of painters it results that their voice far outweighs, in public estimation, the judgment of the few whose special calling should render them the highest authorities in their own art, and, whilst the opinions of sculptors or architects would not be considered of weight in any question of painting, the public are content to accept the dictum of painters on all subjects connected with sculpture or architecture, whilst the voices of those who know most of these arts are drowned in the universal clamour, and their claims are selfishly ignored, even in the high council chambers of art. Seeing, then, that the entire control of art matters is in the hand of painters, can we wonder if we find sculptors who endeavour to propitiate them by cultivating those qualities the average painter is most capable of appreciating, even though these may be such as by their undue development lead to the degradation and destruction of the art? The texture of the skin can be rendered in sculpture by means which are neither very laborious nor very difficult; and where we have an opaque material as metal, clay or plaster, there is no doubt that this is a real gain, for the texture gives a softness and fleshiness which, though it has nothing whatever to do either with good or bad modelling, is not to be obtained by any other means. When, however, a work is executed in marble softness is chiefly the result of the material, the crystalline structure of which, combined with its translucency, breaks up the light in much the same manner as do the pores and other regularities of the human skin, so that there is no absolute need for imitation of skin texture in marble. In works of considerable size some further breaking up of the surface may occasionally be resorted to with advantage.

Belgian Carillons.

In Belgium day and night are set to music—music on a scale more colossal than that of the largest orchestra ever yet heard; music more penetrating than the loudest trumpet or organ blast. For however large the chorus and orchestra, it would scarcely be possible in the east end of London to hear a concert at Westminster, yet on still nights with a gentle wind blowing at that distance Big Ben has been distinctly heard. In Belgium every seven minutes there is bell-music, not only for the whole town, but for the country miles round. Those carillons, playing the same cheerful air every hour throughout the year, at last acquire a strange fascination over one who lives within sight and hearing of some such grey old church as St. Rombaud at Mechlin. There is no greater mistake than to suppose that bell-music every seven minutes is an unpleasant disturbance or interruption; its very frequency enables it to become completely assimilated to our everyday life. Are we not surrounded by natural changes and effects quite as marked in their way as bell-music, and yet which have no tendency to unsettle, distract or weary us? How loud at times does the wind blow; how suddenly on a dark day will the sun burst into our room; how shrill is the voice of our canary, which at last we hardly heed at all; how often does a rumbling vehicle pass along in the streets, and yet we cease neither reading nor writing for any of these. The bells musically arranged never irritate or annoy one in Belgium. Instead of time floating by in blank and melancholy silence, or being marked by harsh and brazen clashes, time floats on there upon the pulses of sweet and solemn music. To Belgium belongs the honour of having first understood and felt bells as musical notes, and devised that serial and colossal musical instrument known as the carillon. In the sixteenth century the use of several bells in connection with town clocks was common enough. Even little tunes were played at the quarters and half-hours. The addition of a second octave was clearly only a matter of time. In the seventeenth century carillons were found in all the principal towns of Belgium; and between the seventeenth and eighteenth centuries all the finest carillons now in use, including those of Malines, Antwerp, Bruges, Ghent and Louvain were set up. There seems to have been no limit to the number of bells, except the space and strength of the belfry. Antwerp Cathedral has sixty-five bells; St. Rombaud, Mechlin, forty-four bells; Bruges, forty bells and one bourdon, or heavy bass bell; Ghent, thirty-nine; Tournay, forty; Ste Gertrude, at Louvain, forty. The great passion and genius for bells which called these noble carillons into existence can no longer be said to be at its height. All bell machinery can be infinitely better made now than ever; but notwithstanding the love of the Belgians for their chimes and carillons, and the many modern improvements that have been recently made, we cannot help feeling that the great bell period ended in 1785 with the death of the greatest organist and carillonneur Belgium has ever produced, Matthias Van den Gheyn.

Greek Architecture and Greek Tragedy.

The simplicity of the architecture of the Greeks, with the gradual improvement of whose rational faculties, truth and nature, in all the departments of knowledge which they could

reach, continued to extend their sway, may be compared to that of their tragic drama. The same state of civilisation produced the two, the same people admired them; and they were both under the regulation of simple but strict rules, grounded upon an accurate investigation of the objects around them. As the merits of the one consisted mainly in the development of the ordinary affections of the soul, under the greatest possible excitement, in the course of some important and well-known action, it required no intricacy of plot, no refined sentiments, no variety of action, no fluctuating play of the passions, no strange inventions, no surprise in unravelling a new story; but the language in which it was composed was pure, beautiful, correct and luminous throughout; the dialogue, ever true to nature, presented the precepts of philosophy harmonised by the Attic muse, and the choruses depicted the common feelings of all who heard them, as men and patriots, in strains accompanied with exquisite melody, producing the most exalted emotions. In the same manner their manly Doric architecture, which was truly "nature methodised," the only architecture, says Addison, which reconciles grandeur with regularity and proportion, admitted no meretricious display of ornament to break the unity of the design. Every part of it spoke to the eye at once, and was intelligible to all; nothing useless, nothing out of its place. Thus the Parthenon became the very school of architecture and sculpture combined, where each gave additional lustre to the other, and augmented its magical effect; and, if the sacred buildings of Asia presented something more gorgeous, more decorated than those of Athens and Proper Greece, these alone were regarded as the best models, and were the tests by which others were judged, as Cicero purified his luxuriant diction by the study of the Greek writers of a better time, in the Lyceum and in the Academy; and he thus introduced into his native language a sweetness, a grace and a majesty hitherto unknown to the Romans.

GENERAL.

The Winter Exhibition of the Royal Academy will open on Monday next.

Mr. H. Percy Adams has been appointed by the advisory committee as architect of the King's sanatorium.

The Election to the Disney professorship of archaeology will take place on Tuesday, January 20, 1903. The professorship is tenable for five years. Mr. Ridgeway, whose term of office expires on January 15, offers himself for re-election.

The West Front of Exeter Cathedral, which has been gradually forced outward by the weight of the roof, has been found insecure, and the Dean and Chapter have decided on a renovation.

An Election will take place at the Royal Academy on the 21st inst. There are vacancies for one Royal Academician and three Associates.

Messrs Hudson & Kearns are again to the fore with their most useful diaries, calendars, date-indicating blotting pads and other accessories for the offices of architects and builders. All varieties of their productions are especially suited for their purposes. The papers used are among the best which can be procured, and there is a solidity about the binding which makes the volumes enduring as befits books of reference. From their extensive *clientèle*, Messrs. Hudson & Kearns have opportunities for discovering all that is needed in offices. They have laid themselves out to merit approval and have succeeded.

A Bill is to be introduced in the United States House of Representatives providing for placing on the free list of the Dingley Tariff "paintings in oil or water-colour, statuary, sculpture, drawings, engravings and etchings," which "shall have been manufactured or produced more than fifty years before the date of importation."

M. Henri François, pupil of M. Moyaux, has won the prize founded at the Ecole des Beaux-Arts by American architects. The subject was "A Hotel in California," of which the façades had to be of timber.

The Designs for a reredos to be erected in All Saints Church, Maidstone, as the gift of Mr. Herbert Monckton, who is town clerk of Maidstone, have been adopted. The design is elaborate, and will complete the work of restoration.

The Rev. H. Rickard, M.A., principal of Chichester Theological College, has commenced a series of lectures on the subject of "The Great Churches of the North of France," the first of the series being delivered on Monday. The lectures are illustrated with photographs, diagrams and original drawings.

The Greek Government, acting with the foreign schools of archaeology at Athens, has decided to invite to a first international congress of archaeology all the leading archaeologists of the world.

Mr. A. W. S. Crosse will read a paper on "Competition" at the meeting of the Manchester Society of Architects on next Thursday.

The Commission of American Engineers recently appointed to investigate the problems of water waste prevention and additional water supply for the city of New York have entered upon their duties. The commission is expected to make its final report by November 1903, and to defray its expenses an appropriation of 100,000 dols. has been made, of which 36,000 dols. is for salaries of the commission. The Department of Water Supply, Gas and Electricity will co-operate in the studies.

Mr. H. F. Hibbert, chairman of the technical instruction committee of the Lancashire County Council, was admitted to the freedom and livery of the Plumbers' Company at the quarterly meeting held at the Guildhall.

The Housing Committee of the Liverpool Corporation have agreed to recommend that the Council place at the disposal of the committee the sum of 5,300*l.* for the purchase and demolition of insanitary property under the powers of the Liverpool Sanitary Amendment Act, 1864, and the various statutes and provisional orders amending that Act, and also 55,000*l.* for the purchase of land and erection of dwellings.

Hughenden Manor, where the late Lord Beaconsfield lived, is to be let. The house occupies a conspicuous position on the Chiltern Hills, close to High Wycombe, and has of late been undergoing extensive improvements. The estate over which the sporting rights extend covers about 1,300 acres.

The Trustees of the American Academy in Rome have taken steps towards securing an endowment fund of one million dollars, sufficient to place their Academy on a par with that of the French Academy in Rome and those of other countries.

The American Institute of Architects have elected the following corresponding members:—John James Burnet, of Glasgow; Bannister F. Fletcher, of London; Mervin MacCartney, of London; Leonard Stokes, of London; A. H. Blomfield, of London.

The Halesowen District Council has received official sanction to borrow 95,000*l.* to construct a light railway between Stourbridge and Birmingham. The railway, it is expected, will be completed within three years.

Dr. A. S. Murray, of the British Museum, has been elected a corresponding member of the Institute of France (*Académie des Inscriptions et Belles-Lettres*).

The Metropolitan Wesleyan Chapel Building Fund has sanctioned some twenty-six fresh sites for Wesleyan chapels in or near London—at Highgate, Harrow, Upper Tooting, Balham, East Ham, Acton, Hanwell, Finchley, South Wimbledon, Edmonton, Plumstead, and other populous centres. The report states that twenty other localities where Wesleyan chapels are needed are under consideration.

The Correspondent of the *New York Times* telegraphs from Mexico City that Sir Weetman Pearson & Son, the English contractors, have procured a concession to establish an electric generator, at a cost of 12,000,000 dols., in the mountains of Puebla, where there is abundant water power, to transmit a current of 80,000 horse-power to the city for commercial uses.

The St. Honoré market, erected on the site of the Jacobin monastery in Paris, is to be converted into a model laundry. The monastery was founded in 1613, and after being suppressed in 1793 served as the meeting place of the Jacobin Club, of which Robespierre was the head. The market was commenced in 1809 according to the plans of M. Molinos.

The Incorporated Gas Institute and the Incorporated Institution of Gas Engineers have been dissolved for the purpose of forming a united society under the name of the Institution of Gas Engineers. The necessary arrangements have been completed, and the Institution has been duly registered, the offices being at 39 Victoria Street, Westminster.

His Majesty the Emperor of Germany, accompanied by the Empress, visited the atelier of the sculptor Professor Eberlein in order to inspect the statue of Goethe which is destined to be erected in Rome in 1904.

Portsmouth Dockyard is to be equipped with a new steam factory. The building will cost nearly 200,000*l.*, and all the engineering work of the yard will be centred in it, the present factories being devoted to other purposes. This step has been made necessary by the growth of work at Portsmouth.

Mr. Carnegie has intimated to the Provost of Greenock that he is prepared to present to a properly authorised authority in the town the sum of 10,000*l.* to defray the cost of the erection of a memorial to James Watt; or he is willing to head a movement in America to raise a large fund which, added to what might be raised in Great Britain, would provide a wider scheme.

A Special General Meeting of the Liverpool Architectural Society will be held at 13 Harrington Street, Liverpool, on Monday next, January 5, when a paper will be read by Mr. C. Harrison Townsend, F.R.I.B.A., on "Mosaic Work."

Mr. G. F. Watts, R.A., has been elected a foreign corresponding member of the *Académie des Beaux-Arts*.

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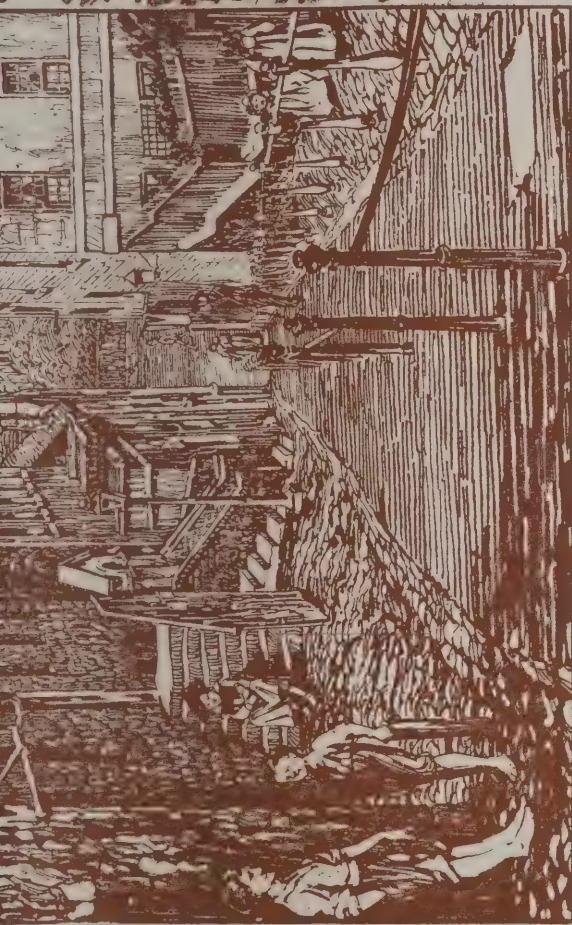
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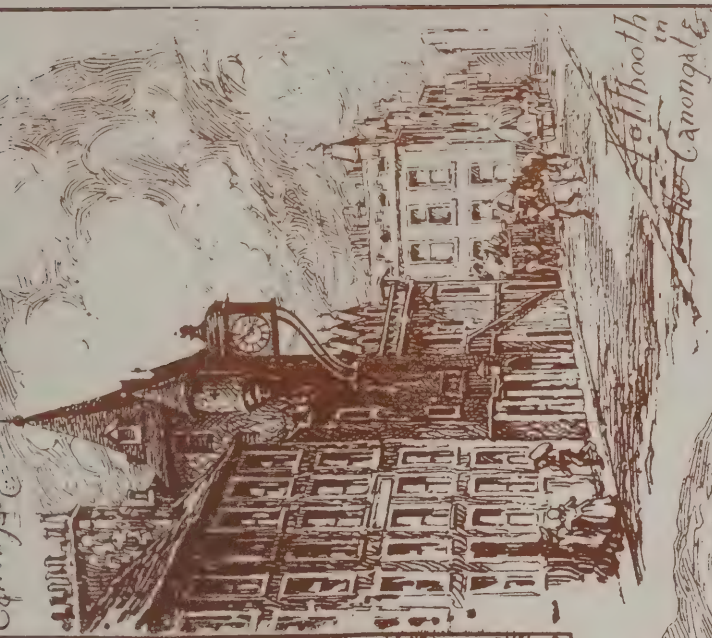
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The Architect, Jan 2nd 1903.





The Castle from the Vennel.



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John Knox's House.



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White Horse Close.

Holyrood Palace.

41 Spurrill.

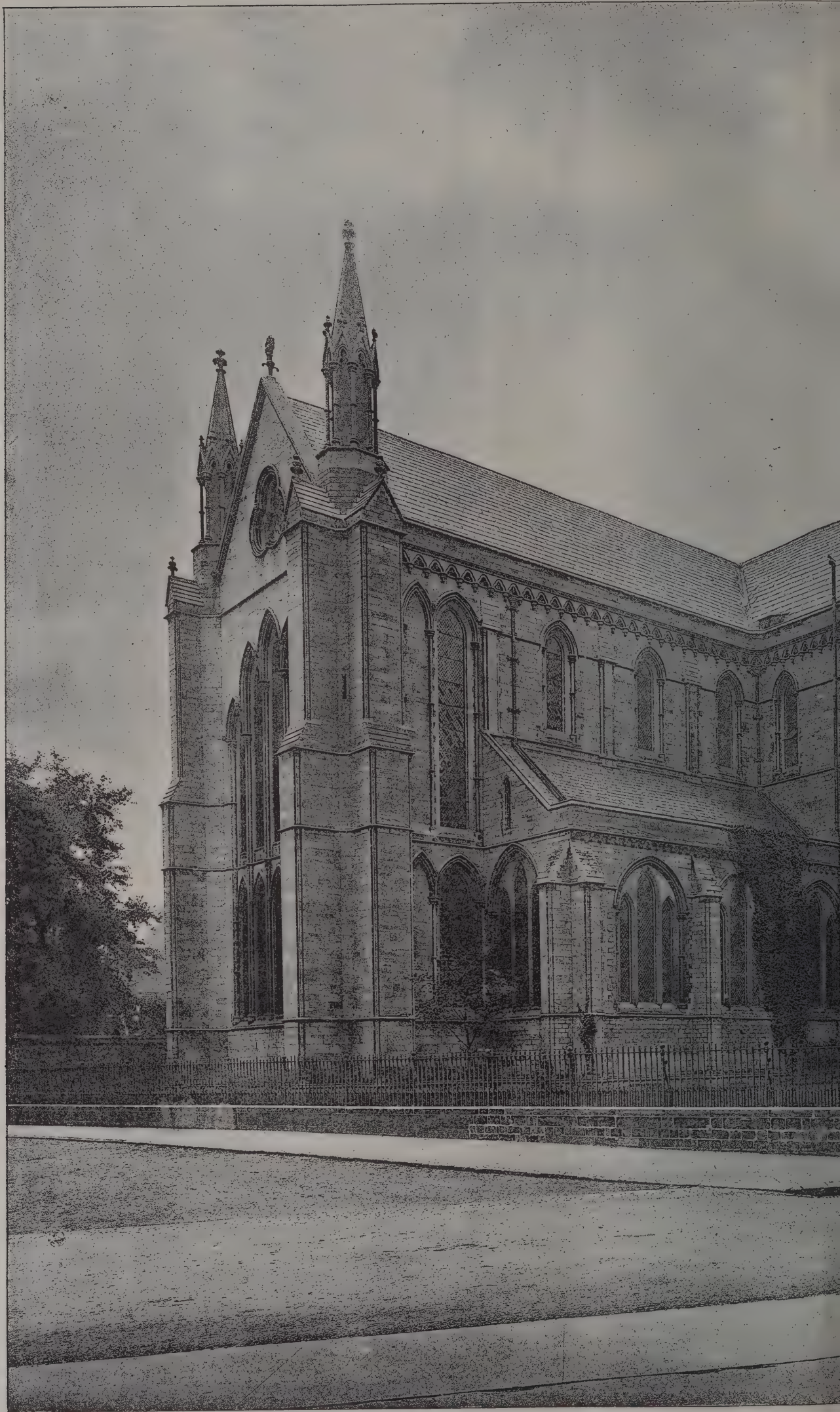


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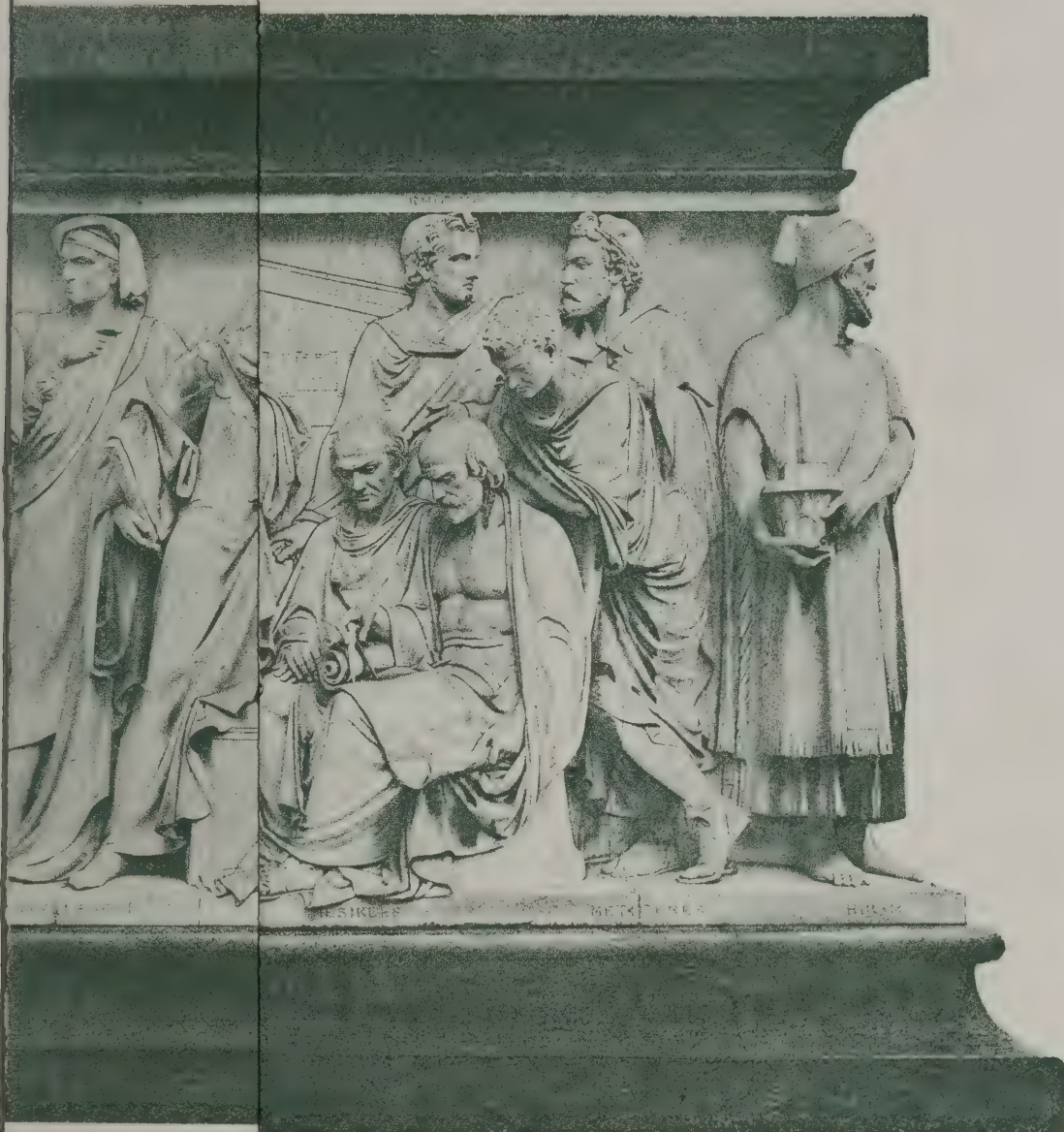


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H. H. ARMSTEAD

The Architect, Jan 2nd 1903



THE MASTERS OF ART: ARCHITECTS.

THE
Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Parrett. Mr. W. T. Baker, town clerk, King Square, Bridgewater.

CAPE TOWN.—Jan. 31.—The Council of the University of the Cape of Good Hope invite designs for the erection of university buildings. Premiums of 400*l.*, 200*l.* and 100*l.* will be awarded to the authors of the designs placed first, second and third respectively. Particulars of the competition may be obtained on application to the Registrar at Cape Town, or to the Agent-General in London.

HULL.—Mar. 31.—Designs in competition are invited for the extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

KINGSTON-ON-THAMES.—Jan. 15.—Plans and designs are invited for a central home and cottage homes for children of both sexes in the Kingston Road, in the parish of New Malden. A premium for the first three selected plans of 25*l.*, 15*l.* and

10*l.* respectively is offered. Mr. Jas. Edgell, clerk, Union Offices, Coombe Lane, Kingston-on-Thames.

ST. IVES, CORNWALL.—Jan. 31.—Competitive plans are invited for the erection of municipal buildings, to consist of a guildhall, council-chamber, jury room, public hall, town clerk's office, surveyor's office, treasurer's office, muniment room, parochial office, mayor's parlour and fire-brigade station and offices. Premiums of 70*l.* and 30*l.* respectively will be awarded to the architects whose plans and specifications are considered to be first and second in order of merit. Mr. Edward Boase, town clerk, Town Clerk's Office, St. Ives, Cornwall.

SUTTON COLDFIELD.—Feb. 20.—Designs are invited for the erection of a town hall adjoining the council house, the total expenditure to be limited to 7,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* respectively will be awarded for the three best designs in order of merit. Mr. W. A. Clarry, C.E., borough surveyor, Council House, Sutton Coldfield.

CONTRACTS OPEN.

ACTON.—Jan. 6.—For erection of a park-keeper's lodge in Acton Park, the erection of a house at the sewage works, and for supplying and fixing iron railings for enclosure in Acton Park. Mr. D. J. Ebbetts, surveyor, 242 High Street, Acton.

BARNSELY.—Jan. 7.—For erection of five sand-washers and making and delivery of a small quantity of straight cast-iron socket pipes, of from 5 inches to 18 inches internal diameter, together with certain special pipes, in connection with the Midhope Waterworks filter beds in course of construction near Upper Midhope. Messrs. T. & C. Hawksley, 30 Great George Street, Westminster, S.W.

BATLEY.—For erection of new central stores, for the Batley Co-operative Society, Ltd. Mr. Harry B. Buckley, architect, 85 Commercial Street, Batley.

BETHNAL GREEN.—Jan. 5.—For erection of dormitories, maternity wards and other buildings at the Waterloo Road workhouse, Bishop's Road, Victoria Park. Mr. W. A. Finch, architect, 76 Finsbury Pavement, E.C.

BOLSOVER.—Jan. 7.—For supply of steam road-roller weighing 10 tons or 12 tons (separate). Mr. John Hunter, clerk to the Urban District Council, Bolsover, Chesterfield.

BOSCOMOOR.—Jan. 6.—For the repair of two brick bridges at Boscomoor, near Penkridge, Staffs. Mr. H. M. Whitehead, surveyor, Mill Street, Penkridge.

BOW.—Jan. 20.—For the reconstruction and widening of Bow Bridge, carrying Bow Road over the River Lee, and situate partly in the County of London, and partly in the County of Essex. Particulars at the Engineer's department, L.C.C. County Hall, Spring Gardens, S.W.

BRIDGWATER.—Jan. 6.—For erection of boundary wall, gate piers, shed and other works in connection with the Blake Gardens. Mr. W. T. Baker, town clerk, Bridgewater.

BRISTOL.—Jan. 6.—For supply of surface condensers, &c., for the second instalment of the Avonbank Electricity Works. Mr. H. Faraday Proctor, city electrical engineer, Temple Back.

BURY.—For erection of a branch bank, with two shops and clubhouse, in Silver Street, Bury, Lancs. Messrs. Moulds & Porritt, architects, Victoria Buildings, Bury.

BUTTERSHAW.—Jan. 5.—For masonwork (labour only) in erecting four houses, Buttershaw, Yorks. Messrs. Brayshaw & Dixon, architects, Bowling Old Lane, Bradford.

CAMBORNE.—Jan. 22.—For erection of Council offices and fire station at the Camborne Cross, Camborne, Cornwall. Mr. Sampson Hill, architect, Redruth.

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CANTERBURY.—Jan. 16.—For repairs, painting, &c., to stone house, stables, cottages, farm buildings, greenhouses, &c., at the Canterbury Borough Asylum, St. Martin's Hill. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

CLACTON-ON-SEA.—Jan. 5.—For erection of engine and boiler-houses and other buildings. Mr. Geo. T. Lewis, clerk, Town Hall, Clacton-on-Sea.

CROMER.—Jan. 12.—For erection of an electric-light station, comprising boiler-house, engine and accumulator rooms, stores and offices at Cromer. Mr. James K. Frost, clerk, Council Office, Cromer.

DEVIZES.—Jan. 20.—For erection of a female ward at the Wilts County pauper and lunatic asylum, Devizes. Mr. Charles S. Adye, county surveyor, County Offices, Trowbridge.

DEVONPORT.—Jan. 14.—For construction of septic tanks, bacterial filters, buildings, &c., at the Fish Pond, Camelshead Mr. J. F. Burns, borough surveyor, 39 Ker Street, Devonport.

DURHAM.—Jan. 5.—For erection of new Board schools at Heworth. Mr. H. Miller, architect, Felling.

DURHAM.—Jan. 5.—For erection of new Board schools at Heworth. Mr. H. Miller, architect, Felling.

DURHAM.—Jan. 19.—For erection of a road bridge over the river Wear, near Harelaw, Wolsingham. Mr. George W. Egglestone, highway surveyor, Stanhope.

ESSEX.—Jan. 7.—For erection of the Carnegie free library at Grays, Essex, and for furnishing, lighting and heating the same. Mr. Christopher M. Shiner, architect, 6, 7 and 8 Crutched Friars, E.C.

FINCHLEY.—Jan. 17.—For carrying-out certain new sanitary arrangements, structural alterations, decorations and renovations in connection with Christ's College. Mr. H. T. Wakelam, engineer, Guildhall, Westminster.

GLOUCESTER.—Jan. 5.—For reconstruction of the Sudbrook culvert under the Midland Railway Company's goods yard, High Orchard, Gloucester. Mr. R. Read, city surveyor, Guildhall, Gloucester.

GRIMSBY.—Jan. 7.—For erection of two washhouses, &c., behind 200 and 202 King Edward Street. Mr. H. Gilbert Whyatt, borough surveyor, Town Hall Square, Grimsby.

GRIMSBY.—Jan. 12.—For supply of an electrically-driven capstan for use at the electricity works. Mr. W. A. Vignoles,

borough electrical engineer, Corporation Electricity Works, Grimsby.

HACKNEY.—Jan. 14.—For extension of the existing boiler-house and the provision of additional boilers at the workhouse, Sidney Road, Homerton, N.E. Mr. W. A. Finch, architect, 76 Finsbury Pavement, E.C.

HACKNEY.—Jan. 20.—For erection of a block of balcony dwellings for the working classes on a site situated at London Fields. Particulars at the Housing Section of the Architect's Department, London County Council, 19 Charing Cross Road, S.W.

HALIFAX.—Jan. 8.—For erection of three houses and a shop in Warley Road, Halifax. Mr. Lister Coates, architect, Yorkshire Bank Chambers, Waterhouse Street, Halifax.

HERTFORD.—Jan. 12.—For erection of a hotel and shop adjoining at Hertford. Mr. James Farley, architect, Old Cross, Hertford.

HONLEY.—Jan. 6.—For erection of three cottages at Long Lane, Honley. Mr. Harry Coldwell, wheelwright, Honley.

HOUNSLOW.—Jan. 6.—For sewerage works on the Treaty House Estate, Hounslow. Mr. P. G. Parkman, surveyor, Town Hall, Hounslow.

HUDDERSFIELD.—Jan. 3.—For erection of a villa residence at Milnsbridge, Huddersfield. Messrs. T. H. & F. Healey, architects, Tyrell Street, Bradford.

HULL.—Jan. 9.—For erection of a covered market on the North Church Side and Trinity House Lane. Mr. Joseph H. Hirst, city architect, Town Hall, Hull.

ILKESTON.—Jan. 13.—For erection of a public free library at Ilkeston. Messrs. Hunter & Woodhouse, architects, Belper.

IPSWICH.—Jan. 13.—For additions to workshops at St. John's Home, Ipswich. Mr. Henry J. Wright, architect, 4 Museum Street, Ipswich.

IRELAND.—Jan. 5.—For erection of a café at Victoria Market. Mr. M. A. Robinson, architect, Richmond Street, Londonderry.

IRELAND.—Jan. 6.—For erection of cottages in the various townlands of Strabane. Mr. J. E. Sharkie, clerk, District Council Offices, Strabane.

IRELAND.—Jan. 7.—For erection of a clubhouse, Belfast. Mr. Henry Hobart, architect, Dromore, co. Down.

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IRELAND.—Jan. 6.—For erection of cottages in the various townlands. Mr. J. E. Sharkie, clerk, District Council Offices, Strabane.

IRELAND.—Jan. 14.—For erection of a free library, Waterford. Mr. Albert E. Murray, architect, 37 Dawson Street, Dublin.

KETTERING.—Jan. 5.—For supply of two miles of 21-inch diameter cast-iron water pipes, with sundry specials; about 150 feet of 20-inch diameter cast-iron steam exhaust pipes, with sundry specials, &c. Mr. T. Reader Smith, surveyor, Market Place, Kettering.

LEEDS.—Jan. 5.—For alterations and additions to Balks House, Wortley. Messrs. Buttery & Birds, architects, Queen Street, Morley.

LEYTONSTONE.—Jan. 5.—For erection of Norlington Road schools, Leytonstone, Essex. Mr. William Jacques, architect, 2 Fen Court, Fenchurch Street, E.C.

LONDON.—Jan. 6.—For erection of six coal offices at Acton station, Middlesex, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

MANCHESTER.—Jan. 7.—For putting-in the foundations of the proposed chief fire station and police station in London Road, Fairfield Street, Whitworth Street and Commerce Street. Mr. William Windsor, surveyor, 37 Brown Street, Manchester.

MIDDLETON.—Jan. 22.—For erection of the new Post Office and tenement offices in Long Street and Sadler Street. Messrs. Stones & Stones, architects, 10 Richmond Terrace, Blackburn.

NORTHWICH.—Jan. 6.—For extension of the Victoria Infirmary, Northwich, consisting of ward accommodation for twenty-two beds, operating theatre and other offices. Mr. J. Holland, architect, Hayhurst Street, Northwich.

NOTTINGHAM.—Jan. 8.—For the erection of a bridge over the Canal, Willford Street, Nottingham. Mr. Arthur Brown city engineer, Guildhall, Nottingham.

PLYMOUTH.—Jan. 13.—For erection of a lecture table and fume closet at the pupil teachers' centre, Salisbury Road school. Mr. E. Chandler Cook, clerk to School Board, 18 Princess Square, Plymouth.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

ST. ALBANS.—Jan. 6.—For erection of discharging-rooms and other works at the Sisters' Hospital. Mr. A. H. Debenham, town clerk, St. Albans.

SCOTLAND.—Jan. 5.—For erection of a tenement, Candle-maker Row, Edinburgh. Mr. Thomas Hunter, town clerk, City Chambers, Edinburgh.

SCOTLAND.—Jan. 7.—For erection of houses in Fraserburgh. Mr. William Reid, architect, Saltoun Square, Fraserburgh.

SCOTLAND.—Jan. 19.—For erection of new station buildings at Wemyss Bay and Inverkip. Mr. J. Blackburn, secretary, Caledonian Railway Company, 302 Buchanan Street, Glasgow.

SHEERNESS.—Jan. 7.—For erection of a bakery (exclusive of ovens and machinery) at Broad Street, Sheerness. Mr. John H. Burrows, secretary, Economical Square, Sheerness.

TEIGNMOUTH.—Jan. 6.—For extensions and alterations at the gasworks. Mr. J. Alex. Gray, gas engineer, Teignmouth.

TRING.—Jan. 5.—For erection of engine-house and the construction of about 200 yards of cast-iron rising main, as well as laying out forty-five acres of land for irrigation, together with all distributing carriers and under-drains. Messrs. Wilcox & Raikes, engineers, Union Chambers, 63 Temple Row, Birmingham.

TROWBRIDGE.—Jan. 5.—For erection of an isolation hospital for thirty patients at Trowbridge, Wilts. Mr. J. Hugh Goodman, architect, Town Hall Chambers, Reading.

TROWBRIDGE.—Jan. 6.—For reconstruction of the urinal at the Town Hall. Mr. H. G. Nicholson-Lailey, town surveyor, Town Hall, Trowbridge.

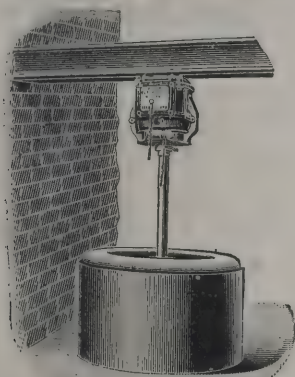
UXBRIDGE.—Jan. 8.—For erection of a wooden framework building covered with galvanised iron. Mr. Charles Woodbridge, clerk, Urban District Council, 38 High Street, Uxbridge.

WALES.—For rebuilding the Masons' Arms inn, Whitchurch. Messrs. Teather & Wilson, architects, Andrew's Buildings, Queen Street, Cardiff.

WALES.—Jan. 5.—For alterations at the Park Terrace Board schools, Pontypool, Trevethin. Mr. Henry Bythway, clerk, Pontypool.

WALES.—Jan. 5.—For erection of ninety-five cottages at Abertridwr, near Caerphilly. Mr. Edmund Thomas, 19 Eirw Road, Porth, Pontypridd.

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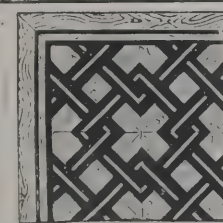
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WALES.—Jan. 5.—For erection of ninety-five cottages at Aber, near Caerphilly. Mr. E. Thomas, 19 Eirw Road, Porth.

WALES.—Jan. 5.—For erection of a school, latrines, boundary walls, &c., at Abertysswg, near Pontlottyn. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Jan. 5.—For alterations and repairs, including new swivel partitions, improvements in the ventilation, &c., to the Earl Street schools, Tredegar, Mon. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Jan. 6.—For erection of a parcels office, cloak-room, &c., at Mountain Ash station, Glamorganshire, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

WALES.—Jan. 7.—For erection of a shop and kitchen at Neath Road, Ystradgynlais. Mr. Thomas Williams, engineer, Pelican Street, Ystradgynlais.

WALES.—Jan. 12.—For enlargement of Tylorstown schools, Ystradgynlais. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—Jan. 15.—For alterations and additions to Old Siloh chapel, Pentre, Rhondda Valley. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Glam.

WALTHAMSTOW.—Jan. 26.—For erection of a school to accommodate 520 at Selwyn Avenue, Hale End, and alterations and additions, including nine new classrooms, to the Maynard Road schools. Mr. H. Prosser, architect, School Board Offices, Walthamstow.

WANDSWORTH.—Jan. 26.—For construction of underground sanitary conveniences at Tooting Broadway. Particulars may be obtained at the Surveyor's Office, 215 High Road, S.W.

WEYBRIDGE.—Jan. 7.—For repairs, painting, &c., at the fire brigade station, Balfour Road. Mr. John S. Crawshaw, surveyor, Council Offices, Weybridge.

WEYMOUTH.—Jan. 8.—For construction of a public convenience under the Esplanade, near the cabmen's shelter. Specifications, &c., to be seen at the offices of the Borough Surveyor, Melcombe Regis.

YORK.—Jan. 8.—For alterations to municipal offices, and for supplying and fixing new and rearranging old office furniture, fittings, &c. Mr. A. Creer, city engineer, Guildhall, York.

TENDERS.

ACTON.

For erection of the South Acton (boys) Board school, for the School Board for Acton, W. Messrs. EDWARD MONSON & SONS, architects to the Board, Acton Vale, W., and 22 Buckingham Street, Adelphi, W.C. Quantities by Mr. F. T. W. MILLER, 9 Queen Anne's Gate, S.W.

W. G. Dickens	£16,670	o	o
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G. Gray	14,639	o	o
Barker & Co., Ltd.	14,550	o	o
Kingerlee & Sons	14,287	o	o
Foster Bros.	14,266	o	o
W. J. Renshaw	13,997	o	o
Spencer, Santo & Co.	13,985	o	o
F. & E. Davey	13,984	o	o
Appleby & Sons	13,920	o	o
Speechley & Smith	13,700	o	o
C. Brightman	13,662	o	o
Lawrence & Son	13,494	o	o
W. Wallis	13,450	o	o
Knight & Son	13,384	o	o
R. L. Tonge	13,300	o	o
Treasure & Son	13,248	o	o
Hunt & Son	12,735	o	o
W. BLACKBURN, Elliott Road, Chiswick*	12,436	o	o
M. G. King	12,174	o	o
Architects' estimate	12,643	o	o

* Accepted subject to the approval of the Board of Education.

BARNSELY.

For alterations and additions to house, Gawber Road, Barnsley. Messrs. CRAWSHAW & WILKINSON, architects, 13 Regent Street, Barnsley.

Accepted tenders.

W. Schofield, Summer Lane, mason.

J. Smith, Western Street, joiner.

Fleming, Eastgate, slater and plasterer.

B. Denison, Regent Street South, plumber.

W. Smith, Sheffield Road, painter.

Snowden & Son, Market Street, electric lighting.

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(accepted).

BEXHILL.

For additions to the boiler-house, engine-room and office at the electric-lighting works. Mr. W. T. LE FEUVRE, engineer.

F. W. Parker £3,175 0 0
T. W. Dexter 2,457 0 0
W. H. BAILEY (accepted) 1,956 0 0

BOURNEMOUTH.

For construction of foundations, erection of retaining wall, &c., for suspension bridge, Alum Chine. Mr. F. W. LACEY, borough engineer.

W. Hoare £297 0 0
Jenkins & Sons, Ltd. 294 0 0
J. McWilliam & Son 228 0 0
F. HOARE & SONS, Wharf Road (accepted) 209 0 0

For street works in St. Leonard's Road and Capstone Road. Mr. F. W. LACEY, borough engineer.

St. Leonard's Road.

M. Loader £533 18 1
W. P. Saunders 508 7 2
G. Troke 387 3 7
H. C. Brixey 377 13 9
Grounds & Newton 359 15 4

Capstone Road.

W. P. Saunders 688 0 0
M. Loader 463 18 9
G. Troke 427 13 1
Grounds & Newton 427 7 5
H. C. Brixey 386 5 0

BRIDGWATER.

For erection of a farmhouse, outbuildings, &c., at Wembdon. Mr. CHARLES HISCOCK, architect, Bridgwater.

COLES & SON, Enmore (accepted) £490 0 0

DARTON.

For erection of two houses and outbuildings at Darton, near Barnsley. Messrs. CRAWSHAW & WILKINSON, architects, 13 Regent Street, Barnsley.

Accepted tenders.

Brown Bros., Barnsley, mason.
Turton Bros., Barnsley, joiner.
Fleming, Barnsley, slater.
B. S. Ledger, Barnsley, plumber.
Fleming, plasterer.
E. R. Fletcher, Barnsley, painter.

EASTBOURNE.

For painting and repairs to the north pavilion at the borough sanatorium. Mr. W. CHAPMAN FIELD, architect.

A. J. White £220 0 0
G. W. Smith 219 10 0
W. G. Taylor 200 0 0
B. Maynard 191 0 0
M. Hookham 191 0 0
A. C. BURTON, Bedford Well Road (accepted) 187 0 0
W. Llewellyn 185 0 0
T. Glover 180 13 6
A. Hudson 180 5 0

FINCHLEY.

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Accepted tenders.**Section 3.**

Hornsby & Sons, Ltd, Grantham £1,295 0 0

Section 4.

Sunderland Forge Co, Pallion, Sunderland 2,264 0 0

Section 6.

Callenders, Hamilton House, Victoria Embankment, E.C. 10,107 0 0

Note.—Section 5 not decided.

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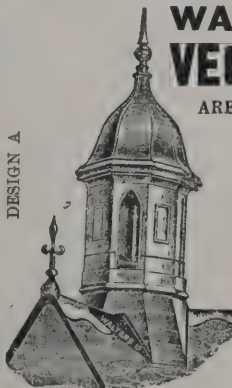
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W. Gradwell & Co., Ltd., Barrow-in-Furness, for putting-down 32 timber groynes as the first instalment of sea-defence work	1,595 11 6

IRELAND.

For erecting an ornamental wooden shelter on the Esplanade, Bangor, county Down.

McDowell, Leatham & Frazer	£220 0 0
J. COLVILLE, Bangor (<i>accepted</i>)	128 19 0

KINGSTON-ON-THAMES.

For supply and erection of two external iron staircases and construction of emergency exits to the old central buildings at the workhouse. Mr. W. H. HOPE, architect, Hampton Wick, Middlesex.

Rosser & Russell, Ltd.	£1,030 0 0
J. Kean	925 0 0
Jones's Ironfoundries and Engineering Co., Ltd.	819 0 0
J. O. Brettell	806 10 0
St. Pancras Ironwork Co., Ltd.	785 0 0
H. & G. Measures	697 10 0
J. & F. May	670 0 0
Peirson & Co.	653 5 0
A. S. Wood	637 0 0
Peirson & Co. (alternative tender)	633 0 0
Norton Bros. & Co.	620 0 0
Herring & Son	595 0 0
Rowlingson & Co.	546 0 0
W. A. BAKER & Co., Ltd., Central Ironworks, Newport, Mon (<i>accepted</i>)	540 0 0
G. Wright & Co. (ironwork and fixing only)	500 0 0
M. A. Potts & Co. (steelwork only)	369 9 3
Lightfoot & Ireland, Ltd., Cazenove Works, Stoke Newington (<i>withdrawn</i>)	350 0 0

LONDON.

For fitting-up, &c., of a chemical and physical laboratory, science lecture-room, preparation-room and master's-room at Christ's College, Finchley.

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For alterations and additions at 54 Doughty Street, W.C. Mr. JAMES NEALE, architect, 10 Bloomsbury Square, W.C.

H. J. Toms	£1,398 15 3
R. E. Worsley & Co.	1,210 0 0
SMITH & NORRIS (<i>accepted</i>)	1,097 18 0

NEW CROSS.

For additions to laundry and laundry machinery at the baths and washhouses, Laurie Grove.

Accepted tenders.

Moorwood, Sons & Co., Ltd., Harleston Ironworks, Sheffield, machinery	£182 10 0
A. Wilson, 4 Vulcan Road, Brockley, addition to laundry	164 19 8

NORWICH.

For conversion of premises, 3 and 5 Magdalen Road, into branch police station. Mr. ARTHUR E. COLLINS, city engineer. Quantities by City Engineer.

H. S. Watling	£662 0 0
J. Downing & Son	623 0 0
J. Burton & Son	610 0 0
H. C. Greengrass	569 0 0
S. Chapman & Son	559 0 0
J. Pye & Son	533 10 0
J. S. Smith	530 0 0
A. C. Taylor	530 0 0
W. Wilkin	492 15 0
W. O. Woodward	467 0 0
W. J. Hannant	459 0 0
LINCOLN & BUSH, 65 Carnarvon Road (<i>accepted</i>)	454 0 0

PRESTON.

For erection of a hospital for infectious diseases, to contain twenty-six beds, at Fulwood. Messrs. J. A. SEWARD & WM. RAWCLIFFE, architects, 119A Fishergate, Preston.

J. CARTMELL & SONS, Preston (*accepted*).

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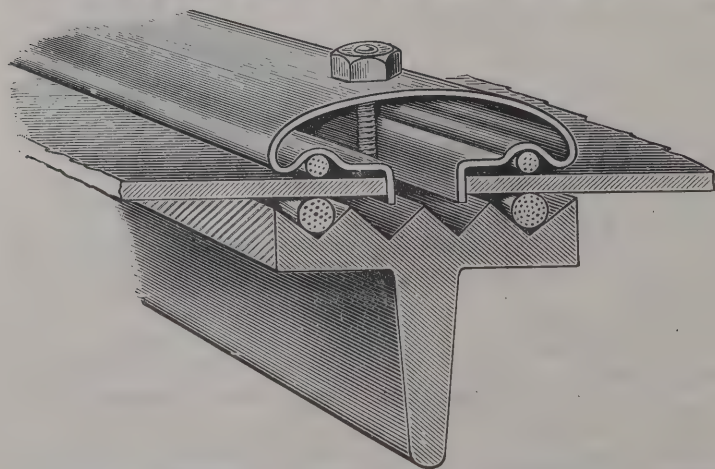
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For rebuilding stables destroyed by fire at Woollet Hall, North Cray, Kent, for Mr. Ronald Keep. Mr. ERNEST H. ABBOTT, architect, 6 Warwick Court, Gray's Inn, W.C. Quantities by Mr. A. JOHNSON, 34 Imperial Buildings, Ludgate Circus, E.C.

H. Dunn	£1,150	0	0
Stebbing & Pannett	942	18	6
W. H. Smith	902	0	0
W. Hark	844	10	8

SCOTLAND.

For intercepting sewer for the western district, Glasgow. R. M'ALPINE & SONS (accepted) £65,661 0 0

SHENLEY HILL.

For alterations and additions at Shenley Hill House, Herts. Mr. JAMES NEALE, architect, 10 Bloomsbury Square, W.C.

T. CROSSLEY & SON, Bromley (accepted) £2,074 0 0

Engine and Electric-Light Installation.

Buchanan & Curwen	650	0	0
J. O. Grant	636	0	0
C. E. ZIMDARS, London (accepted)	599	19	0

STREET (SOMERSET).

For the supply and delivery of 9-inch, 5-inch, 4-inch and 3-inch cast-iron pipes for the new waterworks. Mr. A. P. I. COTTERELL, engineer, 28 Baldwin Street, Bristol.

MacEwan & Co.	£8,926	11	8
Smith & Marchant	8,754	8	0
Wright & Son	8,657	0	0
Cochrane & Co.	8,575	7	6
J. & R. Ritchie	8,562	5	0
J & S. Roberts	8,521	12	6
D. Parsons & Sons	8,021	7	6
Sheepbridge Iron Co.	7,975	19	6
A. G. CLOAKE, Holborn Viaduct, London (accepted)	7,469	7	6
Mannesmann Tube Co, Landore, South Wales (3-inch, 4-inch and 5-inch only), about	2,601	0	0
Watson, Gow & Co. (3-inch, 4-inch and 5-inch only), about	1,918	0	0

STOKE-ON-TRENT.

For painting cottage homes.

T. BICKLEY & CO., Hanley (accepted) £232 12 6

UXBRIDGE.

For erection of a bath-room, with hot and cold-water services and fittings, &c., at the isolation hospital, Kingston Lane, Hillingdon East. Mr. BERTRAM FREEMAN, surveyor, Swiss Cottage, Chilton View Road, Uxbridge.

W. Buttrum	£75	0	0
Ward & Son	74	0	0
A. Humber	65	0	0
F. Ross	57	0	0
G. R. Brown	55	10	0
J. BUCKELDEE, The Village, Hillingdon (accepted)	52	0	0

WHITEHAVEN.

For erection of a battery-room and office at the electricity station, West Strand.

J. YOUNG, Catherine Street (accepted).

WORCESTER.

For supply of materials during year 1903—viz. lead water pipes, pig lead, block tin—for the Corporation.

ROWE BROS. & Co., Canons Marsh, Bristol (accepted).

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THE Baptist churches of Lancashire have expended during this year the sum of 9,974l. for new places of worship, 3,820l. for church improvements, new schoolrooms, &c., and 12,838l. for the liquidation of their chapel debts. The Cheshire Baptist churches reduced their debts by 987l., and expended 286l. in the improvement of existing buildings.

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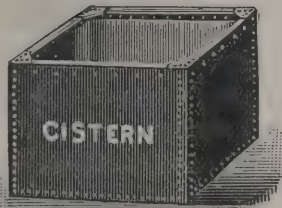
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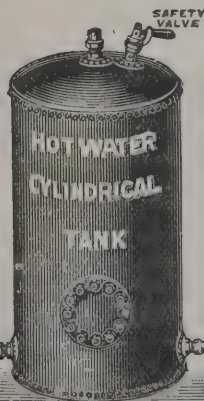
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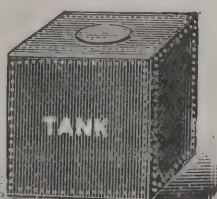
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TENDERS FOR THE YEAR 1902.

THE following are a few of the more important works that were estimated for during 1902, the tenders for which appeared in our columns in the course of the year:—

ASHTON-UNDER-LYNE.

For erection of hospital buildings. Messrs. JOHN EATON, SONS & CANTRELL, architects.

T. & W. Meadows	£30,485	0	0
L. Pike & Co.	29,716	0	0
T. Dean	29,550	0	0
W. A. Peters & Sons	29,226	0	0
E. Marshall	29,197	0	0
J. Ridyard	28,880	0	0
H. J. Whitehead	28,750	0	0
Garside, Barnes & Co.	28,700	0	0
S. & J. Smethurst	28,500	0	0
J. Gibson & Son	28,100	0	0
W. STORRS, SONS & CO., Stalybridge (accepted).	28,199	0	0

AYLESBURY.

For extensions at the Bucks County Lunatic Asylum, Stone. Mr. R. J. THOMAS, county surveyor, County Hall, Aylesbury. Quantities by Mr. G. H. BLATHERWICK, Nottingham.

C. Miskin & Son	£58,900	0	0
J. Shillitoe & Son	54,930	0	0
J. E. Johnson & Sons	54,770	0	0
J. Parnell & Son	53,059	0	0
H. Martin	52,475	0	0
H. Willcock & Co.	51,750	0	0
Webster & Cannon	50,800	0	0
Benfield & Loxley	50,498	0	0
W. Pattinson & Sons, Ruskington, Sleaford *	49,415	0	0

BEVERLEY.

For erection of a pavilion for 120 patients, and for alterations and additions to the administrative department of the East Riding lunatic asylum. Mr. C. H. HEBBLETHWAITE, architect, 10 Waterhouse Street, Halifax.

Murgatroyd & Son	£24,780	0	0
Nicholson & Son	24,488	0	0
G. Pape	24,475	0	0
Potts & Foley	24,075	0	0
A. Lyon	23,997	0	0
T. F. Ullathorne	22,988	3	5

BIRMINGHAM.

For erection of new pavilions, boiler-house and other works at the Erdington workhouse. Messrs. C. WHITWELL & SON, architects, 23 Temple Row, Birmingham.

S. Surman & Son	£18,106	0	0
W. & J. Webb	17,719	0	0
J. Barnsley & Sons	16,666	0	0
R. M. Hughes	16,489	0	0
B. Whitehouse & Sons	16,475	0	0
W. Lee & Son	16,446	0	0
S. Giles & Son	16,266	0	0
W. Robinson	16,190	0	0
A. C. Hughes	15,985	0	0
W. H. Gibbs	15,725	0	0
T. JOHNSON, Great Brook Street, Birmingham (accepted)	15,700	0	0

BROMSGROVE.

For erection of the proposed new lunatic asylum on the Barnsley Hall estate, near Bromsgrove, Worcestershire. Mr. GEORGE T. HINE, architect, 35 Parliament Street, Westminster. Quantities by Mr. G. KENWRICK, Birmingham.

J. G. Fincher & Co.	£201,450	8	4
F. E. Davey, Ltd.	198,502	0	0
Josh. Howe & Co.	194,630	0	0
Kellett & Sons, Ltd.	191,702	0	0
McCormick & Sons	190,678	0	0
Stephens, Bastow & Co.	190,202	0	0
J. Guest & Son	188,725	0	0
D. W. Davies	184,090	0	0
J. Parnell & Son	183,286	0	0
W. Walkerdene	182,856	0	0
Joseph Tilt	179,999	0	0
W. Sappcote & Sons	179,686	0	0
H. Lovatt	178,949	0	0
James Herbert	176,860	0	0
John Dailow	176,360	0	0
Kerridge & Shaw	175,922	0	0
J. Barnsley & Sons	174,776	0	0
Wm. Lee & Son	173,659	0	0
Thos. Rowbotham	171,290	0	0
Gowing & Ingram	170,468	0	0
Thos. Lowe & Sons	168,132	0	0
E. Gray Hill	167,100	0	0
Wm. Hopkins	167,000	0	0

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H. Willcock & Co.	164,448	0	0
F. Lindsay Jones	161,958	0	0
J. & A. Brazier	161,700	0	0
Thos. Johnson	161,220	0	0
Fredk. Evans	156,576	0	0
Smith & Pitts	154,880	0	0
B. WHITEHOUSE & SONS, Birmingham (accepted)	151,475	0	0

CARLISLE.

For construction of waterworks, Longton. Mr. JOHN LITTLE, engineer, Viaduct Chambers, Carlisle.

J. Laing	£19,080	0	0
Jackson	18,570	12	11
Henderson & Duncan	17,537	3	10
Buckley	17,344	6	3
R. Little	16,132	19	0
McDonald & Sons	15,871	2	0
Taylor	15,274	11	3
Braithwaites	14,832	7	5
W & J. Lant	14,543	2	3
Hudson	13,652	10	1
Grisenthwaite & Newton	13,295	0	0
Millar	12,847	14	10
D. Thomson & Sons	12,730	14	1
L. Kelly	12,595	2	1
P. DRUMMOND & SON, Dumfries (accepted)	10,317	13	6

FARNBOROUGH.

For sewerage works. Mr. J. E. HARGREAVES, engineer. Contract No. 1.—General work.

G. Kemp	£18,340	0	0
Martin, Wells & Co.	14,803	0	0
Gotterton & Co.	12,856	0	0
F. W. Trimm	12,573	0	0
W. Lee & Sons	12,319	0	0
J. Jackson	12,108	0	0
Johnson & Langley	11,791	0	0
B. Cooke & Co.	11,698	0	0
G. G. Rayner	11,567	0	0
G. Bell	11,379	0	0
J. & T. Binns	11,278	0	0
W. H. WHEELER, Blackfriars Road, S.E. (accepted)	10,152	0	0

EDMONTON.

For erection of schools at Montague Road and Houndsfield Road. Each school has four departments, and will accommodate 1,360 children. Mr. H. W. DOBB, architect, 99 Church Street, Lower Edmonton.

	Montague Road School.	Houndsfield Road School.
Barker & Co.	£27,950	£26,600
Spencer, Santo & Co.	27,610	26,562
Patrick	26,130	24,500
Saint	25,911	24,788
Willmott	25,890	24,990
Appleby	25,320	24,560
McCormick & Sons	24,876	23,456
Hockley & Son	24,750	23,500
Stephens, Bastow & Co.	24,647	23,222
Wall & Co.	24,595	22,992
Nightingale	24,441	23,197
E. Lawrance & Sons	24,358	22,974
Stimpson & Co.	24,313	22,922
Dearing & Son	24,275	22,861
Shillitoe & Son	24,000	22,900
Tonge	23,855	22,500
W Lawrence & Sons	23,813	21,989
Wisdom	23,711	22,448
Knight & Son	23,389	21,987
Johnson & Co.	22,976	21,419*
Porter & Son	22,962	21,671
Oak Building Co.	22,820*	21,780
Architect's estimates	23,163	21,319

* Tender accepted.

FELIXSTOWE.

For construction of the sea-walls, groynes, promenade and other works.

T. W. Pedrette	£19,762	0	6
Easton, Gibb & Son	18,983	5	6
G. Double	16,948	13	8
W. Gradwell & Co.	16,422	12	9
Case Sea Defence, Ltd.	16,329	3	8
Bradshaw & Co.	15,439	18	0
P. W. Symmons	15,326	8	0
H. J. Linzell	15,219	0	0
A. Fasey & Son	14,368	9	8
G. Hayward & Co.	14,250	0	0
B. COOKE & Co., Westminster (accepted)	12,506	3	2

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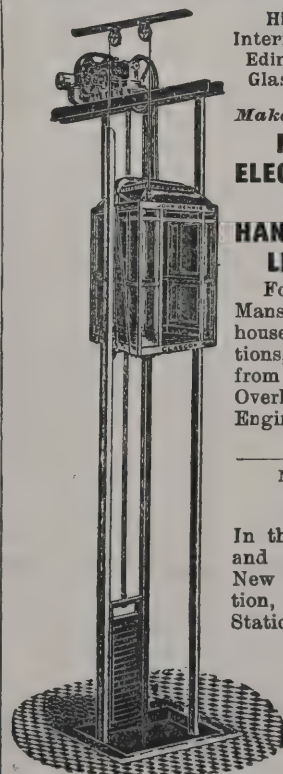
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HEATING AND VENTILATING ENGINEERS, CROWN WORKS, LEEDS.

HACKNEY.

For erection of casual wards, clothes store, laundry and other buildings at Gainsborough Road, Hackney Wick.

A. Monk	£35,000	0	0
Todd & Newman	32,946	0	0
Kirk & Randall	31,313	0	0
J. Appleby	30,950	0	0
W. H. D. Kelland	30,400	0	0
McCormick & Sons	29,876	0	0
Coulson & Lofts	29,800	0	0
Thomas & Edge	28,884	0	0
B. E. Nightingale	28,500	0	0
W. Lawrence & Son	28,500	0	0
W. J. Clark	28,419	0	0
H. Lovatt	28,300	0	0
J. Chessum & Sons	28,009	0	0
Wilson Bros. & Lamplough	27,856	0	0
Killby & Gayford	27,828	0	0
Perry & Co.	27,495	0	0
Snegin Bros. & Co.	27,243	0	0
C. G. Hill	26,985	0	0
HERBERT BROS., Corporation Street, West Ham (accepted)	24,100	0	0

HAMPTON.

For erection and completion of fifty-five cottages at the Rosehill Estate, Hampton. Mr. SIDNEY H. CHAMBERS, surveyor.

Holliday & Greenwood	£22,095	0	0
Higby & Rubson	20,696	0	0
Foster Bros.	20,622	0	0
J. Smith & Sons, Ltd.	18,974	0	0
Cropley Bros.	18,866	0	0
Bailey & Fry	18,824	0	0
G. Cooper & Sons, Ltd.	18,665	0	0
J. F. Collinson	18,657	0	0
M. G. King	18,500	0	0
G. Gray	18,411	0	0
J. J. Wise	17,982	0	0
E. Potterton	17,887	0	0
Nash & Nash	17,871	0	0
C. Cain & Son	17,843	0	0
A. M. Coles	17,574	0	0
Newland & Higgs	17,467	0	0
J. BARKER & CO., Kensington, W. (accepted)	15,170	0	0

HORNSEY.

For erection of school buildings at Harringay.

Colls & Sons	£50,460	0	0
Perry & Co.	49,538	0	0
Foster & Dicksee	49,421	0	0
J. Wilmott & Sons	49,337	0	0
Kirk & Randall	49,320	0	0
Rudd & Son	48,888	0	0
Patman & Fotheringham	47,454	0	0
Treasure & Son	46,956	0	0
H. Knight & Son	45,490	14	0
MCCORMICK & SONS, Essex Road, N. (accepted)	43,676	0	0

HORWICH.

For erection of infectious diseases hospital.

J. Edmundson & Co.	£15,786	0	0
Parkinson & Siddle	15,544	0	0
J. H. Wright	15,283	0	0
R. Mosley	15,091	0	0
R. Baxendale & Sons	14,851	0	0
S. J. Hodgkiss	14,845	19	8
Blackburn & Hastings	14,750	0	0
W. Cunliffe	14,420	0	0
L. Fairclough	13,916	13	2
Atherton & Norris	13,772	0	0
R. Carlyle	13,469	0	0
W. J. SLATER, Horwich (accepted)	13,235	15	4

HULL.

For erection of new central police-station for the Corporation.

G. Longden & Sons	£23,750	0	0
F. Sweeting	22,953	0	0
F. Southern	22,492	13	2
F. Blackburn & Son	22,099	0	0
E. Good & Son	22,014	14	1
T. Goates	21,159	0	0
M. Harper	20,974	0	0
J. T. Levitt	20,852	0	0
BOWMAN & SON (accepted)	20,769	0	0

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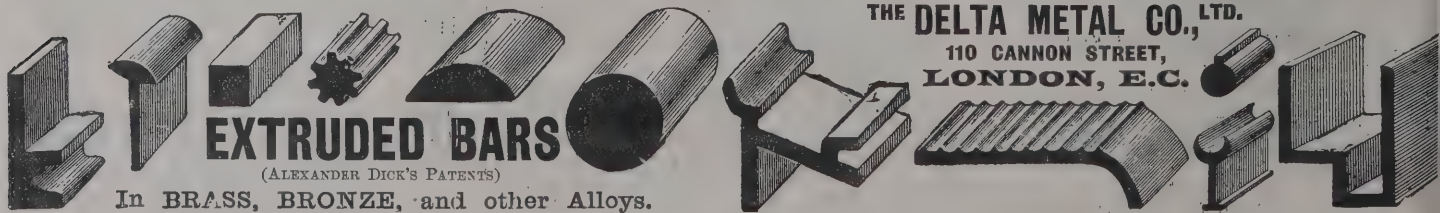
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In BRASS, BRONZE, and other Alloys.

LONDON.

For erection of public offices at Westminster.

W. Pattinson & Sons	£611,289	0	0
J. Simpson & Sons	608,360	0	0
B. E. Nightingale	595,606	0	0
Foster & Dicksee	592,161	0	0
H. L. Holloway	589,000	0	0
Higgs & Hill, Ltd.	585,000	0	0
Leslie & Co., Ltd.	586,670	0	0
J. Mowlem & Co.	580,500	0	0
A. King	549,500	0	0
Perry & Co.	545,973	0	0
Kirk & Randall	536,606	0	0
F. S. Minter	520,800	0	0
H. Lovatt	517,527	0	0
Holloway Bros.	508,115	0	0
R. M. Hughes	499,700	0	0
J. Shillitoe & Son	490,650	0	0
Maple & Co., Ltd.	482,992	0	0
SPENCER, SANTO & CO., LTD. (accepted)	473,000	0	0

For erection of a sub-district post office at West Kensington.

Maple & Co., Ltd.	£19,929	A.	—
J. Appleby	19,300	£25	—
Spiers & Son	18,670	25	—
Wilson Bros. & Lamplough	18,390	50	—
J. Norris & Sons	18,340	50	—
General Builders, Ltd.	17,997	100	—
J. Mowlem & Co.	17,979	—	—
Martin, Wells & Co., Ltd.	17,399	10	—
Kirk & Randall	16,996	30	—
J. F. Robey	16,980	25	—
T. E. Mitchell	16,950	—	—
W. Norton	16,835	20	—
J. Christie	16,640	—	—
Sabey & Son	16,451	20	—
F. G. Minter	16,360	—	—
A. W. Spencer	16,175	23	—
W. H. Lorden & Son	16,000	—	—
J. Simpson & Son	15,977	23	—
H. L. Holloway	15,800	30	—
Hobbs Bros.	15,680	35	—
Campbell, Smith & Co., Ltd.	13,287	100	—
A. Old materials.			

LONDON—continued.

For erection of a Baptist church house, Southampton Row, Holborn, W.C. Mr. ARTHUR KEEN, architect, 4 Raymond Buildings, London, W.C. Messrs. BOREHAM & NORTON, quantity surveyors, 24 John Street, Sunderland.

Lawrence & Sons	£36,750	0	0
Simpson	36,304	0	0
Colls & Son	35,140	0	0
Hall & Bedall	34,820	0	0
Dove Bros.	34,254	0	0
Holloway Bros.	33,890	0	0
Holliday & Greenwood	33,545	0	0
HIGGS & HILL (accepted)	32,818	0	0
Turtle & Appleton	32,700	0	0

For erection of the Southern Hospital. Messrs. TREADWELL & MARTIN, architects.

F. & H. F. Higgs	£214,000	0	0
C. Wall	201,328	0	0
Rudd & Son	201,214	10	7
W. Wallis	201,139	10	0
W. H. Lorden & Son	198,888	0	0
W. Wilcocks & Son	198,873	0	0
Patman & Fotheringham, Ltd.	197,723	0	0
J. & M. Patrick	197,299	0	0
Kirk & Randall	193,203	0	0
J. Shillitoe & Son	193,000	0	0
F. G. Minter	191,000	0	0
Holliday & Greenwood	184,444	0	0
McCormick & Sons	179,777	0	0
W. Johnson & Co., Ltd., Bellevue Road, Wandsworth Common, S.W. (accepted)	174,750	0	0

For erection of new theatre, St. Martin's Lane, Charing Cross, W.C. Mr. W. G. R. SPRAGUE, architect, Fitzalan House, Arundel Street, Strand, W.C. Quantities by Mr. A. R. HENDERSON, surveyor, 47 Pall Mall, London, S.W.

Henry Lovatt	£27,950	0	0
C. F. Kearley	27,600	0	0
Patman & Fotheringham	27,593	0	0
F. & H. F. Higgs	26,880	0	0
Geo. Longden & Sons	26,700	0	0
Harris & Wardrop	26,550	0	0
C. Gray Hill	26,500	0	0
Wilkinson Bros.	26,450	0	0
KIRK & RANDALL (accepted)	25,814	0	0

CABOT'S INSULATING & DEAFENING QUILT.

A PERFECT DEAFENER.

Prevents the transmission of sound through walls and floors by absorbing and breaking up the sound waves. The only deafener that does this. Send for Special Book on Schoolhouse Acoustics, illustrated.

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Contains innumerable minute dead-air spaces, giving highest insulating power. Warmer than back-plaster or six layers of rosin paper. Decay, moth, and vermin-proof, and unflammable.



FIREPROOF, DEADENING.

A fireproofing result infinitely superior to that obtained with sheet asbestos, and practically perfect sound-deadening, can be had in all kinds of buildings by using

CABOT'S ASBESTOS "QUILT."

The only scientific deafener. Indestructible by decay, moths, or vermin.

	Per Bale.	Half Bale.
Single Ply ...	£1 : 11 : 0	£0 : 17 : 0
Double Ply...	1 : 16 : 6	1 : 0 : 0
Asbestos ...	2 : 16 : 6	1 : 10 : 0

Bales containing 500 square feet each; half-bales 250 square feet. Weights: Single-ply, 80 lbs.; Double-ply, 120 lbs.; Asbestos, 190 lbs. per bale.

CABOT'S CREOSOTE STAINS, FOR EXTERIOR WORK.

Unequalled for depth and freshness of colour, durability, wood-preserving properties, and freedom from blackening. Superior to paint for exterior woodwork, and fifty per cent. cheaper. One gallon will cover 100 square feet of surface, two brush coats.

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19, 20 & 21 Tower Street, Upper St. Martin's Lane, London, W.C.

LONDON—continued.

For erection of a workhouse at Wormwood Scrubs.

S W Moscrip	£225,270	o	c
Wimpey & Co.	218,326	o	o
R. L. Tonge	216,000	o	o
W. Wisdom	215,000	o	o
C. Wall	214,274	o	o
J. E. Johnson & Co.	212,000	o	o
S Santo	209,763	o	o
J. Smith & Sons, Ltd.	208,827	o	o
J. Dorey	208,504	o	o
J. Appleby	208,150	o	o
C. Dearing & Son	208,150	o	o
D. E. Wallis & Sons	207,480	o	o
J. C. Leshner & Sons	207,109	o	o
A. E. Kenneth & Sons, Ltd.	205,825	o	o
J. T. Hockley	205,500	o	o
Pattinson & Sons	205,218	o	o
Killby & Gayford	204,962	o	o
McCormick & Son	203,934	o	o
C. F. Kearney	203,403	o	o
C. Lawrence & Sons	203,333	o	o
C. Gray Hill	203,330	o	o
F. D. Winter	199,875	o	o
Holliday & Greenwood, Ltd.	199,544	o	o
B. E. Nightingale	199,268	o	o
Clarke & Randall	197,744	o	o
J. Shillitoe & Son	195,000	o	o
H. Willcox & Co.	193,500	o	o
W. Hopkins	193,450	o	o
W. Williams	192,420	o	o
T. ROWBOTHAM, Coventry Road, Birming- ham (accepted)	187,777	o	o

For erection of new banking premises at the corner of Pall Mall and Waterloo Place, S.W. Mr. A. E. THOMPSON, architect, Leadenhall Buildings, E.C.

Foster & Dicksee	£27,777	o	o
Holloway Bros.	27,200	o	o
Simpson & Son	24,657	o	o
W. Downs	23,243	o	o
Maple & Co.	22,924	o	o
J. Carmichael	22,280	o	o
PATMAN & FOTHERINGHAM (accepted)	21,963	o	o

LONDON SCHOOL BOARD.

For erection of new school in accordance with revised plans, Townmead Road site, Fulham.

C. Miskin & Sons	£28,187	o	o
Lathey Bros.	26,547	o	o
J. Simpson & Son	26,222	o	o
Leslie & Co., Ltd.	26,161	o	o
F. Gough & Co.	26,111	o	o
G. E. Wallis & Sons	25,548	o	o
E. Lawrance & Sons	25,519	o	o
J. & M. Patrick	25,390	o	o
W. King & Son	25,240	o	o
Treasure & Son	25,218	o	o
C. Cox	25,210	o	o
Kirk & Randall	25,210	o	o
McCormick & Sons	24,643	o	o
Stimpson & Co.	24,600	o	o
J. Smith & Sons, Ltd.	24,560	o	o
Spencer, Santo & Co., Ltd.	24,554	o	o
W. H. Lorden & Son	24,444	o	o
Holloway Bros.	24,406	o	o
W. JOHNSON & CO., LTD. (accepted)	23,950	o	o

For new school, accommodation—boys, 380; girls, 380; infants, 382, Sandhurst Road.

T. L. Green	£26,748	o	o
W. Downs	26,279	o	o
Patman & Fotheringham, Ltd.	25,376	o	o
W. Johnson & Co., Ltd.	25,023	o	o
W. J. Mitchell & Son	24,825	o	o
E. Lawrance & Sons	24,813	o	o
G. E. Wallis & Sons	24,682	o	o
Stimpson & Co.	24,460	o	o
C. Miskin & Sons	24,425	o	o
J. Smith & Sons, Ltd.	24,379	o	o
J. & C. Bowyer	24,299	o	o
Treasure & Son	24,083	o	o
F. & H. F. Higgs	23,983	o	o
J. Garrett & Son	23,896	o	o
J. Marsland & Sons	23,662	o	o
J. & M. Patrick	22,982	o	o
HOLLIDAY & GREENWOOD, LTD. (accepted)	22,925	o	o

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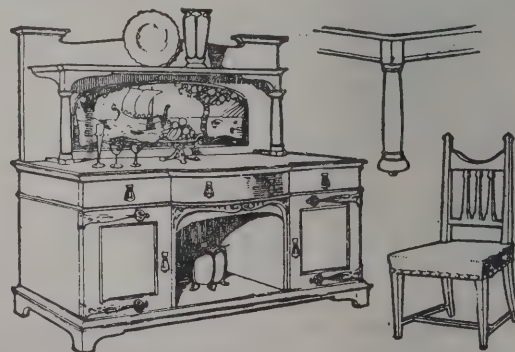
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HAMPTON & SONS LTD
Pall Mall East London S.W.



HAMPTONS 5 ft. 6 in. OAK SIDEBOARD, 2 Cupboards in top part, 2 drawers and cupboards below.
Usual Price £12 15 0. Being Cleared at **£9 10 0.**
OAK CHAIR in Pantasote. Being Cleared at **16/6.**



HAMPTONS 6 ft. FUMED OAK SIDEBOARD, with hand-worked copper back and handles, and hinge plates to correspond. Of best manufacture.
Usual Price £21 10 0. Being Cleared at **£17 10 0.**
OAK CHAIR, all Hair, in Morocco. Being Cleared at **28/6.**

LONDON SCHOOL BOARD—continued.

For new school (revised plan), Earlsfield.

W. M. Dabbs	£29,165	o	o
W. Downs	28,419	o	o
J. & M. Patrick	27,745	o	o
E. Lawrance & Sons	27,255	o	o
Holloway Bros.	26,440	o	o
Kirk & Randall	26,412	o	o
J. Garrett & Son	26,161	o	o
W. H. Lorden & Son	25,888	o	o
Treasure & Son	25,772	o	o
J. Simpson & Son	25,740	o	o
Martin, Wells & Co.	25,382	o	o
Holliday & Greenwood, Ltd.	25,160	o	o
Stimpson & Co.	25,110	o	o
Leslie & Co., Ltd.	24,997	o	o
Lathey Bros.	24,919	o	o
F. & H. F. Higgs	24,786	o	o
W. JOHNSON & CO., LTD. (accepted)	23,700	o	o

For accommodation—boys and girls, 584 ; infants, 388 ; total, 972, Telferscot Road school, West Lambeth.

Lathey Bros.	£25,435	o	o
F. & H. F. Higgs	24,986	o	o
Martin, Wells & Co., Ltd.	24,772	o	o
Holloway Bros., Ltd.	23,478	o	o
J. Simpson & Son	23,149	o	o
J. Garrett & Son	22,753	o	o
E. Lawrance & Sons	22,593	o	o
W. H. Lorden & Son	22,475	o	o
Spencer, Santo & Co., Ltd.	22,170	o	o
C. Cox	22,127	o	o
W. King & Son	22,115	o	o
Holliday & Greenwood, Ltd.	21,977	o	o
W. Downs	21,974	o	o
F. Gough & Co.	21,934	o	o
Stimpson & Co.	21,460	o	o
J. Carmichael	20,941	o	o
J. & M. Patrick	20,699	o	o
W. JOHNSON & CO., LTD. (accepted)	20,578	o	o

LONDON SCHOOL BOARD—continued.

For new school, Macmurdo Road site, Fulham Palace Road.

Martin, Wells & Co.	£29,935	o	o
W. H. Lorden & Son	28,444	o	o
Leslie & Co., Ltd.	28,304	o	o
C. Cox	27,960	o	o
J. Greenwood	27,572	o	o
W. King & Son	27,450	o	o
Treasure & Son	27,029	o	o
E. Lawrance & Sons	26,955	o	o
Stimpson & Co.	26,849	o	o
G. E. Wallis & Sons	26,628	o	o
McCormick & Sons	25,144	o	o
Holliday & Greenwood, Ltd.	26,115	o	o
J. & M. Patrick	25,337	o	o
Lathey Bros.	25,160	o	o
W. JOHNSON & CO., LTD. (accepted)	24,950	o	o

For new school, Ensham site, Mitcham Road, Tooting.

G. E. Wallis & Sons	£28,692	o	o
E. Lawrance & Sons	27,830	o	o
J. Simpson & Son	27,498	o	o
Martin, Wells & Co.	26,966	o	o
Holloway Bros.	26,940	o	o
J. Garrett & Son	26,869	o	o
Leslie & Co., Ltd.	26,348	o	o
Stimpson & Co.	26,130	o	o
F. & H. F. Higgs	26,120	o	o
Lathey Bros.	26,081	o	o
Holliday & Greenwood, Ltd.	26,071	o	o
J. Carmichael	25,962	o	o
W. Johnson & Co., Ltd.	25,600	o	o
J. & M. Patrick	25,549	o	o
W. H. LORDERN & SON (accepted)	25,522	o	o

For senior mixed school, Kingsgate Road site, Hampstead.

C. Dearing & Son	£20,388	o	o
John Grover & Son	20,327	o	o
McCormick & Sons	19,231	o	o
L. H. & R. Roberts	18,828	o	o
Treasure & Son	18,610	o	o
C. Miskin & Sons	18,609	o	o
W. Gregar & Son	18,452	o	o
John Allen & Sons, Ltd.	18,375	o	o
J. Simpson & Son	18,070	o	o
E. LAWRENCE & SONS (accepted)	17,707	o	o

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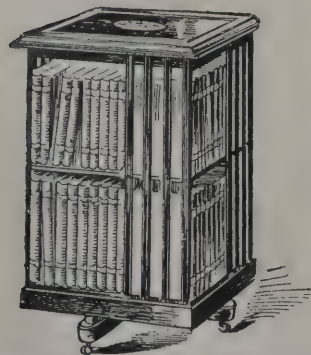
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3/6.



Solid Oak, Walnut, or Mahogany Revolving Book Wagon, 20 in. Square, £1 12s. 6d.
Ditto, inlaid in Sheraton style,
£1 19s. 6d.

MARGATE.

For cutting and filling-in trenches and laying therein about 24,000 yards of cast-iron piping main 18 inches in diameter, with all the necessary bends, junctions, fittings, &c., from Margate to Wingham, near Canterbury. Mr. ALBERT LATHAM, borough engineer.

J. E. Kaye	£47,000	0	0
W. Jowett	25,924	8	6
Paramor & Sons	23,921	9	7
R. E. Hodgman	23,689	1	0
T. Rowland	23,174	18	10
J. Mowlem & Co.	22,506	0	0
A. S. Ingleton	22,040	15	8
W. L. Wallis & Co.	21,102	19	10
Reid Bros.	21,034	2	8
G. Bell	20,889	11	4
Millen & Chrisfield	20,060	5	0
Westminster Construction Co.	20,009	5	6
T. C. Starkey	19,335	4	6
J. & T. Binns	18,769	8	3
A. Beale	18,221	17	5
H. P. Embrey, Ltd.	18,159	2	0
C. Chamberlain	17,308	10	0
A. E. Nunn	16,989	0	0
J. H. Vickers, Ltd.	15,670	0	0
B. Cooke & Co.	15,662	14	1
J. Pollock & Co.	15,587	0	5
DEAN & Co., Chiswick (accepted)	13,884	3	9

For sinking a well and working shafts, and driving about 3,200 yards of adit at Wingham, about a mile north of Adisham railway station, on the main line from Canterbury to Dover, for the Margate Waterworks. Mr. ALBERT LATHAM, borough engineer.

T. Tilly & Sons	£37,546	12	6
B. Cooke & Co.	26,637	3	8
J. F. Price	26,513	12	10
A. E. Nunn	22,000	0	0
Paramor & Sons	21,066	18	10
Tuff & Miskin	20,000	0	0
R. D. Batchelor	19,869	3	0
J. Smith & Co.	17,409	8	0
J. H. Vickers, Ltd.	16,500	0	4
WINGHAM AGRICULTURAL CO. (accepted)	9,499	5	0

MIDDLESEX.

For construction of light railways, for the Middlesex County Council. Mr. H. T. WAKELAM, county engineer.

Railway No. 1.—Lordship Lane and Bruce Grove.

J. A. Dunmore	£52,946	19	0
R. C. Brebner & Co.	43,846	9	4
Kirk & Randall	37,830	15	4
A. Porter	37,311	13	4
W. L. Meredith & Co.	36,944	2	4
Binns	36,412	9	8
C. Wall	36,068	6	4
R. W. Blackwell & Co.	35,584	1	0
P. Smith	33,483	10	8
T. Adams	33,414	17	2
A. Kellett & Sons	32,982	6	4
E. Nuttall	32,326	6	8
J. A. Ewart	30,983	17	4
A. Faulkes	30,374	15	8
W. Manders	30,216	16	6
Dick, Kerr & Co.	28,498	18	6
W. Griffiths & Co., Ltd.	28,336	13	0
W. GRIFFITHS & CO. LTD. (accepted)	28,329	3	8
J. G. White & Co., Ltd.	28,232	1	0
Macartney, McElroy & Co.	31,754	8	2

Railway No. 5.—Edgware Road.

R. C. Brebner & Co.	85,278	8	10
W. L. Meredith & Co.	72,339	6	8
Kirk & Randall	67,598	17	8
R. W. Blackwell & Co.	66,857	7	11
H. Morecroft	64,927	10	0
P. Smith	61,665	15	0
A. Kellett & Sons	60,431	14	4
E. Nuttall	59,990	3	4
C. Wall	59,992	0	10
Macartney, McElroy & Co.	58,184	8	7
J. Mowlem & Co.	57,965	4	1
J. A. Ewart	57,039	10	0
W. G. Wimpey	55,271	4	8
Dick, Kerr & Co.	50,367	6	6
W. Griffiths & Co., Ltd.	50,221	16	11
J. G. WHITE & CO., LTD. (accepted)	49,881	10	5
J. G. White & Co., Ltd.	49,537	5	5

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Colls & Sons.

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5 COLEMAN STREET,

LONDON, E.C.,

July 31, 1902.

DEAR SIRS,—

We are glad to be able to state that, after extensively using Uralite, we find it very useful in many ways.

For covering partitions and ceilings in lieu of plaster the advantage of quick application and the absence of wet and dirt, as with plastering, make Uralite most valuable, apart from its fire-resisting properties, which, of course, form the most important argument for its use, as it satisfies the requirements of insurance and other Surveyors.

In constructing Fireproof Screens or Theatre Curtains, in the erection of Bungalows, Pavilions, &c., or in forming Fire-resisting doors, Uralite has many uses, and all the work we have carried out where it has been introduced has been most satisfactory, and answers the purpose for which it was intended.

In Joinery Work, where wide panels are required, in which it is difficult to prevent shrinkage, Uralite may be used for these panels with great advantage, as it can neither shrink nor swell.

Yours faithfully, (Signed) COLLS & SONS.

South Street, Ponders End.

DEAR SIRS,—

We submitted the samples of Uralite supplied by your Mr. Armstrong to some severe tests, and the materials came triumphantly out of the ordeal.

We are now lining out an engine-house with Uralite to make it fireproof, and we shall presently use it for other purposes in connection with extensions at these Works.

For foundry roofs exposed to acid fumes we consider it to be the finest material in the world.

Yours faithfully,

THE UNITED FLEXIBLE METALLIC TUBING CO., LTD.

Per W. BERRYMAN.

THE BRITISH URALITE CO., Ltd., 50 Cannon St., London, E.C.

MIDDLESEX—continued.

Railway No. 3.—Archway Road and Great North Road.

R. C. Brebner & Co.	£86,740	17	4
W. L. Meredith & Co.	70,628	3	5
Kirk & Randall	67,658	17	2
R. W. Blackwell & Co.	63,298	19	2
P. Smith	61,403	5	8
C. Wall	61,337	13	10
E. Nuttall	59,086	18	6
A. Kellett & Sons	58,989	9	6
Macartney, McElroy & Co.	57,585	1	6
J. A. Ewart	56,580	12	8
A. Faulkes	54,964	12	5
Dick, Kerr & Co.	50,644	0	2
W. GRIFFITHS & CO., LTD. (accepted)	50,224	16	3
J. G. White & Co., Ltd.	50,022	3	1

NORTHAMPTON.

For erection of infirmary and converting the old building into the administrative block.

A. J. Chown	£34,550	0	0
J. G. Pullen & Sons	34,459	12	0
G. Henson	33,475	0	0
J. E. Johnson & Son	33,200	0	0
T. Rowbotham	32,777	0	0
H. Branson	32,000	0	0
W. Higgins	31,300	0	0
E. D. Sharman & Son	31,280	0	0
G. W. Souster	31,000	0	0
R. Cosford	30,989	0	0
H. MARTIN, Northampton (accepted)	28,640	0	0

RICHMOND.

For erection of a new dining-hall and laundry buildings at the workhouse, Richmond, Surrey. Mr. EDWARD J. PART-
RIDGE, architect, Bank Chambers, Richmond.

J. W. Brooking	£23,957	0	0
Kellett	23,100	0	0
Martin, Wells & Co.	22,915	0	0
S. N. Soole & Son	22,813	0	0
Nightingale	22,500	0	0
W. Smith & Sons	21,625	0	0
J. M. Patrick	21,290	0	0
J. SHILLITOE & SON, Bury St. Edmunds (accepted)	21,000	0	0

READING.

For construction of buildings in connection with the generating station.

J. Norris & Sons	£27,500	2	9
C. Ansell	26,088	0	0
H. W. Godwin	26,070	13	7
J. E. Johnson & Son	25,867	0	0
F. & H. F. Higgs	25,700	0	0
Martin, Wells & Co., Ltd.	25,687	0	0
F. G. Minter	25,450	0	0
A. N. Coles	25,310	15	3
Collier & Catley	24,322	0	0
W. Pattison & Sons	23,975	0	0
T. H. Kingerlee & Sons	23,727	0	10
Patman & Fotheringham, Ltd.	23,456	0	0
McCarthy E. Fitt	22,695	0	0
A. J. Colborne	22,213	10	11
A. FAULKS, Loughborough (accepted)	21,541	0	0

SIDCUP (KENT).

For new school for the Greenwich Union Guardians in connection with the Children's Homes. Messrs. T. DIN-
WIDDY & SONS, architects, Greenwich, and 54 Parliament
Street, Westminster. Quantities by Mr. L. JACOB.

Foster & Dicksee	£16,500	0	0
Kilby & Gayford	15,538	0	0
B. E. Nightingale	15,238	0	0
Thomas & Edge	15,160	0	0
W. Shepherd	15,038	0	0
Wallis & Son	14,583	0	0
Holliday & Greenwood	14,457	0	0
C. Wall	14,400	0	0
T. Knight	14,290	0	0
T. Rowbotham	14,268	0	0
J. Lonsdale	14,261	0	0
H. L. Holloway	14,200	0	0
J. J. Wise	13,990	0	0
T. D. LENG, Deptford (accepted)	13,320	0	0

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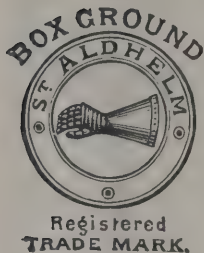
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SUMMER DRIED SEASONED STONE FOR WINTER USE.

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SKETCH SCHEME FOR TREATMENT OF AUDITORIUM, NEW
GAITY THEATRE.

SITTINGBOURNE.

For sewerage works and the maintenance of the said works for
twelve calendar months after completion. Mr. J. C.
MELLISS, engineer, Gresham House, Old Broad Street.

G. Osenton	£56,805	0	0
Kemp Bros.	53,489	0	0
W. Manders	51,000	0	0
F. W. Trice	49,016	0	0
H. Brown	46,878	0	0
J. Jackson	46,598	11	0
W. Jones & Son	46,463	0	0
J. & T. Binns	44,118	0	0
Wilkinson Bros.	43,595	0	0
Peerless, Dennis & Co.	42,450	0	0
A. BRAITHWAITE & CO, Leeds (accepted)	40,900	0	0

STAPLETON.

For new infirmary for sick poor, Stapleton, Bristol, for the
Bristol Guardians. Mr. H. PERCY ADAMS, architect,
28 Woburn Place, Russell Square, London, W.C.

McCormick & Sons	£159,430	0	0
Martin, Wells & Co.	141,856	0	0
Coles	139,459	0	0
Down & Son	138,500	0	0
A J Bevan	135,800	0	0
Shillitoe & Sons	135,000	0	0
Stephens, Bastow & Co., Ltd.	134,989	0	0
Miskin & Son	134,000	0	0
Colls & Son	132,812	0	0
Parnell & Son	132,508	0	0
Cowlin & Son	131,258	0	0
Wilkins & Son	129,379	0	0
Wilcock & Co.	124,250	0	0
Gough & Co.	119,834	0	0
Kerridge & Shaw	118,975	0	0
Hodson & Son (withdrawn)	114,950	0	0

STONEHAM.

For draining outfall works, engine-house, bacterial beds, &c.,
at North and South Stoneham, Hants. Messrs. BAILEY-
DENTON, SON & LAWFORD, engineers, Westminster.

Reid Bros.	£31,086	12	10
F. W. Trimm	29,023	0	0
Price	28,986	16	8
John Jackson	27,952	17	4
Joseph Jackson	26,632	5	0
Streeter & Todhunter	26,260	0	0
G. Osenton	26,012	0	0
H J. Saunders	25,870	0	0
J & T. Binns	25,120	13	0
Jones	24,981	12	0
Osman	24,587	14	4
Cooke & Co.	23,315	0	0
PLASCOTT (accepted)	22,304	0	0

UTTOXETER.

For sewerage works in the district. Messrs. WILCOX &
RAIKES, engineers, 63 Temple Row, Birmingham.

W. Graham & Sons	£17,300	0	0
J. Benson	16,855	0	0
H. P. Embrey, Ltd.	16,573	0	0
F. Wooley	15,905	0	0
Jowett Bros.	15,275	10	4
J. & J. Warner	15,268	0	0
G. F. Tomlinson	14,990	0	0
B. Cooke & Co.	14,968	0	0
J. S. Dawson	14,917	10	6
Johnson & Langley	14,815	0	0
G. Trentham	14,716	0	0
J. & T. Binns	14,703	2	3
W. Jones & Sons	14,646	5	0
G. Bell	14,561	0	0
W. J. Foster	14,230	0	0
W. Morley & Sons	14,115	6	7
R. W. Barker	14,047	9	0
Bower Bros.	13,926	0	0
F. Barke	13,913	0	0
Barker Bros.	13,828	0	0
T. Vale	13,800	0	0
T. Lowe & Sons	13,690	0	0
W. Smith & Sons	13,171	0	0
J. MACKAY, Smethwick (accepted)	12,997	0	0

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JANUARY...The Furnishing
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1903Some dozens of strong stuffed Sets of Chairs,
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WALES.

For erection of car dépôt in Newport Road, Roath, Cardiff. Mr. W. HARPUR, borough engineer.			
E. Turner & Sons	£27,032	0	0
J. Allan & Sons	25,867	0	0
E. R. Evans & Bros.	24,478	0	0
D. Thomas & Son	24,342	0	0
W. Symonds & Co.	23,996	0	0
W. T. Morgan	23,126	0	0
Lattey & Co.	22,867	0	0
D. W. DAVIES, Cardiff (<i>accepted</i>)	21,998	0	0

For erection of the Newport Borough lunatic asylum at Caerleon, Monmouthshire. Mr. A. J. WOOD, architect, 22 Surrey Street, Victoria Embankment, W.C. Quantities by Messrs. WIDNELL & TROLLOPE, 20 Tothill Street, Westminster, S.W.

J. McCormick	£123,288	0	0
Kerridge & Shaw	118,410	0	0
Chas. Wall	117,000	0	0
Watkin Williams	116,990	0	0
D. W. Davies	115,000	0	0
Johnson & Co.	110,850	0	0
A. S. Morgan & Co.	110,500	0	0
Turner & Sons	109,250	0	0
J. Allan & Sons	109,000	0	0
W. King & Son	108,218	0	0
H. Willcock & Co.	107,875	0	0
J. Linton & Co.	105,999	0	0

WATCHET.

For reconstruction of Watchet harbour, Somerset. Mr. W. T. DOUGLAS, engineer, Victoria Street, Westminster.

S. Saunders	£41,500	0	0
H. W. Pollard	26,900	0	0
R. H. Neal	23,628	0	0
J. & M. Patrick	22,990	0	0
S. Wood	21,991	0	0
A. Facey & Son	21,356	6	9
J. & T. Binns	21,298	17	0
J. Dickson	18,755	14	1
G. Rutter	18,750	18	0
E. H. Page	18,135	6	4
E. R. Lester	16,970	0	0
C. H. WALKER & CO., Westminster (<i>accepted</i>)	16,183	3	5

WEST HAM.

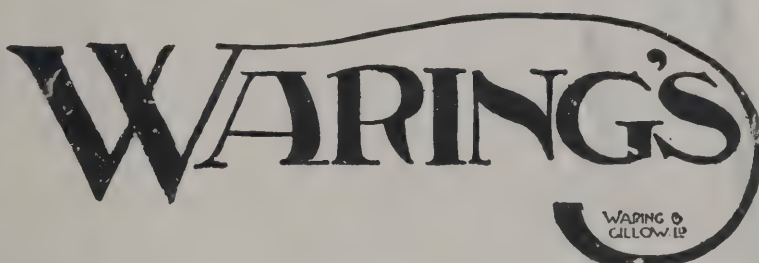
For erection of an electric generating station and offices at Quadrant Street, Canning Town. Mr. J. G. MORLEY, borough engineer.

West Bros.	£61,650	0	0
Yates & Co.	61,521	0	0
Foster Bros.	59,833	0	0
G. Wise	59,773	0	0
Leslie & Co.	58,795	0	0
Shillitoe & Son	57,000	0	0
F. G. Minter	55,994	0	0
Johnson & Son	55,848	0	0
GREGAR & SON, Stratford (<i>accepted</i>)	53,999	0	0
Thomas & Edge	53,965	0	0

WOODFORD.

For erection of Ray Lodge and Woodford Bridge schools, Snakes Lane. Mr. EDWARD TIDMAN, architect, Connaught Mansions, Westminster. Quantities by Messrs. J. S. LEE & SONS, 35 Craven Street, W.C.

Townsend & Coles	£26,000	0	0
Oak Building Co	20,296	0	0
W. H. T. Kelland	19,900	0	0
Stephens, Bastow & Co.	19,498	0	0
J. Appleby & Son	19,200	0	0
G. Sharp	19,012	0	0
Sands, Palmer & Co.	19,000	0	0
McKay & Co.	18,910	0	0
A. W. Robins	18,830	0	0
A. E. Symes	18,798	0	0
F. Willmott	18,745	0	0
Barrett & Power	18,500	0	0
R. L. Tonge	17,997	0	0
Ernest West	17,973	0	0
P. Banyard	17,845	15	0
H. J. Carter	17,682	0	0
T. Almond & Son	17,577	0	0
T. Coxhead	17,440	0	0
Myall & Upson	16,456	0	0
H. WELLS & SONS, Buckhurst Hill (<i>accepted</i>)	16,345	0	0



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175, 176 SLOANE STREET, S.W.

ALSO AT LIVERPOOL, MANCHESTER, PARIS, AND CAPE TOWN.

WOOLWICH.

For erection of the first portion of new cable factory at North Woolwich. Messrs. ARDRON & DAWSON, architects, 6 Old Queen Street, Westminster, S.W.

Mowlem & Co.	£23,159	0	0
Foster & Dicksee	22,844	0	0
Holloway Bros.	22,110	0	0
Holland & Hannen	21,705	0	0
Downs	21,229	0	0
Higgs & Hill	20,973	0	0
Lawrence & Sons	20,955	0	0
Lovatt & Roberts	20,500	0	0
Kirk & Randall	20,377	0	0
Holliday & Greenwood	20,377	0	0
Patman & Fotheringham	20,173	0	0
Chessum & Sons	19,997	0	0
Grover & Son *	19,734	0	0
Shaw & Co., ironwork	3,200	0	0
C. Newman, pile driving	1,598	0	0
Aiton & Co., fire-mains	853	7	0

* Accepted, subject to reduction, at 18,402/.

For erection of municipal buildings.

With town hall.

M. Wells & Co.	£68,777	0	0
Johnson & Son	68,674	0	0
W. Downs	68,074	0	0
Holloway Bros.	67,996	0	0
B. E. Nightingale	67,662	0	0
J. Smith & Son	67,184	0	0
H. L. Holloway	66,456	0	0
H. Lovatt	64,362	0	0
Kirk & Randall	62,611	0	0
Holliday & Greenwood	62,292	0	0
J. Shillitoe	62,000	0	0
F. G. Minter	61,890	0	0
H. J. Stevens	60,606	0	0
J. Chessum	56,771	0	0

WOOLWICH—continued.

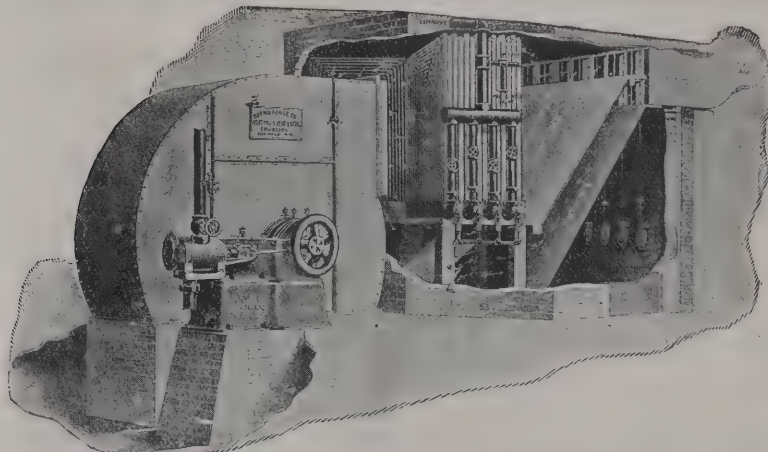
Without town hall.

M. Wells & Co.	£58,266	0	0
Holloway Bros.	58,111	0	0
W. Downs	57,985	0	0
B. E. Nightingale	57,415	0	0
J. Smith & Son	56,987	0	0
H. L. Holloway	56,069	0	0
H. Lovatt	54,398	0	0
J. Shillitoe	53,000	0	0
Holliday & Greenwood	52,814	0	0
Kirk & Randall	52,805	0	0
F. G. Minter	52,600	0	0
H. J. Stevens	51,027	0	0
Johnson & Son	50,959	0	0
J. Chessum	49,125	0	0

BUILDING TRADES EXHIBITION.

IT will be observed from one of the advertisements in this number that an International Building Trades Exhibition will be held in the Royal Agricultural Hall, Islington, from June 13 to June 20. The time selected is a little later than usual. That is one benefit for the exhibitors, for there is a larger number of people from the provinces in London during the summer than in the spring. Londoners are also more attracted to an exhibition when days are long. The exigencies of trade are fast removing our insulation, and in order to be in keeping with the times the exhibition is announced to be "international." In all contests of the kind England has been able to hold her own, and we have no doubt that in June the old supporters of the exhibition will not have much apprehension about foreign rivalry.

Special exhibitions like those of the building trades have many advantages over what are known as Great or Universal Exhibitions. In the first place, those who take part in them have not to expend an enormous sum of money. Probably not one in a thousand of the people who sent goods to the last Paris Exhibition were able by sales to recoup their expenses. There are, too, so many counter attractions, few visitors care to search for objects relating to construction. An attempt may be made occasionally, but the goal is rarely reached, owing to the allurements on the way. In special exhibitions, on the

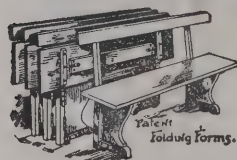


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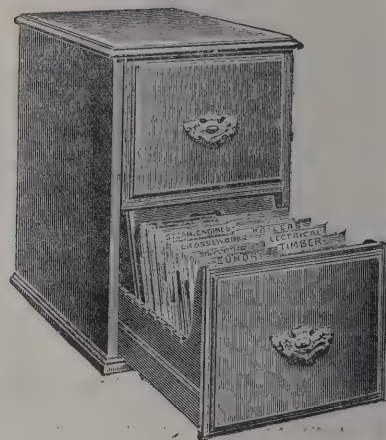
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For Index of Advertisers, see page xxviii.

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contrary, visitors have a definite purpose before them, and they can hardly avoid coming in contact with the productions which are deserving of their attention. The preceding exhibitions, under Mr. Greville Montgomery's skilful management have brought such profit to all who have participated in them, there can be no doubt that the coming exhibition will attain equal, if not more advantageous results.

Two years ago the experiment was tried of introducing architectural drawings. Without them the exhibitions, however excellent, were incomplete. Style in all the manufactures allied to building is determined by architects, and there should always be the closest relationship between the numerous products of all trades and the kind of buildings which are most in favour. It was with that object the aid of *The Architect* was given. Although there was an international exhibition opening at the same time in Glasgow, a valuable collection of drawings was found at Islington. This year a far larger amount of space will be available, and the drawings will be exhibited under conditions corresponding with their importance. It is therefore to be hoped there will be a thorough representation of all varieties of design. What is desirable is to have such an assemblage of drawings as would enable one of the foreign visitors to realise the position of architecture at the present time, besides helping the crowds of possible clients who on such occasions visit the galleries at Islington to obtain ideas of the kinds of buildings which would be adapted to their purpose. It cannot be said that any rivalry is contemplated with other displays. Everyone knows the Architectural Room in the Royal Academy is shunned by visitors, and all attempts to increase the attractions by means of pictorial work or models have failed. There is no other opportunity to enable the public to comprehend the condition of architecture. At Islington the old architectural exhibitions can be revived under conditions which are conducive to success.

THE plans for the municipal buildings and public library for Dingwall (Ross) were passed at a Dean of Guild Court. Dr Andrew Carnegie offered 2,000*l* for the erection of a public library, provided the Free Libraries' Act was adopted. It was resolved to comply with these conditions some time ago. An additional sum of between 2,000*l*. and 3,000*l*. will be required for the reconstruction of the municipal buildings.

NEW CATALOGUES.

MESSRS. C. & A. MUSKER & CO., LTD, of Liverpool, have prepared an extremely attractive album of illustrations of their extensive works and of the wide range of hydraulic dock machinery, coal tips, capstans, presses, cranes, lifts, pumps, &c, and electric dynamos, motors, power and lighting plants, capstans, lifts, pumps, mining machinery, &c., manufactured by them. The quality and variety of the machinery produced by this firm is so widely known that reference to them is unnecessary; we must, however, commend the careful and even luxurious style in which the book is produced, its illustrations being in the best style of collotype, and the cover attractive and artistic in design.

WE have received from the Limmer Asphalte Company, Limited, of 2 Moorgate Street, E.C., a carefully arranged little pamphlet containing a list of some of the principal works carried out by the Company. To give any idea of the places where the Limmer asphalte has been used would be impossible in a limited amount of space, but over 2½ million square feet superficial have been laid by the Company on the roofs of various public and private premises, from several of the palaces down to private residences and cricket pavilions. The Company will forward on application by any of our readers a copy of this pamphlet.

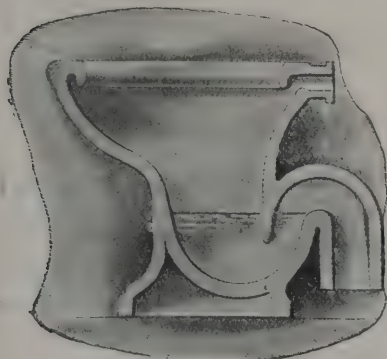
AT a time when so much attention is being given to educational matters, the catalogue of the North of England School Furnishing Co., Ltd., will be found an interesting volume, containing as it does a vast amount of information with regard to scholars' desks and Darlington slateboards (which the Company state they guarantee for ten years) in all varieties to suit colleges and schools, as well as numerous illustrations of fittings required in connection with secondary education as carried out in technical colleges and science and art schools. The Company, who are the sole makers of the Wilks Patent Climax Sliding Partition, have also had very considerable experience in the complete fitting of public libraries, many large contracts having been recently executed by them, including the Gladstone Memorial Library, Hawarden, Hull Central Library, Sunderland, and Norwich Technical Colleges, &c., and they are also contractors to H.M. Government, London, Birmingham, and other School Boards. The head offices of the Company are at Darlington, with branches at Newcastle, Sunderland, Middlesbrough and Norwich.

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TRADE NOTES.

AN important amalgamation in the tube business takes place as from January 1. The well-known firms of Lloyd & Lloyd, Ltd., and A & J. Stewart & Menzies, Ltd., have amalgamated, and in future the business will be carried on under the title of Stewarts & Lloyds, Ltd.

On the 20th ult., His Royal Highness the Prince of Wales, accompanied by Prince Edward and Prince Albert, formally set in motion a large chiming clock which has been erected in the parish church, Dersingham, near Sandringham, in commemoration of the coronation of His Majesty King Edward VII. The clock and chimes were made by Messrs. John Smith & Sons, Midland Clock Works, Derby, to the general designs of Lord Grimthorpe.

MR VINCENT ROBERTS, heating engineer, of Cherry Row, Leeds, has just completed the heating of the following places of worship on the low-pressure hot-water system:—Roundhay Congregational church, Bethel chapel and St. Gabriel's Church, all in Leeds; also St. Mary's Church, Selby, and the Wesleyan schools, Castleford; and by the same system, the factories of Messrs. J. Holmes & Co., Leeds, and Messrs. Redman Bros., Ltd., Ardsley. Installations of steam-heating have also been carried out by him for the Hunslet Engine Co., Ltd., Leeds, and Messrs. J. & H. McLaren, Midland Engine Works, Leeds; while other important contracts for factories, &c., are in hand.

MESSRS. SAMUEL ELLIOTT & SONS, LTD. (late of Newbury), manufacturers of high-class joinery, mouldings, panelings, &c., have opened extensive new works at Caversham, Reading. The premises consist of offices, well arranged workshops, lighted throughout by electricity, large convenient sheds for the storage of timber, the whole covering an area of about six acres, and most advantageously situated on the bank of the Thames within a short distance of the Great Western, South-Eastern and South-Western railway stations, which will greatly facilitate the despatch of goods to their customers. The buildings are substantially brick built and arranged in the most convenient form for the rapid manufacture of high-class joinery, mouldings, turnery and all kinds of woodwork. The plant and machinery are of the best, and include, we understand, all the latest mechanical improvements in every department.

CALENDARS.

AMONGST numerous calendars we have received, mention should be made of that issued by the Rugby Cement Co. with views of their works. It has brass-bound ends, and is a great improvement on the usual large calendar. From the Sun Fire Office comes a very tastefully arranged calendar, and also a useful blotter containing calendar and postal information; and one from Messrs. Douglas Young & Co., from whom we have besides a list of their sale days arranged for 1903. Messrs. Kaye & Co., of Rugby, are sending out a calendar; as are also Messrs. Spottiswoode & Co., the Ocean Accident and Guarantee Corporation, and Messrs. Hartley & Sugden, of Halifax.

SOMETHING quite out of the ordinary way is the handsome volume which is being sent out by Messrs. Morwood, Sons & Co., Ltd., of Harleston Iron Works, Sheffield. This really compendious book contains a calendar, a capital diary giving three days to the large folio page, the pages being interleaved with blotting-paper, a considerable amount of postal and other information of a useful description, and a fully illustrated and priced catalogue of the high-class stoves, ranges, boilers, &c., manufactured by Messrs. Morwood & Sons.

ELECTRIC NOTES.

THE Barnstaple Council has provisionally acquired the Town Mills site for electricity works.

THE Margam Urban District Council are considering an electric supply scheme for the district, estimated to cost 15,000*l.*

THE Leeds lighting committee are considering proposals for the electric lighting of the tramway routes within a mile radius of the centre of the city.

THE Huddersfield Corporation are about to apply to the Board of Trade for a provisional electric-lighting order for Linthwaite.

THE Colwyn Bay Urban District Council will apply to the Local Government Board for permission to borrow 2,680*l.* for electricity works extension.

A LOCAL Government Board inquiry has been held at Croydon relative to the Town Council's application to borrow 46,605*l.* for the extension of the electric lighting.

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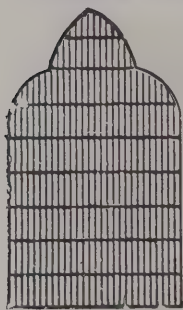
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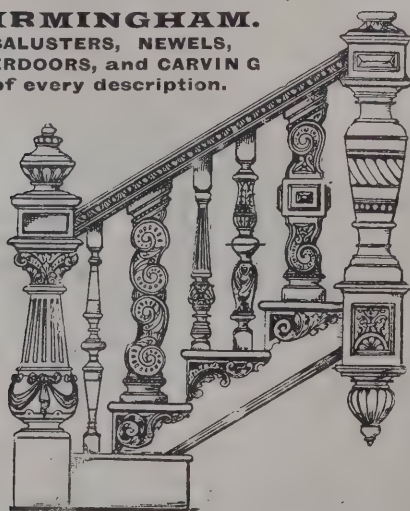


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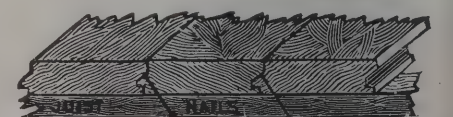
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THE Egremont (Cumberland) Urban District Council have had a Local Government Board inquiry on their application to borrow 52,353*l.* for electric lighting and traction.

THE Local Government Board is considering the Londonderry Council's application to borrow 35,000*l.* for a provisional electric-lighting order.

THE Southampton Town Council has obtained leave to borrow 3,092*l.* for electric-light mains extensions, and 4,315*l.* for a generating station.

MR. G. R. PURS has submitted a scheme for electric-lighting of Bucknall to the Stoke-on-Trent Rural District Council, utilising the sewerage works for steam-generators, at an estimated cost of 1,750*l.*

THE Lords of the Admiralty contemplate making extensive use of electricity in Chatham Dockyard. A scheme is under consideration for introducing an installation both for the purpose of lighting the workshops and for driving all the lighter machinery. It is believed that the change will be the means of effecting considerable economy.

WHAT will happen next? It is now reported that a Chicago inventor (Mr. Alfred Whitney) has organised a company to obtain electricity from 150 miles above the earth. According to the *Mail's* correspondent, Mr. Whitney asserts that the atmosphere extends seventeen miles, and that above this is an ethereal region charged with pure electricity, which he proposes to tap by means of a cable. Seventeen miles up, Mr. Whitney says, the power of gravity will be lost and the cable will simply fall into space. Any number of miles could therefore be easily unwound, and 150 miles up he expects to get electricity equalling 140,000 horse-power. Another inventor, an Italian this time, an engineer named Pansa, of Cassino, has, it is said, succeeded in producing a machine which converts the light and heat of the sun into an alternating electric current, and that every family will ere long be able to manufacture its own electricity in its own backyard for heating, lighting and driving small motors for domestic use.

AMONGST the numerous private bills that were lodged in the House of Lords on the 17th ult., is one entitled the Belfast Electrical Power Scheme. The object of the promoters of this undertaking is to obtain Parliamentary power for the "construction of electrical generating stations for the production, transformation and distribution of electrical energy over the manufacturing counties of Antrim, Down and Armagh." The Bill provides for the acquisition of a considerable area of land

on the banks of the Belfast ship channel, and also on the Newry Canal at Newry, on the river Bann at Portadown and at Ballymena. It is intended that the electrical power to be generated at these several stations will be distributed over the three Ulster counties, where it can be used for manufacturing, traction and lighting purposes. We understand that it is also contemplated to electrify the inland canal extending from Newry to Portadown, and also the navigation of the river Lagan. The Bill provides for the electrifying of existing tramways and railways.

BUILDING AND BUILDERS.

THE Walsall School Board have decided on the recommendation of the building committee to forward plans for the erection of a new school and cookery kitchen at the Pleck for the approval of the Education Department.

THE housing of the working classes committee having submitted to the Chester Town Council a scheme for the erection of twelve cottages in Tower Field Gardens, at an estimated cost of 2,160*l.*, the scheme was adopted.

THE Edinburgh Town Council plans and works committee has resolved to recommend the Council to erect a passenger lift from the basement floor of the north-west wing of the City Chambers in Cockburn Street. The probable cost is 1,000*l.*

A GREAT improvement scheme at Waltham Street Wesleyan church, Hull, has been made possible by the opening of a new street by the municipal authorities. In addition to a new entrance, it is proposed to build a new lecture hall, church parlour and suite of vestries, the whole cost being 5,300*l.*

THE trustees of St. Catherine's schools, Barton-on-Irwell, have secured a plot of land in Edison Road, where it is proposed to erect new schools at a cost of about 13,000*l.* The site has cost over 4,000*l.*, and the fittings and furniture will take another 1,000*l.*, so that nearly 20,000*l.* will be spent upon the new buildings.

THE Board of Education having approved a loan of 815*l.* for the purchase of a site for a new school in Broomhill Lane, Mansfield, the sites and building committee recommend that the Broomhill Lane infants' school be first erected for 350 children, and that it be arranged in such a manner as to permit of a mixed school being built hereafter.

C. B. KENT & SONS



BEST BRITISH BRUSHES

VARIETIES.

THE architects for the enlargement of Chelsea workhouse are Messrs. Lansdale & Harrison, of 65 and 66 Leadenhall Street, London.

THE alterations and addition to the Waterloo Road workhouse, Victoria Park, E., are being carried out from the designs of Mr. Finch, of 76 Finsbury Pavement, London.

THE cost of the new schools which are being erected for the West Ham School Board is 23,923½. Mr. William Jacques, of 2 Fen Court, London, is the architect.

A NEW infants' day and Sunday school has been opened at Marshall's Cross, in the parish of Sutton, St. Helens. The school will accommodate 112 children, and has been built at a cost of 900£.

MR. LOVELL, of 46 Queen Victoria Street, London, is the architect for the new Mission Institute erected in Brisbane Street, Camberwell. Mr. Lovell has several other buildings in hand in the same diocese.

A MEETING of the Council of the Institution of Civil Engineers of Ireland was held recently at the Institution Hall, 35 Dawson Street, at which the following members were present:—Mr. J. H. Ryan, president (in the chair); past-presidents B. B. Stoney, J. P. Griffith, E. Glover; R. Cochrane, vice-president; J. H. Moore, Fred. J. Dick, Geo. M. Ross, P. A. H. Shaw, and Marmaduke Backhouse, hon. secretary. The Council unanimously elected His Excellency the Earl of Dudley, Lord Lieutenant of Ireland, as an honorary member of the Institution of Civil Engineers of Ireland.

ARCHÆOLOGICAL research in Asia Minor continues to make good progress, and appears likely to acquire fresh impetus in the near future. The Sultan, it is said, at the personal request of the German Emperor, has presented a new site there to Germany for the purpose of such research. Already the German scientists are working with characteristic method and vigour in opening up that portion of the site of ancient Babylon allotted to them. The Americans are also busy at Nippur, and it is said that the resumption of the British excavations on the site of Nineveh is to be looked for at an early date.

THE abbey church at Bourne, Lincs, was reopened on the 22nd ult., after the completion of a further portion of the restoration work. Within the last ten years the whole of the abbey church has been practically restored, the work having

been carried out in sections, and the last section has just been completed. This last work has consisted of a new roof on the south aisle, the complete restoration of the south porch, and the doorway to the old vestry room has been replaced with a new window, as it was when the church was originally built. The work has been carried out by Messrs. Roberts Brothers, of Stamford, at a cost of 500£, under the direction of Mr. J. C. Traylen, A.R.I.B.A., of Stamford. The restoration work in the period referred to has cost more than 2,000£. The only portion that now requires structural attention is the plinth round the tower, which on the west and south sides is considerably broken and perished, and this will be put in hand as soon as funds are forthcoming. But other works remain to be done for the improvement and beautifying of the interior.

HEATING AND VENTILATION.

MESSRS. EDWIN OLDROYD & CO., LTD., steam, hot-water and ventilating engineers, of Crown Works, Crown Street, Leeds, have issued a book which is at once a description of their system of heating by means of low-pressure steam, and a catalogue and price list of the apparatus and appliances by means of which the desired results are to be obtained. It contains numerous designs, all of which are carefully drawn and not less excellently reproduced.

An interesting feature of the book is a series of reproductions of photographs of public and other buildings where their system has been installed. Messrs. Oldroyd & Co. make a specialty of equipping theatres and music-halls with heating and ventilating apparatus, fire hydrants and fireproof curtains, and they have recently completed such work at the Surrey Theatre, London; Theatre Royal, St. Helens; Princes Theatre, Bristol; Star Theatre, Swansea, &c.; have now in hand the mechanical ventilating and heating of the Empire, Liverpool; curtain and hydrants for New Theatre, Buxton; curtain and hydrants for the new King's Theatre, Hammersmith, London, and many others.

At the Hippodrome, Sauchiehall Street, Glasgow, they have recently completed the whole of the engineering work connected with the arena. This consists of a rivetted steel tank 42 feet diameter by 9 feet deep, fitted with a rising and falling platform mounted on a hydraulic ram and cylinder. The platform is raised by an electrically driven three-throw pump with a working pressure of 1,000 pounds to the square inch. The water in the tank is maintained at a temperature

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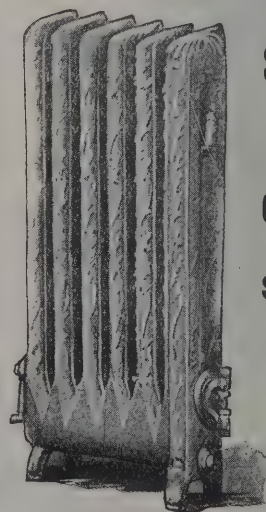
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of 65 degs Fahr. by two of the firm's "Furman" sectional boilers. This tank is somewhat similar to the one at the Hippodrome, London, where Messrs. Oldroyd carried out a quantity of their special work. They also have in hand the heating of several public and private buildings, a great feature of their apparatus being their "Furman" boilers. Their illustrated pamphlet entitled "Heat and Ventilation," a copy of which is now before us, will be sent on application.

A YEAR'S BUILDING IN THE NORTH.

ALTHOUGH at the opening of the year which has just finished the prospects of the building trade in Scotland and the North of England were not regarded as of the most roseate description, it appears from the reports which have reached us from the principal centres that the results have, so far from justifying any pessimistic views on the subject, turned out very fairly gratifying to all concerned. Taking Edinburgh, for instance, we find on comparison with the corresponding period ten years ago that the work passing through the Dean of Guild Court is almost doubled, although it does not come up to the figures of the nineties, numerically or financially. Up to date the work approved by the Dean of Guild Court numbers in all 799 warrants, and embraces 67 tenements, 216 self-contained houses, 67 villas, 103 public and other buildings and 597 alterations. The above tenements represent dwelling-houses to the extent of 19 houses of one apartment, 286 of two apartments, 101 of three apartments, 120 of four apartments, 95 of five apartments, 3 of six apartments, including 13 shops, representing an approximate value of 748,849*l.*, being an increase over last year of 118,509*l.*

Among large public buildings, there are the new Caledonian Railway Station Hotel, the North British Hotel, the important addition to the Council Chambers in Cockburn Street, &c.

The new buildings in connection with the administrative department of the County Council are making good progress, and now give a good indication of the pleasing effect of their design. A large addition has also been made to the Register House facing East Register Street. The "old" Free Church Halls have been altered and considerably extended to meet the requirements of the united bodies. The Edinburgh Medical Mission, in connection with their property in Cowgate, have demolished several old buildings at the corner of Cowgate and Candlemaker Row, and are erecting on the site a new

one of considerable dimensions and pleasing effect. Considerable additions have been made to the Royal Infirmary in Lauriston and the Sick Children's Hospital in Sciennes Road. The Edinburgh Merchant Company have completed a large extension to their premises. What was once the Hanover Hotel has been incorporated with this building, the design having been duplicated, thus making a very imposing structure. The Heriot school in Chambers Street has also been considerably enlarged by incorporating the old brewery premises in the rear and forming classrooms, &c. A larger number than usual of business premises have been reconstructed and altered in Princes Street, Rose Street and George Street, while the Commercial Bank at the corner of Shandwick Place and Queensferry Street is being well advanced. Another building which adds to the architectural embellishments of the city is that erected for the housing of the *Scotsman*.

No less activity has prevailed in the suburbs of the city, the Blackford and Morningside districts especially having shown considerable movement in this direction; while the borough surveyor of Leith, in his report on the year's building, states that, although there has been a falling-off in some directions, new tenement property is rapidly taken up, showing that there is still a great demand for this class of house, and from the way in which self-contained houses are occupied there seems to be a field for further operations of this nature. The new church of St. Serf's, in Ferry Road, is rapidly being completed, as is also the new Masonic Lodge at Wardie Road, and last month plans were passed for a large new school in the Kirkgate in connection with the Roman Catholic Church there. Satisfactory progress is being made with the new Bonnington Bridge, the foundations and wing wall of which have been almost completed, and the old bridge will probably be taken down in the course of a week or two. In regard to the Town Hall alterations, the new committee-rooms and offices are practically completed, and it is expected that these will be formally opened early in January.

From Glasgow we learn that the valuation of the plans granted by the Dean of Guild Court during the year exceeds the record of any previous year, the value for this year being 2,549,698*l.* Only once before in the history of that Court has the valuation exceeded two millions, and that was in the year 1876, which is sometimes referred to as the year of the 'height of the building fever'. The valuation for that year was 2,125,249*l.* It may be noted that the valuation of plans for dwelling-houses alone for this year amounts to 1,458,710*l.*, being

WHAT WE SAY.

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HUGH DORRIAN, Yacht Builder.

Nunsquarter, Kirkcubbin, Co. Down, June 24, 1901.

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We have tried the Velure for outside and inside work, and the result is excellent. We have found no other preparation of a similar character that gives so good a surface.

GATELEY & PARSONS,
Worcester Chambers, 105 Colmore Row, Birmingham;
January 8, 1902.

I am exceedingly pleased with the result of the Velure I had last year. Our doors look and feel like ivory, and show every appearance of great durability. I find that they keep very clean, and do not take the dirt.

A. E. PURDIE, F.R.I.B.A.
Meadow Grange, Blean, near Canterbury: Jan. 2, 1902.

A NEW PLASTER CEILING.

I have tried your White No. 1 Velure on a new plaster ceiling without putting any foundation under it, and I certainly must say that it turned out a most excellent job.

WM. KEANE, Decorator.
25 Wellington Quay, Dublin: Sept. 23, 1901.

ON A TARRED BUILDING.

The Velure I had from you has done excellent work on my tar ground. I had sufficient to give it two coats, and up to the present time no appearance of Tar showing through has been seen. I am very much pleased with it.

JOHN B. ROSS.
Perry Hill Estate, near Birmingham: April 3, 1901.

UNDER WATER.

Velure gives a beautifully smooth surface, which remains hard under water, and does not foul easily.

JOHN MACKENZIE, Sail Maker.
Sandbank, Argyllshire: Sept. 26, 1901.

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VELURE

more than the value of those for all other purposes. Only in one other year since 1876 has the value of dwelling-house property alone exceeded one million, and that was in 1898, when it was 1,240,410*l*. There is no reason at present to suppose that the amount of this class of property is largely in excess of the demand. The rapidity of occupation as soon as the houses are fit for habitation is proof they are required, and with regard to houses of one and two apartments there are good reasons for stating that the supply convenient for those of necessity compelled to occupy them is not equal to requirements. The records show that the building trade improved very considerably at the end of March, and this improvement appears to have been maintained to the end of the year, with improved prices, giving the manufacturers a better return than in 1901. There is also a much better outlook for the incoming year than was the case last December, and the various brick-makers are fully employed.

The building trade in Dundee, while satisfactory, has not been very brisk, and the prospects for the coming year, so far as they can be judged at the present moment, do not seem to indicate much improvement. There has been little change in the architecture of the town, the principal works which have been in progress being the rebuilding of the preserve works belonging to James Keiller & Son, Ltd., destroyed by fire nearly two years ago, the extension of the factories belonging to Messrs. James Scott & Sons and Mr. J. K. Caird, jute manufacturers, and the extension of the preserve works at Carolina Port, belonging to Lindsay & Low, Ltd. In the district a sanatorium for consumptives has been erected at a cost of 15,000*l*. Workmen have been fairly well employed during the greater part of the year, and no really good tradesman need have been without work. Fortunately the year's operations have been attended with almost an entire absence of trade disputes, and the opinion of masters is that wages will have to be reduced before they can expect much improvement. The plans of buildings approved by the Town Council during the past year represented a total value of 165,000*l*., as against 143,000*l*. in 1901 and 158,000*l*. in 1900. A large proportion of the plans approved of during the present year were for minor buildings. In connection with municipal work, the value of the works in progress during the year was 103,532*l*., of which 102,306*l*. was charged to capital. Of the total sum 58,890*l*. was for remunerative works.

Again, a large sum of money has been spent in public works, the total for the year being 102,000*l*., contrasted with 105,000*l*.

for the previous year. This large expenditure is due largely to the extension of the tramway lines and the additions to the public washing-houses. The various tramway routes are now complete, the lines which were finished during the past twelve months being the Constitution Road route and the Fairmuir route. Good progress has been made with the extension of the new esplanade, and it is calculated that by the end of 1903 the sea-wall to Ninewells will have been completed.

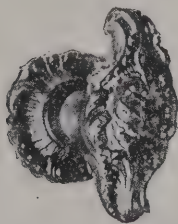
A fair amount of work has been done in Liverpool, which, in addition to the ordinary class of building and rebuilding, the amount of which has been fairly normal, has been embellished by the addition of some buildings of importance, among which may be mentioned the imposing premises of the Royal Insurance Company in North John Street. This building, which is rapidly approaching completion, is in the Classic style of architecture, very freely treated, and will eventually form a noble addition to the already very long list of fine examples of architecture which Liverpool possesses. In view of the gigantic character of the structure a few particulars may here be interesting. The substructure is composed of grey Aberdeen granite, the upper structure being of white Portland stone, this material imparting to it a remarkable picture of solidity and substantiality. Some idea of its immensity will be gathered from the dimensions, which give the length at over 200 feet, height from the street level to the ridge over 100 feet, whilst an ornamental tower, which adds greatly to the appearance of the building, measures from the cornice to the summit 80 or 90 feet. The tower has a square base, and is surmounted by a cupola. In the interior are a sub-basement, which contains various apartments for stores; a basement, which contains a strong room, stationery-rooms and also storage accommodation; the ground floor, which will be wholly used as the general office, with a suite of private rooms for the management at the north end; first floor, comprising a spacious and well-appointed board-room, directors' policy-room, inspectors' rooms, medical examiner's room, and a room for the foreign department; second floor, which includes the typists' department; third floor, on which are the accounts, auditors' and guarantee departments; fourth floor, on which is fitted the most up-to-date lavatory accommodation; fifth floor, with store-rooms, machinery-rooms and laundry apparatus; sixth floor, containing cistern-rooms and various store-rooms. There will be two entrances, both in North John Street, one serving the north end and the other the south end, whilst in

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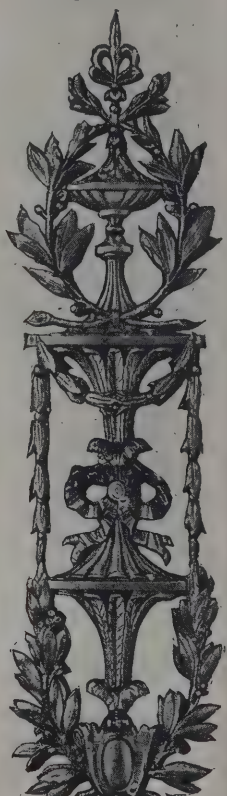
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addition to staircases there will be in use electric elevators from the bottom to the top floor. An elaborate scheme of ornamentation has entered into the exterior, displaying ingenuity of design on the part of the architect, Mr. J. Francis Doyle, Harrington Street.

A very substantial and at the same time imposing structure is that which the Lancashire and Yorkshire Railway Company have just provided for the purposes of a goods depôt in Victoria Street. It is composed of stone, relieved with blocks of granite, and ornamental towers at the summit give it a finished appearance. One of the floors in the building is occupied as an exchange by the Liverpool Provision Trade Association.

Another building of importance from an architectural point of view is the Lewis Trust Workmen's Hotel, the terra-cotta frontage of which is of eminently pleasing design.

Amongst other works which have either been carried out or are at present in progress are the extensive additions to the Consumption Hospital in Mount Pleasant; additions to the convent buildings of Notre-Dame, Mount Pleasant; additions to classrooms, Mill Street Domestic Mission; new operating-theatre at the Royal Infirmary; additions to the Pupil Teachers' College, Clarence Street; additions to the Hahnemann Hospital, Hope Street; new dispensary in connection with the Children's Infirmary, Mulberry Street; new headquarters for the 1st L.R.E. (Vols.), Mason Street; people's bath and washhouse in Beacon Street; additions to the homes for aged poor, Aigburth Road; new cottage homes at Olive Mount, for the Select Vestry infirmary and nurses' home at Highfield, for the Select Vestry; additions to the City Hospital, Mill Road; new shops, Lord Street Arcade; telegraph manufactory off Milton Street; large building by the Lancashire and Yorkshire Railway Co. in Regent Street and Brunswick Place, for cold-storage purposes; and new tobacco factory in Hygeia Street, and other additions, by the Imperial Tobacco Co., Ltd. It is worthy of note that in several parts of the city extensive works for the manufacture of confectionery are being erected, and it is evident that this is developing into an important industry in Liverpool. There are also at present in hand a new branch of Parr's Bank in Great Charlotte Street, public baths in Lister Drive, and a refuse-destroyer at Lavrock Bank, for the south end, whilst a branch of the North and South Wales Bank has been provided in Smithdown Lane. A new electricity generating station for the Corporation is to be erected in Charters Street.

Turning to Manchester, we learn that within the year ended

October 31, 855 sets of plans for all kinds of buildings in the city were submitted for approval to the improvement and buildings committee of the Manchester City Council, and of these 754 were approved and 101 disapproved. In addition to these approvals, which related to permanent buildings, 78 licenses were granted for temporary structures. New dwelling-houses to the number of 1,662 were in the same period certified as fit for habitation. By way of comparison it is worthy of mention that in the year ended October 1898—four years ago—2,773 new houses were certified as fit for habitation. That was the largest number ever so certified within the city in the course of a single year. Five years previous to that date, in 1893, only 682 new dwellings received certificates of fitness. Thenceforward the yearly total showed steady increases up to 1898, when the highest point was reached, and since then there has been a falling off. In 1899 there was a slight decline, the figure being 2,704, or only 69 below that of 1898, but in 1900 there was a further drop to 2,308, a difference of 396 by contrast with the previous twelve months, and in the year ended October 31, 1901, there was a further reduction to 1,677, or 1,096 fewer new houses were certified than in 1898. Still the figures show that during the past five years 11,124 new residences have been constructed, so that the yearly average has been maintained well above the level of 2,000. It has often been stated that at the time when the Ship Canal was opened Manchester had apparently arrived at her zenith, and was showing signs of coming decay in commerce and industry, and of a decrease in her population. Comparison with the figure of new houses in 1893, the year before the Ship Canal was brought into use, shows that side by side with the progress of the port has gone a steady increase in the number of inhabitants of our municipal area. The borough of Salford and other areas of local government within the radius of the Canal's influence can tell tales of proportionate advancement. The sum total of residences which have sprung up as the direct outcome of the making and working of the Canal must be enormous. Three or four years ago it was publicly declared to be 20,000.

From Bolton we hear that while the year's results do not show much cause for exultation on the part of architects and builders, a gleam of satisfaction may be found in the fact that a large proportion of the work done was in the direction of alterations and extensions to cotton mills and other industrial concerns, which we may assume points to a widening out of trade.

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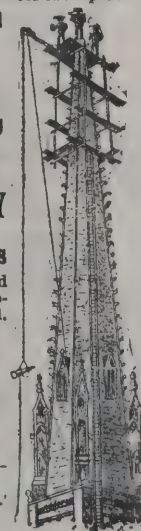
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For Index of Advertisers, see page xxviii.

WENTWORTH SEWERAGE SCHEME.

MR. J. C. POTTINGER, M.I.C.E., an inspector of the Local Government Board, held an inquiry in the Mechanics' Institute, Wentworth, on the 18th ult., relative to an application by the Rotherham Rural District Council for sanction to borrow 3,525*l.* for sewerage works for the parish of Wentworth and the hamlet of Harley. Mr. J. H. Pickford (Messrs. Oxley & Coward, clerks to the Rural District Council) presented the application, and amongst those present were Mr. J. Platts (engineer), Mr. B. Hey (surveyor), Mr. W. Booth (assistant clerk), Mr. W. Jackson (West Riding Rivers Board inspector), Mr. G. P. Talbot (agent for Earl Fitzwilliam, and a member of the Rural District Council), Dr. Weatherbe (medical officer of health), Mr. Holmes (West Riding County Council sanitary inspector), Messrs. T. Abson, J. W. Poles and W. Dickie.

Mr. Pickford stated that the area of the rural district of Rotherham was 35,301 acres, and of Wentworth 2,341 acres. Population in 1901, Rotherham rural district 18,830, Wentworth 1,934. Assessable value, Rotherham 135,026*l.*, Wentworth 7,189*l.* Outstanding loans, Rotherham 29,771*l.*, Wentworth nil. The scheme, which had been prepared by Mr. Platts, was explained. Earl Fitzwilliam had agreed to grant a lease of the land required—2a. 1r. op.—for outfall works, &c. at 8*l.* per annum, and he also consented to give a right of drainage through his land for the sum of 150*l.* A further sum of 5*l.* was required for the right of drainage over land belonging to the Barrow School Trustees.

Dr. Weatherbe and Mr. Talbot gave evidence in support, and Mr. Platts produced plans and furnished details. The scheme has been precipitated by the action of the West Riding Rivers Board during the past two or three years.

Mr. Wood (Harley) expressed the opinion that if the storm water was excluded from the sewers, and dealt with separately, the existing system at Harley might suffice. No objection to the application was offered.

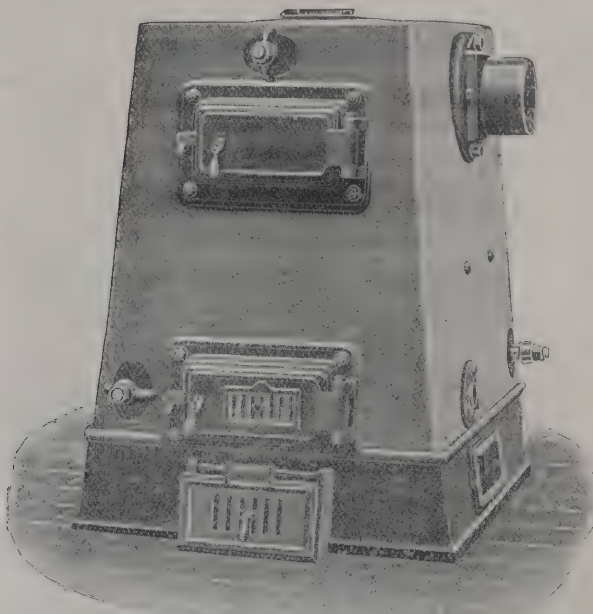
mains consist of concentric cables and are watertight throughout. In the principal streets, and in all routes where extensions are probable, the cables are drawn into stoneware casings; elsewhere they are laid as armoured cable direct in the ground. The main streets will be lit with arc lamps up till eleven o'clock, then by incandescent lamps carried on the same posts. A few streets will be lit by Nernst lamps as an experiment. The central buildings are in red brickwork with Portland stone dressings. The front portion comprises offices, workshop, stores, testing-room, mess-room and lavatories. The engine-room, boiler-house and battery-room are at right angles to this block. The shaft is one of the "Alphons Custodis" chimneys, is circular in plan, has a 5 feet 6 inch internal diameter, and is 125 feet high. There are also a pump-room, situated in the boiler-house; a water-softening plant house, an inclined way for the tipping of coal direct into the bunkers, and a well 10 feet diameter and 24 feet deep, for supply of feed and condensing water. The plant at present installed consists of three vertical high-speed engines, each coupled direct to a multipolar continuous current dynamo. The engines are each of about 100 indicated horse-power, and the dynamos are arranged so that a power supply can be given for tramway purposes if required. Steam is supplied by two Babcock & Wilcox water-tube boilers, and the steam and feed pipes are in duplicate throughout, so as to minimise the risk of breakdown. On a raised platform at the end of the engine-room nearest the office is the switchboard, from which the regulation of the dynamos and the distribution of the energy to the town is effected. On the side opposite the engines are the machines for balancing the three-wire system and charging the batteries. At the east side of the engine-room is the battery-room, in which are installed the secondary batteries or accumulators.

A CONTRACTOR'S HOME.

PADDOCKHURST is the Sussex home of Sir Weetman and Lady Pearson and their family. Sir Weetman Pearson has sat in Parliament as the member for Colchester, on the Liberal side of the House, since 1895. He is still on the sunny side of fifty years of age. He was born near Huddersfield in 1856, educated at Harrogate, and early trained into his great life-work in the firm of Pearsons, of which he is now the leading spirit, a firm which has achieved world-wide fame, and which has carried out some of the greatest engineering works of the age. He married in 1881, Lady Pearson being the daughter

ELECTRIC LIGHT AT MAIDENHEAD.

MAIDENHEAD was lit with electric light for the first time on the 17th ult. The installation is on the three-wire continuous current system. Mains have been laid in the principal streets of the town, the system being so arranged that it can be easily extended as the demand increases to other streets. The

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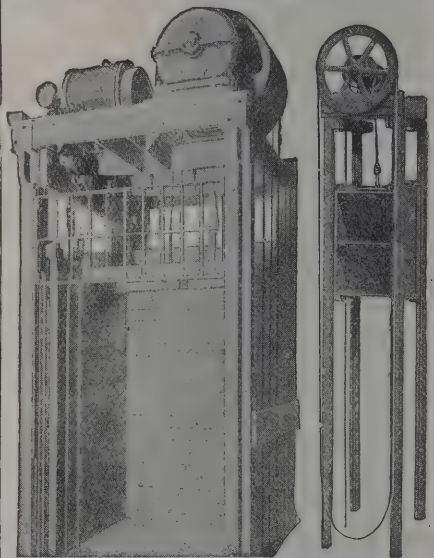
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of Sir John Cass, of Bradford. To catalogue the great works of Messrs. Pearson would be a lengthy task. As sufficient to indicate the gigantic scope of their operations, it may be mentioned that among their works have been the docks at Milford and Southampton, docks at Halifax (Nova Scotia), the Blackwall Tunnel, the Surrey Commercial Docks and the Vera Cruz Harbour Works, and many undertakings in Egypt, China, Malta and Bermuda.

The great enterprise and colossal organisation of the firm is shown by their undertaking the construction of the new Dover Harbour, but the chief work calculated to bring fame and further fortune to Sir Weetman Pearson is the railway being constructed across the Isthmus of Tehuantepec, in Mexico, connecting the Atlantic and Pacific oceans, with terminus harbours on each seaboard. This undertaking has been described as "about the biggest thing ever attempted by a firm single-handed," and it must be a source of gratification to know that British enterprise is about to succeed where French capacity and American incapacity have hitherto resulted in disappointment and failure.

To be the master mind of such a firm as Messrs. Pearson, Ltd., with contracts in hand involving millions of money, and employing thousands of men in many lands; to be constantly flitting wherever work is in hand, even to Mexico, and to be a member of the present hard-worked House of Commons is sufficient to indicate that Sir Weetman Pearson is not a man of leisure. Paddockhurst, consequently, says the *Sussex Daily News*, is the holiday home of the busy baronet, to which he fondly turns, whenever possible, for the recuperating restfulness and country enjoyment that the lovely secluded district and his beautiful home afford. It is not surprising that the Paddockhurst estate shows the mark of its energetic owner, whose great hobby is work, and whose recreation is improvement. Paddockhurst is a modern mansion, pleasing and thoroughly English in style, and in complete harmony with the beautiful surroundings. It stands on the forest ridge that runs from Turners Hill to Balcombe and Handcross, and overlooks that finely diversified range of country that embraces the wooded hills and watered vales of Balcombe, with views across a pleasant country until the distant Southdowns stop the range of vision.

Sir Weetman Pearson has been the owner of Paddockhurst some nine or ten years. The estate is one of the most up-to-date in the county. Sir Weetman's improvements set in immediately after he acquired the estate. He has built a large

wing to the mansion and also built and laid out a very fine terrace, and effected garden improvements which have made the Paddockhurst gardens famous in the county. Lady Pearson takes a special interest in gardening and Sir Weetman Pearson is fond of orchids. Money, consequently, is spent freely on the gardens of Paddockhurst, and a staff of about twenty gardeners is kept. A considerable amount of laying out and planting work is continually going on, Sir Weetman always having some improvements to effect, and never seeming weary of beautifying the grounds that surround his charming home. Three new stone-built lodges have also been erected.

The Paddockhurst estate embraces about 3,000 acres, and probably half of it is well preserved woodland, which indicates that the owner of Paddockhurst is at home with the gun. Pheasant shooting brings large parties of his friends to Paddockhurst, and Sir Weetman and Lady Pearson are the most liberal of entertainers. The kindest of welcomes always awaits visitors. Shooting and love of his gardens indicate the chief country life pleasures of the owner. His gigantic business cares and the entertainment of his friends do not, however, preclude him from caring for the comfort and well-being of those who live on the estate, which is administered with no unsparing hand. The estate extends into the parishes of Worth, Balcombe and West Hoathly. Part of it formerly belonged to Wakehurst Park estate, in Ardingly. There are many houses, including several farmhouses, on the estate. In these days of interest in the question of housing the working classes, and improving village life and accommodation, it is most pleasing to notice that Sir Weetman Pearson proves an excellent landlord, and is working out a scheme of improvement to put every house on the estate in a thorough state of repair, to rebuild where necessary, and in some cases to enlarge or restore as circumstances suggest. He has already built some fifteen or sixteen new cottages, and at Turners Hill the new houses have made a sensible addition to the village. Cottages were in great need in the district. The farm buildings on the estate are also of some magnitude. There are some very old houses on the estate, and the order has gone forth that these must be taken in hand, improved or rebuilt as they need to be dealt with, the improvement to be not only for the comfort of those who dwell in them, but the houses to be made picturesque and their surroundings beautiful; any marked old-time features they possess are, however, to be retained or restored.

Of the farmhouses and other private houses on the estate,

Users' Opinions Respecting URALITE.

CHAS. E. VERNON, Esq., Engineer-in-Chief to the
London and India Docks Company, writes:—

LONDON AND INDIA DOCKS COMPANY,
ENGINEERS' OFFICE, DOCK HOUSE,
LONDON, E.C.,

October 30, 1902.

DEAR SIR,—

With reference to your verbal inquiry, I have to say that in the construction of the Dock Company's new cold store at the Royal Albert Dock, which has a capacity of over 700,000 cubic feet, sheet Uralite was substituted for the usual second thickness, viz. 1½ inches matchlining. There is, if anything, a slight improvement in the insulation, and the great advantage of having the whole of the building, inside and out, covered with a very good fire-resisting material.

Yours faithfully, (Signed) CHAS. E. VERNON.

Note.—The sheet Uralite to which Mr. Vernon refers is only $\frac{3}{32}$ of an inch thick, and is Vermin-proof.

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We found the material convenient to handle, and sufficiently appreciated its other merits to decide on using it in a large Pattern Storage building, for which we have just let the contract, specifying Uralite for the roof.

Yours truly,

(Signed) FRASER & CHALMERS, LTD.

Per W. M. D.

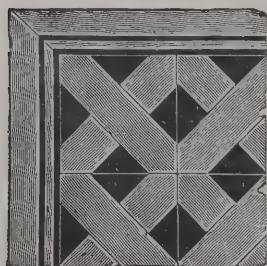
The British Uralite Co., Ltd., 50 Cannon St., London, E.C.

two have been already overhauled. Little Strudgates farmhouse was thoroughly restored, repaired and enlarged in 1901. Misswells, an Elizabethan farmhouse, situated within a mile of Grange Road railway station, has just been completely restored, and a number of improvements made with the idea of letting it as a private house. Here the chief characteristics of the old house have been retained. The next few years will see the other farm and private houses similarly overhauled in accordance with the indicated policy of improvement that is being worked out by Mr. G. W. Honnywill, the estate agent of Paddockhurst. Visitors to Paddockhurst are always impressed with the magnitude of the farm-buildings on the estate, those of the home farm being palatial. They were built by the previous owner regardless of cost, and not with that economy which is conspicuous when profit is the first consideration. Sir Weetman Pearson believes in raising the best stock and improving wherever it can be improved. He takes the deepest interest in agricultural questions, but does not go in for stock-raising to any great extent. The Paddockhurst farm-buildings and stables, however, are magnificent. Everything is so well designed, and attention to detail so complete that the buildings can hardly be equalled in the county. Great stability is apparent in everything; glazed bricks insure light and cleanliness, while tramways and other labour-saving arrangements are at every turn. Stock can be watered automatically, fed and attended by electric light if necessary. A feature of the Paddockhurst home buildings is the great water-tower, a mark on the landscape to be seen from many miles around. The view from the summit is a glorious one—all over the Wealden scenery, from the Surrey hills to those in South Sussex.

Mention has been made of electricity. There is a most complete electricity generating station, with powerful engines driving dynamos, generating currents for not less than a thousand lights at the mansion, and all over the estate buildings. There are builders and carpenters' shops, fitters and blacksmiths' shops, affording quite a revelation to those who do not appreciate to the full the work involved in administering a large up-to-date estate. Some 120 men are in constant employment on the estate, and at times this number is largely increased. As an employer, Sir Weetman Pearson tolerates no slackness. He is a great believer in the piece-work system, and it is introduced wherever it can be done. He pays a good wage, and so long as good work is given in return, he cares little how high a workman's wages run. To still

further illustrate the many sides of estate administration at Paddockhurst, it may be mentioned that road haulage is a great item. The nearest railway station is Rowfant. The coals consumed at Paddockhurst are estimated to amount to about 800 tons per annum. The estate has a traction engine and train of road trucks used for transport purposes, and the engine is convertible into a road roller for road-making work. Paddockhurst possesses its own laundry, worked in every department on modern principles, and sharing the luxury of electric light. It also has its own fire brigade station, powerful engine and well-equipped brigade, who make a brilliant display when attending any spectacular event in the district, and are quite prepared to deal with any outbreak of fire on any part of the estate or in the neighbourhood. The mansion is most efficiently guarded by a complete system of fire-extinguishing apparatus and appliances.

Lady Pearson is a charming hostess, and spends much time at Paddockhurst. The family consists of three sons and one daughter. Mr. Harold Pearson and Miss Pearson are keen followers of the hounds, the Surrey Stagbonds and the Burstow Foxbonds being the local packs. Both Mr. Harold Pearson and Miss Pearson are clever whips. Mr. Harold Pearson is the Master of the Horse at Paddockhurst. The finely-designed range of stables house some twenty or more carriage horses and several hunters. Mr. Harold Pearson has bred several hackneys, and was a prize-winner at the Reigate Show last spring in the yearling hackney class. The estate containing but a small proportion of arable land the stable establishment means a considerable corn bill—to the advantage of local trade. The advent of the motor car has not been overlooked by the machinery-loving mind of Sir Weetman Pearson. At least one motor car has been established at Paddockhurst, and the prospect is that several will be added. Sir Weetman is also desirous of working out a scheme of motors for heavy transport, and is not overlooking the possibilities of the motor as an agricultural implement of the future. To close this brief sketch of Paddockhurst and its owner, just a word may be said as to recreation. For the enjoyment of the national game of cricket every provision is made. There is an excellently kept ground, and the Paddockhurst Cricket Club is captained by Mr. Harold Pearson. The teams that represent the Club in the cricket field are selected from the players on the estate, all expenses are paid, and no wages stopped when workmen are upholding the cricket fame of Paddockhurst in the series of matches yearly arranged.



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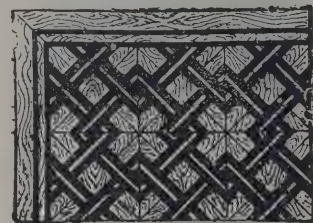
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For Index of Advertisers, see page xxviii.

NEW ASYLUM BUILDINGS, BROOKWOOD.

THE Bishop of Winchester dedicated on the 15th ult. the new buildings at Brookwood County Lunatic Asylum, which have been erected at a total cost of between 80,000*l.* and 90,000*l.* These buildings comprise additional men's and women's blocks, and a new chapel, the work having been carried out by Messrs. Rudd & Son, of Grantham, from the designs of Mr. Frank G. Howell, county surveyor, Mr. Geo. Atlee acting as clerk of the works. The work was started in August 1902, and has therefore occupied nearly two and a half years. The asylum now contains 435 male inmates and 640 female inmates, and a considerable number of Surrey patients are boarded out at similar institutions elsewhere. These patients will now be accommodated at Brookwood, the new male block providing accommodation for 146 inmates and 13 attendants, and the female block for 201 inmates, 10 attendants and 24 nurses. Both are three-storey buildings, and the arrangements and fittings are on the most approved lines. The day-rooms, dormitories and single-rooms (of which there is a large number) are well lighted and ventilated, and pleasant quarters are provided for the attendants and nurses, the latter having a block to themselves. Large bay windows on the south front, fitted with seats, will meet with general appreciation, and the heating by means of Messrs. Haden & Sons' (Cromer Street, London) calorifiers is thoroughly adequate, besides furnishing an abundant supply of hot water for baths and other purposes. The lavatories are contained in spurs, quite detached, except for a single entrance, from the main buildings. The accommodation on the women's side is more self-contained than on the men's, and includes a dining-room, 56 feet by 30 feet, a sewing-room and other conveniences. The additions are substantially built of brick, with slated roofs, and are fitted throughout with electric light.

The chapel is an imposing structure in the Early English style of architecture, capable of seating 850 people, being, therefore, one of the largest places of worship in the district. It is built of yellow brick, relieved with red brick string-courses and mouldings, and has a slated pitch pine roof supported on columns of Portland stone. There are nave, north and south transepts, chancel, organ chamber—as yet without an instrument—vestry and ante-room at the west end, and the pews are of pitch pine on wood-block flooring. The aisles and chancel are tiled, and glazed tiles of art shades line the chancel walls. The reredos and font are of Caen stone, and the pulpit is of

pitch pine, while the heating and lighting are the same as elsewhere. Lead glazing and cathedral glass are used throughout, and the triplet windows which form a distinguishing feature of the chapel are much admired.

ARTIFICIAL MARBLE IN DENMARK.

THE United States Consul at Copenhagen states that the lack of marble in Denmark has led to many attempts to produce a substitute which would equal in decorative effects the natural product and would not exceed it in cost. Some success has been achieved in the manufacture of this article in Sweden, but the thin slabs would not keep their shape, inclining to bend and warp. The veins were stiff and angular, and the soft transitions of colour which make variegated marble a thing of beauty were wanting. A significant advance has been made in this industry in Denmark by a master builder of Copenhagen named Sven Schongaard, who is producing a stone of such delicate transition of tints and play of colour that it is difficult to distinguish it from the natural product; while as to cost of manufacture it can compete with all other artificial marbles. The imitation of the more expensive species does not exceed in cost that of the cheaper ones. The inconvenience hitherto met with that the mass had to be greased to prevent adhesion (thereby destroying the crystalline surface characteristic of the genuine article) has been overcome. The process of manufacture is simple and easily learnt, and the cost of the outfit is said not to exceed 35*l.* The article can be produced in any form desired—columns, plain or fluted, and capitals, as readily as flat slabs. It is claimed that even pictures may be made of this material. It seems to have the durability of genuine marble, but its cost is only about one-tenth. At the present stage of the development of the industry, the maker is able to produce a slab about half an inch thick at a cost of about 7*d.* per square foot.

AN AUSTRALIAN CONTRACTOR'S CASE.

AN action, which lasted from March 10 to May 6 last, with some adjournments, was heard in the Sydney Law Courts before Mr. Justice Pring and a special jury. It was brought by Mr. Charles Wadey, builder and contractor, against Mort's Dock and Engineering Company. The plaintiff claimed the sum of 48,000*l.* for alleged wrongful cancellation of his contract

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for the construction by him for the company of a graving dock at Woolwich, also for conversion of certain plant, the forfeiture of his deposit and retention money, and the loss of profit he would have made if he had been permitted to carry out and complete his contract. The defendants pleaded that by a clause in the agreement the manager of the company was authorised to cancel the contract if he became dissatisfied with the rate of progress and mode of proceeding of the work, and that the rate of progress and mode of proceeding not being satisfactory he cancelled the contract. The defendants also pleaded that the plaintiff was not always ready and willing to perform his contract. To this plea the plaintiff replied that the delay on his part, if any, was caused by the neglect of the defendants in not handing over to him within a reasonable time the site of the dock. The jury by majority returned a verdict for the plaintiff with damages 11,139 $\frac{1}{2}$, and found specially in answer to questions put to them by his Honour that defendants did not, as soon as practicable after the firm of Solomon & Bell had completed their contract for excavation, give plaintiff possession of the site so as to enable him to carry out his contract within the time and without extra cost to him; that Mr. Franki's dissatisfaction and the unsatisfactory mode of proceeding and rate of progress of the work were caused by the default of the defendants in not giving possession of the site; and that the plaintiff was ready and willing to perform the contract according to the terms thereof.

Against the verdict and findings the defendant company appealed on November 3, mainly on the following grounds:—

1. That the verdict was against evidence and the weight of evidence. 2. That his Honour, Mr. Justice Pring, ought to have directed a verdict for the defendants, inasmuch as there was no evidence that the plaintiff was always ready and willing on his part to perform the contract. 3. That his Honour ought to have directed a verdict for the defendants, inasmuch as there was no evidence that the dissatisfaction of Franki was caused by the default of the defendants in neglecting and refusing to give, and in hindering the plaintiff from obtaining possession of the site of the dock for the purpose of carrying out the work by the plaintiff. 4. That his Honour ought to have directed a verdict for the defendants, inasmuch as there was no evidence that the unsatisfactory mode of proceeding and rate of progress of the work were caused by the default of the defendants in neglecting and refusing to give and in hindering the plaintiff from obtaining possession of the site of the dock for the purpose of carrying out the work by plaintiff.

5. That his Honour admitted in evidence certain conversations between plaintiff and Franki. 6. That his Honour rejected evidence to prove that the delay of the plaintiff, if any, in completing his contract in the time specified, without extra cost and expense, was occasioned by his own act in hindering and delaying Solomon & Bell.

The arguments were not concluded until November 12, and the Court delivered judgment on the following day.

The Acting Chief Justice (Mr. Justice Owen and Mr. Justice Walker concurring) said there were seven or eight counts in the plaintiff's declaration, but there were only two with which the Court had to deal; and the first set out "that plaintiff was always ready and willing to perform the contract on his part, whereof the defendants always had notice, and had performed the same except so far as he was prevented from so doing by the defendants' breach of the contract, and except as aforesaid, all conditions were fulfilled and all times elapsed necessary to entitle plaintiff to maintain the action for the breach of the contract, yet the defendants did not permit the plaintiff to do all things necessary to duly perform the contract on his part; but before the time for the completion of the contract by the plaintiff finally and wrongfully refused to permit plaintiff to complete the same, and finally and wrongfully prevented and discharged plaintiff from completing the same, and renounced the contract on their part." Then the count went on to allege the damage plaintiff had sustained, and it was as clear as possible that the breach relied upon by plaintiff was the cancellation of the contract by the notice from Mr. Franki of June 21, and he did not allege that he was unable to get on with the contract because of the want of stone. As to the defendants' plea to that count the third alleged that plaintiff was not always ready and willing to perform his contract according to the terms thereof. Then the fifth plea set out a clause of the contract, which was to the effect that if the manager of the defendant company should be at any time dissatisfied with the mode of proceeding or at the rate of progress of the works, or any part thereof, he should have the option and full power and authority to cancel the contract. Then the plea went on to state that the manager did become dissatisfied with the mode of proceeding and at the rate of progress of portion of the work, and gave notice in writing to the plaintiff of the cancellation of the contract. Plaintiff answered that plea by a replication stating "that the alleged dissatisfaction of the manager and the alleged unsatisfactory mode of proceeding and rate of progress

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of the said work were caused, if at all, by the default of the defendants in neglecting and refusing to give, and in hindering the plaintiff from obtaining possession of the site of the dock for the purpose of carrying out the work by the plaintiff, and in supplying certain incorrect plans for the purposes of the said work to the plaintiff, and not otherwise." So that the plaintiff had pinned himself down to averring that the alleged dissatisfaction of the manager of the defendant company arose from that delay, and that the delay was caused by the defendants not giving him possession of the site in accordance with their contract. The Court might take it that there was some delay on the part of defendants between May and December 1899, and that during that time, at all events, plaintiff was complaining of the defendants not giving him possession of the site of the work; but what he wished to emphasise was that that delay was immaterial as far as Mr. Franki was concerned, though plaintiff specifically alleged that delay as the reason why Mr. Franki was dissatisfied with the mode of proceeding and at the rate of progress of the work. That was the issue which the plaintiff himself asked the jury to try, and the Court had to determine whether there was any evidence to support that issue. He was of opinion on that part of the case that there was no evidence whatever that that was the ground of Mr. Franki's dissatisfaction. The evidence, to his mind, pointed entirely against such a conclusion, and if ever there was a case in which, as it seemed to him, there was abundant cause of dissatisfaction—even on the plaintiff's own showing—it was the present case. Of course if there had been evidence on both sides the Court could not order a verdict to be entered for the defendants, but it was perfectly manifest from the plaintiff's own evidence that apart altogether from not getting the stone, there were causes of delay over and over again with regard to the construction of the coffer dam in the interval between December and June that gave rise to the dissatisfaction which resulted in the cancellation of the contract. At one time plaintiff complained that he could not get sufficient labour, at another that delay was caused by insufficiency of timber, and work was delayed at another time by want of sufficient cranes. Then it was a very strange thing that if the cause of Mr. Franki's dissatisfaction was as alleged by the plaintiff, Franki himself, as was proved by the correspondence, was helping plaintiff out from the consequences of his (plaintiff's) own delay. Plaintiff had to establish his plea of readiness and willingness, but his own evidence showed that it

was physically impossible for him to carry on the work according to contract, and if he had had all the stone in the world he would not have been able to utilise it, because he had broken his contract by not having the coffer dam ready in time. It seemed to him that on the facts of the case plaintiff was not entitled to succeed, and that was the opinion of the judge who tried the case; and it was, perhaps, to be regretted that his Honour did not see his way to direct a verdict for defendants. For these reasons he was of opinion that the verdict for plaintiff must be set aside and entered for defendants.

Rule absolute to enter the verdict for defendants with costs.

THE NEW MIDLAND MANCHESTER HOTEL.

REMARKABLE progress has recently been made with the building of the great Midland hotel outside the Manchester Central Station. In the spring, says the *Manchester Guardian*, one saw little more than its framework, vast beams of iron raised on end and spread over the acres of land which form the site. The tall chimney which stands separate from the main building had been raised, but portions only of the walls showed behind the tiers of scaffolding. Then American ingenuity was joined with English skill and labour, and the building rapidly came near completion. The roof is now being placed upon the topmost storey, the scaffolding is coming down, and it is possible to see what the whole design is like. The building is so great that it dwarfs nearly everything around it, and makes more apparent the narrowness of the streets near which it stands. To some people no doubt the statement that the cost of the whole undertaking has to be set down in seven figures will sufficiently convey an estimate of its magnitude. Others may better realise its extent in recalling to mind the buildings that formerly stood on the same area. Besides much warehouse property, there had to be removed the Gentlemen's Concert Hall, the People's Concert Hall and the Lower Mosley Street schools. The area covered by the hotel may, in fact, be roughly stated at a couple of acres. As a preliminary measure the buildings mentioned had to be demolished, and then the work fell into the hands of the builders, Messrs. William Brown & Son, of Salford. First of all there was the excavation for the foundations, many feet below the street level. The site was cleared and the soil removed down to the rock, and the foundations had of necessity to be

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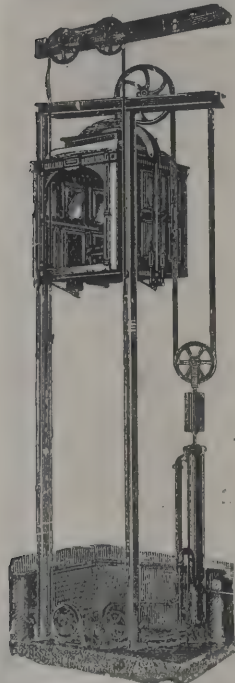
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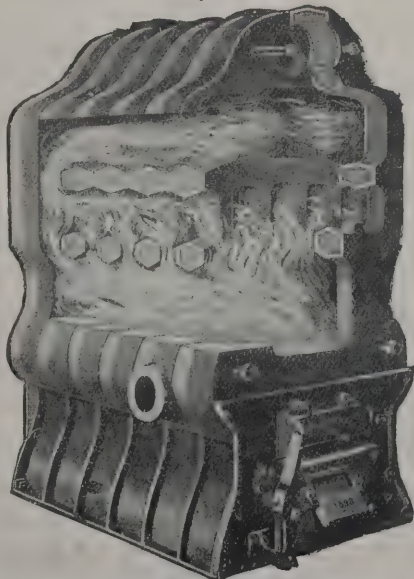
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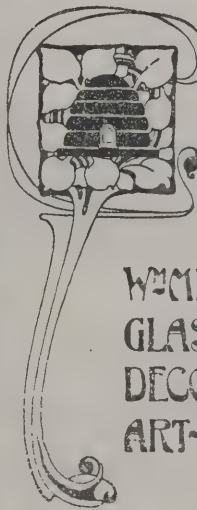
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solidly laid. This part of the undertaking was begun in September 1899, and it was not until March 1900 that the actual work of building was entered upon. For the first 26 feet, rising from the pavement, the front elevations are built of red Aberdeen granite with Shap granite bands, and from that distance to the roof they are of terra-cotta bricks. From the first floor there will be access to a balcony from which those in the hotel will look down upon the great spaces which are to be arranged in the interior of the structure. The general character of the scheme of the hotel may perhaps be best gathered from a detailed description of its parts.

The basement is confined to the usual stores of an hotel and the necessary appliances for heating and ventilation. The scheme for the latter purposes is intricate and elaborate. In the basement also provision is made for baths and the like. In the intermediate basement there are hair-dressing saloons, bath-rooms, kitchens and the like. The ground floor on the Peter Street side has an entrance about 19 feet wide, which leads into a carriage court, with an inward and an outward way for vehicles. From this part it may be noted that access is given to a fine octagonal-shaped lounge on the first floor, which has a balcony for the purposes of a band. From the lounge one may pass on the extreme left to a large room to be used as a coffee-room, or on the right to another which will be a French restaurant. On the Mount Street side of this restaurant there will be a covered court or winter garden—a large rectangle—which will have a raised terrace or platform for promenading purposes. Beyond the French restaurant and the winter garden will be private dining-rooms. From an entrance to the hotel in Mount Street access will be given to a luncheon-room, whose windows will overlook Peter Street, and to a restaurant—on a larger scale than the French restaurant—with windows overlooking Mount Street. Besides the entrance in the latter street already mentioned, there will be another nearer the centre of this side of the block. There will also be an entrance for the purposes of business and telephone communication. In Windmill Street will be found an entrance practically given over to the purpose of conveying luggage into the hotel. Following the line of the building towards the Central Station, one reaches another of the principal entrances, directly opposite the station. This will lead at once into an entrance hall for the new concert hall, which takes the place, under the terms of acquisition by the company, of the old Gentlemen's Concert Hall. From the entrance the concert

hall is approached by steps, and one thus reaches a great and convenient room whose dimensions will be of some 96 by 46 feet. Here it is hoped that the long-famous Gentlemen's Concerts of Manchester will be resumed with the same success as in days gone by. Care has been taken in the design of this room to make it suitable for concerts. The street line of the building along the frontage leads, of course, to Lower Mosley Street, where there are entrances to the stage and dressing-rooms of the concert hall, to the hotel dressing-rooms and also to the kitchens.

So far there has been chiefly indicated the character of the ground-floor accommodation. The concert hall, which is entered from Windmill Street, is, however, on the next floor above, and is reached by a marble staircase. On the left of the hall are lounge and reception-rooms. The lounge, already described as octagonal in shape, is entered from Peter Street. From this entrance passages lead on the one side to a private ball-room and dressing-room, and on the other to a billiard-room. Passing into a long corridor the visitor finds on this floor a number of private dining-rooms, bedrooms, bath-rooms and sitting-rooms running round the various sides of the building. On the second floor is a winter garden or covered court with an octagonal roof. The ventilation and efficient lighting of this has been well provided for. There is on this floor a continuous corridor leading to bedrooms and bath-rooms. On this floor also, as the building is now, one sees numerous preparations for lifts of the newest type for passengers and luggage. There is an intention on the part of the company, it is said, to introduce those of the newer American and Continental methods which are thought favourable to our insular tastes. But of this of course it will be more possible to write in the autumn of next year, when the building will probably be ready for occupation. Passing to the third floor, one is brought to a continuous corridor, which runs all round the interior of the structure. Here the great space representing the open court is well seen as a decorative feature. The fourth, fifth and sixth floors are practically in arrangement a repetition of those below, and we reach the Mansard roof, which is composed of steel and fireproof materials. The whole structure has about 480 rooms, and of these 400 are bedrooms. It is constructed very largely of steel, and is fireproof throughout.

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The Architect.

THE WEEK.

THE sudden death of two men who were taking baths on the 23rd ult. in the Fulham Public Baths having been inquired into by a coroner's jury, a verdict was returned to the effect that death was due to syncope, caused by an electrical shock; that such death was accidental, and owing to faulty design and construction of the electric installation; but they were unable to say on whom the blame rested. There is something contradictory in the findings, for if faulty design and construction were proved, then it was not difficult to attribute blame. It would have been wiser to have stated that electric power is not as yet thoroughly comprehended, especially in its action on human beings. Everyone who has undergone electric treatment is aware that baths having electric energy are common. But the effects are anticipated, and on that account not much inconvenience is suffered. At Fulham the suddenness of the attack may have produced excessive alarm, and with some constitutions syncope would follow. Two witnesses experienced shocks on the same day without any injury. The fatality should, however, be regarded as a warning. From its invisibility electric force is not truly realised; the dangers are either absurdly exaggerated or neglected. In public baths, where "larking" is not unknown, it is not prudent to allow wiring or any agency in a system to become obtrusive, for meddling would be a temptation. But if wires are concealed they should likewise be earthed, in a technical sense, for the force will take advantage of the least weakness. At Fulham, according to one technical witness, the only defect was in the connection of the wires and lamp-holders, but that was sufficient to cause fright and syncope, which was fatal. Henceforth care should be taken that nothing can possibly be touched by ignorant people which, however remotely, can become a source of danger.

PUVIS DE CHAVANNES was an innovator like M. RODIN, and there is some fitness in selecting that sculptor to produce the memorial of the painter which is to be set up in Paris. Evidently M. RODIN is not disposed to undertake an experiment corresponding with his amorphous statue of BALZAC. It would not be adapted for a gentleman so precise in his ways as PUVIS DE CHAVANNES, and who was so well represented "in his habit as he lived" in the full-length portrait which is one of M. BONNAT's masterpieces. M. RODIN this time proposes a simple monument. He has already modelled a bust of the painter, and he contemplates placing it on a stele of his own design, which will be flanked by "the genius of repose in eternal glory." It is difficult to imagine what that kind of figure will be, but we may be sure it will be characteristic of the sculptor, and will not be suggestive of any genius already existing. Whether the work will be in bronze or marble has not been decided.

ONE of CARLYLE's successes was the resuscitation of Abbot SAMSON, of Bury St. Edmund's. The stout monk, in all his strength and weakness, appears as a living being. There is a feeling of satisfaction in the minds of most readers when in the progress of the story SAMSON, to the surprise of many, is raised from the humble post of sub-sacristan to the abbot's chair. HENRY II. seemed to think a joke was being played, for when SAMSON and the monks came before him, he said:—"You present to me SAMSON; I do not know him. Had it been your prior, whom I do know, I should have accepted him. However, I will now do as you wish. But have a care of yourselves. By the true eyes of God (*Per veros oculos Dei*) if you manage badly I will be upon you." Afterwards when the king heard him singing a psalm he again swore his favourite oath and thought that SAMSON would well govern the abbey. SAMSON was a reformer after CARLYLE's heart, for he was inimical to *verbosi*, or windbags. He built, we are told, "many useful, many pious edifices, human dwellings, churches, church steeples, barns, for all ruinous incomplete things, buildings or other, were an eye-sorrow to the man." How or when he died is not stated by his biographer

JOCELIN, all that is related being that he departed for France to advise King RICHARD. In a record of the abbey which is preserved in the town library at Douai, the burial-places of some of the abbots or priors are described. SAMSON is said to have been interred at the feet of Abbot OVDING in the chapter-house next to the pulpitum. Last week coffins and skeletons of five abbots were found in a line down the centre of the chapter-house floor from east to west. It is assumed the remains are those of Abbots OVDING (d. 1157), SAMSON, HENRY, RICHARD DE INSULA and EDMUND DE WALPOLE. The skeleton of Abbot HUGO, the predecessor of SAMSON, who allowed the monastery to fall into a state of bankruptcy, has not yet been discovered.

It is commonly credited that in Germany there is less difficulty in making arrangements for restoration than with us. The majority of the old buildings, whether secular or religious, are more or less under Government control, and under those circumstances the adoption of a plan for repairs or alterations might be presumed to rest entirely with officials. In practice, however, it is found that restoration gives rise to much controversy, and in consequence the work is often long delayed. This has been the case with the cathedral of Meissen. The building is of great age, parts belonging to the tenth century. Three times the western tower or towers were destroyed; once in 1222 by fire; and it was not until between 1399 and 1410 new towers were erected. In 1413 they were cast down in a storm. In 1481 a new tower was constructed; it was probably designed by ARNOLD of Westphalia, and was also destroyed in 1547. Subsequent to the Reformation the cathedral was injured by lightning, and the towers continued to remain in an incomplete state. Six years ago a society was formed for the restoration of the building. Several plans were prepared. Discussions followed, and it now appears the society is divided into three parties. The design of Herr SCHAFER, of Carlsruhe, by which two towers would be introduced, is generally preferred. To a second party the design by Professor LINNEMANN, of Frankfurt, is the most eligible; it proposes the creation of three towers, and corresponds to some extent with the arrangement of ARNOLD of Westphalia. The author, however, has publicly announced his preference for the rival design. Many members are in favour of a project by Professor GURLITT, from which towers are omitted on the supposition that they would not be in keeping with the rest of the cathedral. Under the circumstances, it is more likely that the building will be allowed to remain as it is than be graced with accessories in the form of towers. About a year ago it was announced that Herr SCHAFER's plan was to be realised.

AN open-air sanatorium for male sufferers from consumption has been erected at Bligny, near Paris, under the direction of M. LUCIEN MAGNE, the architect. The ground is elevated, and the buildings are placed on a plateau which enable the "galeries de cure" to face the south, whilst the chambers of the patients at each end form angles with the gallery, and respectively have a south-eastern and south-western aspect. On the north side of the gallery there is a corridor partly open, but which can be closed and heated in winter. The corridor is continued behind the chambers, and a patient will therefore have only a short distance to traverse between his room and the gallery, the roof of which is inclined in order to diminish the shadows cast on the inmates. The gallery is painted light blue, as it is believed colour is not without its influence on invalids. Each chamber contains three beds, and a glazed vestibule leading from the gallery will afford those in the room a view of the grounds, as well as to permit of supervision from without. The floors are of cement on béton, with brick beneath and steel joists. There is no necessity for joints with a cement surface, and therefore dépôts for dust will be avoided. The floors are slightly inclined to facilitate cleaning. The dining-room is on the ground floor, while the "salle de récréation" is on the first floor. The stairs are in stone, so arranged as to diminish the exertion of ascent by the patients. M. LUCIEN MAGNE has endeavoured to be economical, and everything that could be considered useless or superfluous is avoided, although nothing is absent which could add to the comfort, solidity or salubrity of the buildings.



"ASIA"—"AFRICA." BY SIR EDWARD J. POYNTER, P.R.A.

THE ACADEMY WINTER EXHIBITION.

NOT only architects, but every student of the philosophy of art, must experience satisfaction in seeing one of the galleries assigned to the drawings, photographs, plans and casts which illustrate some of the results of Mr. EVANS'S excavations on the site of the Palace of Knossos in Crete. The collection will only be on view during the present month. Later it will be less easy to trace the relationship between modern and ancient painting. It is assumed that the palace was destroyed in the fifteenth century before the Christian era, and the examples of art in the building necessarily belonged to a much earlier period, but there is evidence of still older buildings on the site which afford relics of decorative art that "go back well into the third, and probably into the fourth millennium before our era."

The house of MINOS might be compared, for the number of its chambers, with the palace of the Escorial. At the first glance it resembles one of those mazes or puzzle-pictures which are devised for the amusement of children. It would have been an advantage for the ordinary visitor if the corridors, halls and approaches had been coloured, for in that way the difficulty of reaching certain chambers would be manifest at a glance. MINOS had the reputation of a tyrant, and it would be safer for him to be able to change his apartment whenever he pleased. There may have been degrees of inaccessibility among the rooms. According to tradition he was well served by DAEDALOS, the mythical artist, who was assigned the title of "Hero," and who was either the grandson or great-grandson of ERECHTHEUS, the king of Athens. Like PROMETHEUS, he was said to have been instructed by MINERVA herself. Few can believe that the many-chambered dwelling was arranged for the Minotaur, "the son of MINOS and of PASIPHÆ." But the subtle ambages might well be taken as a confirmation of the terrible legend.

We can see a monstrous bull as an element in the decoration, but it only appears in a contest with male and female toreadors whose forms might be outlined by means of curved rulers. A similar elongated animal is often found on vases and in reliefs. The decorations, so far as can be judged, are in no way suggestive of terror or mystery. The lily was in favour, and it is sometimes treated in a way that comes very near the French *fleur-de-lis*. There is also an exquisite species of ornament consisting entirely of leaves. The Egyptian lotus was likewise adapted. A stone lamp looks as if it had been copied from a beautiful capital derived from plant forms. In the throne-room red prevails, black being used as a contrast. There is a ceiling which is most ably modelled, the plaster being coloured in blue, white, yellow and red. The gypsum throne could only seat one person; the back is perpendicular and the sides form a continuous wavy line. The seat is supported by a conical arch which at a distance might be taken for a Gothic arch, and what is more remarkable there are crockets springing from the uprights or piers. The artists were not afraid to imitate marble by colouring plaster. There is a bull's head in relief coloured from life, as well as an arm and breast of a man and a head of a lioness, which reveal the perfection

attained by sculpture at that early period. It has been sometimes supposed that the column above the Lions' Gate at Mycenæ had been put up wrongly, as the widest part is above, but in the columns at Knossos we can see the same peculiarity of reversal. The gateway is also recalled by figures of two animals that seem to act as supporters for the figure of a goddess standing on a pedestal. The casts, drawings and photographs must modify all theories hitherto accepted about ancient Greek art, and on that account we advise our readers to lose no time in visiting the gallery.

We must jump over a long interval, say three thousand years, during which art has advanced and declined, was buried and reborn, before we come to the period next exemplified in the exhibition. The Venetian pictures are not numerous. They include, however, the two noble works from Hampton Court Palace by TINTORETTO, *The Nine Muses in Olympus* and *Esther Fainting before Ahasuerus*. Both, we believe, belonged to CHARLES I. The *Muses* was valued by the Parliamentary experts at 30*l.*, and was sold for 100*l.* WAAGEN says it is deficient in arrangement, but of great power in colouring and care in execution. BURGER speaks of the figures as all having "une tournure superbe," and one which is seen standing on the right side, with her back to the spectator, might have been sculptured by MICHEL ANGELO.

If the popular tradition that the painter dashed off his pictures in a fury can be accepted in respect of this work, then TINTORETTO was an exception to all experience of painters. There is no sign of expedition or haste in any part of it. It was a saying with his countrymen that he had three pencils, of gold, silver and iron: the first must have been employed on the *Muses*. It is needless to say there is no Greek spirit to be found. The introduction of a spinet and a globe is not the only anachronism, but defects of the kind seem trifles and are more than compensated by the power displayed in the figures. In the *Esther* there are even more figures, but they are all draped, and the costume is partly Venetian, partly hybrid-eastern. As in most Scripture scenes of the period the event is clearly suggested. The execution is more characteristic of the painter as "Il Furioso" than its companion, for the boy in the foreground holding a cat is so ill-proportioned, he must have been produced in a hurry.

There are also three works by PAUL VERONESE. *Venus and Mars* reveals more fancy than is usual with the painter. One cupid is engaged in binding the limbs of the pair, while the other keeps the war-god's horse at bay, and the animal, it must be allowed, is so badly painted as to suggest the handiwork of a Venetian assistant who had never seen one alive. The *Annunciation* is sober in colouring. The scene is represented as taking place in a grand architectural colonnade, with a floor laid out in strict geometrical patterns; the surroundings are therefore different from what would be employed by a modern artist. In the upper part the ALMIGHTY is seen with angels. The *Salutation*, by VERONESE, must have been seen by RUBENS when he painted a similar scene. The tradition about LA FORNARINA'S coarseness is supported by SEBASTIAN DEL PIOMBO'S portrait; if it be a genuine likeness, then the head in the Florence gallery ascribed to RAPHAEL, and

bearing that title, must belong to a different subject. "The emblematical subject," which used to be known as *The Virgin with Child and Saints*, by BONIFAZIO, has much of TITIAN's manner. The portrait of a Cardinal, by GUIDO, in which is an extraordinary arcade as a background, is of little value, and is more of a painting of robes and lace than of an individual.

A whole gallery is devoted to ALBERT CUYP. We believe there are more examples of the master in England than in all the public galleries united of Holland. How he came to seize upon English amateurs is not easily explained. His pictures are certainly full of repose, and recall country life. He was also admired for his skies, and there was some reason for calling him the Dutch CLAUDE. TURNER once accepted him as an interpreter of nature. But the skies have faded, and after the long period of SIDNEY COOPER it is difficult for anybody but a breeder or a dealer to keep up an interest in cows. The pictures by CUYP on the walls vary in the number of cows that appear in them. In one there are eight, in another six, a few have two. A landscape deserves to be noticed for having only one. CUYP, however, was able to produce work of another kind. His *Prince Henry Frederick at the Siege of Breda* deserves commendation from its dissimilarity to contemporary French war-paintings, for the Prince and his officers do not seem to be elated, and the signification of the scene is suggested by men carrying a bier. A portrait of himself, and others of girls, are realistic examples. *The Castle of Nemwygen* is a very large architectural piece. There is also a *Christ Entering Jerusalem*, which is curious, but is somewhat more elevated in character than similar works by CUYP's countrymen. A quaint gateway is introduced surmounted by an obelisk.

The English school has several representatives. REYNOLDS did not paint many landscapes, but a very dark wooded scene with hills in the distance is hung in the first gallery. It has suffered like all his works, but originally it must have been effective. The portrait of the Countess Powis was, it appears, originally painted in 1777, and was altered in 1786, when a very large hat was introduced. The painting is in excellent condition, and the action of pulling a long glove over the left hand and arm seems natural. The most important is the full length of Mrs. PELHAM throwing grain to poultry and pigeons. RUSKIN once remarked as a sign of weakness in the painter that, in thinking over his examples, instead of naming a *Madonna de San Sisto* we can only say *Mrs. Pelham Feeding Chickens* as the culminating example of his work. But the critic might have recalled that many of RAPHAEL's Madonnas, as well as those of other painters, are no more than portraits. With such a subject as Mrs. PELHAM the Italian would at least have made a saint of her. But what advantage, spiritual or otherwise, would that be for the lady or those who looked on her portrait? Is it not more charming to see a young English housewife engaged in domestic duties? The flowered dress is in keeping with the scene. The portrait of *Mrs. Elizabeth Hartley and Child*, the latter being entirely nude, might be taken as a type of nature herself, from the love and joy shown upon the face of the handsome young actress.

The works by GAINSBOROUGH will hardly uphold his reputation. They exhibit the eccentricity into which he sometimes fell in avoiding academical rules. *The Market Gardeners* will be remembered by its extraordinary steep bridge with an enormous keystone and the inclined paling, rather than by the figures. All the work seems to be concentrated on one side of the painting. Another unconventional example is the *Going to Market*, showing a number of people with horses; it is so lightly handled as to appear as a sketch. In GAINSBOROUGH's time a brown tree in the foreground was supposed to be indispensable by some authorities. It may have been in derision of the rule that he painted *The Fallen Tree*, in which a great twisted and gnarled trunk with bare branches is thrown across the foreground. It has a strange effect and spoils what might have been a fine landscape. The principal figure-piece by GAINSBOROUGH is *The Shepherd Boy*, an oval canvas, very simple in style.

Among the early Academicians RICHARD WILSON appears the most important this year. In his Italian works he felt himself compelled to accept certain elements which

were long in favour—ruined buildings being amongst them; and it is sometimes difficult to determine what variety of tree he represents. But shortcomings of the kind hardly affect the warmth or grandeur which those Italian or imaginary scenes offer to view. His *Lake Scene*, his noble *View of Rome* and the nameless landscapes show true genius. In his *Atalanta and Meleager* we see on one side a foaming torrent as a background to the slaying of the wild boar, while on the left side the low circular tower, the bridge of many arches and the country form a peaceful scene which seems remarkable when contrasted with the opposite side. The *Apollo and the Seasons* is another excellent example of the classical landscape which is now out of fashion, but which allowed imagination to exercise itself. ROMNEY is represented by two portraits of daughters of the first Lord CLIVE. There are three landscapes by PETER DE WINT, one having for subject old houses in Lincoln, which show how well the water-colour painter could work in oils. There was not one of his contemporaries who was more partial to English scenery. There is also a landscape by GEORGE VINCENT, a painter whose works are but rarely exhibited. There is a farmyard by GEORGE MORLAND, in which a pig luxuriates. It is thinly painted, and yet the colours have stood better than in more elaborate works, and the whole scene appears unlaboured.

JOHN CONSTABLE once more reveals his strength, and no landscapist of any age was more successful in suggesting that nature was a force always at work and not an assemblage of lifeless phenomena. The *Opening of Waterloo Bridge* may not seem an event that was adapted to his pencil, but a figure-painter could not have conveyed with more success the impression of excitement which must have prevailed at the time. The array of soldiers, the gorgeous barges, the officials, the crowds of women in bright dresses, the coloured flags may all have been gaudy, but to CONSTABLE's eyes they must have formed a pleasing spectacle, and he could not help sympathising with the manifestation of so much life. The *Lock*, the *Opening the Lock*, and the *Dedham Lock, or the Leaping Horse*, suggest his delight in combining earth, air and water, and the exuberance of vegetation, although it took the form of weeds. In *Salisbury Cathedral* he ventured on the somewhat daring experiment of putting a very tall tree in juxtaposition with the famous spire, as if to contrast art with nature; and in *The Rainbow* we have the cathedral itself deriving interest and relief from a small piece of green meadow which CONSTABLE could paint well, although he never cared much for cultivated ground. In *Yarmouth Jetty* he was painting under restrictions, and here we see a gentleness which is charming. There is one portrait by Sir MARTIN SHEE: the subject is HENRY THOMPSON, R.A. Probably not one visitor ever heard of that Academician or saw one of his works, but he was for a time the Keeper of the Academy; he was a pupil of OPIE, contributed to the Boydell Shakespeare Gallery and produced several high art pictures. He died in 1843. SAMUEL SCOTT in his day gained a reputation for sea-pieces, but his topographical views were admirable, and some of them were engraved: his painting of Pope's Villa is almost as literal as a photograph.

As usual, the examples by TURNER must give rise to regret at the un pitying power of time. Whether he painted in his early manner, laboriously, or in his prime, when his hand seemed light enough to paint the lily or to add new colours to the wings of butterflies, the years have shown scant mercy to his efforts. There are half a dozen of his works, and they all are interesting. The *Boats carrying out Anchors and Cables to Dutch Men-of-War*, which was exhibited in 1804, shows the power which he possessed as a wave-painter. It was produced between *Calais Pier* and the *Shipwreck*. The *Modern Italy*, which was formerly known as *Tivoli*, will suggest by a contrast with the preceding the marvellous advance in technique of the artist. The picture was engraved some half a century ago, and a glance at the plate will reveal how much deterioration has been caused in that time. Originally it was called *Composition of Tivoli*, a title which should be retained, for it suggests the scene which inspired TURNER's imagination, but from no point of view at Tivoli will so glorious a prospect be visible. RUSKIN says the near foliage is purely English. Compared with it the

Newark Priory, with its river and barges, becomes most prosaic. Another wreck that is to be deplored is *The Approach to Venice*, which was exhibited in 1844. RUSKIN says at one time it was beyond all comparison the best of TURNER'S Venetian pictures, but, he adds, "it is now only a miserable wreck of dead colours." It was inspired partly by BYRON'S lines:—

The moon is up, and yet it is not night;
The sun as yet disputes the day with her.

Originally there was a conflict between the two lights, and the deep reflections in the water were understood; now, if we look at the scene impartially we cannot say how they were caused. The *Fifth Plague of Egypt*, a work of 1800, when he was supposed to be under the influence of WILSON, is a daring attempt to grapple with one of those tragic scenes in which the fearful forces latent in nature work their way. As he used in the description the words from the Bible, "And the LORD sent thunder and hail and the fire ran along the ground," it was evident that TURNER had no desire to conceal his ambition. At the time he was an Associate of the Academy. It was difficult in those days to obtain information about a foreign country without visiting it, and TURNER'S Valley of the Nile does not in any way correspond with the reality. But it was an architectural picture in which lofty buildings, arched bridges and other products of construction were mixed with pyramids. It is now very dark, and in spite of the corpses in the foreground cannot be said to realise the scene, but it has biographical interest as suggesting how the artist of twenty-five was not oblivious of the dark side of nature.

(To be continued.)

THE SOCIETY OF OIL PAINTERS.

IT would be affectation of hypercriticism to belittle the exhibition of the Society of Oil Painters, which was opened this week. Amidst nearly 400 works we must expect that, whatever be the standard set up, some will not attain it. Art, like everything else, has its price, and when a painter asks no more than ten guineas for a work it would be ridiculous to expect a masterpiece. A visitor who will confine himself to the examples which are rated so low will, however, find much which is interesting.

What is perhaps most enjoyable in one of the Society's exhibitions is the endeavour which is apparent to seek after novelty if not after originality. It cannot be denied that successful artists have no need of that kind of exertion. The purchaser of pictures who is ambitious to form a collection generally believes in mannerism. He wishes to possess examples which his friends can identify at a glance. Painters must be allowed to take advantage of the whims of their patrons, and consequently we see in the Academy exhibitions year after year—and a like circumstance is observable in the French Salon—pictures which differ from their predecessors mainly in the titles. The Piccadilly gallery can always show scenes which puzzle the frequenter of exhibitions, for they seem to be familiar to his eyes, but on reflection he realises that he was misled by confounding a close resemblance with identity. The majority of the artists who belong to the two societies there collected are not bound by any necessity to be consistent. They can always make ventures in new directions, and if they do not attain success they afford spectators the pleasure of a surprise. This year, for instance, we have Mr. CHEVALIER TAYLER in his *By Chance or Design* presenting a pair of lovers in fifteenth-century costume meeting in a wood. Mr. DUDLEY HARDY in *Idlers* shows Eastern critics watching a game of chess. Mr. STOCK in *Dead Summer*, always so careful in detail, depicts a fine head lying on a brick wall of so defective a character that a jerry-builder would disown it. In this case, one may ask, Where is the body? but a similar question must arise in the minds of the possessors of M. CHAPLAIN'S grand medal of the last Paris Exhibition, for on it the head of France springs from the ground like a flower. Mr. STOCK'S calling of a sprite's locks which fall over rocks the *Cascade* may be excused by the beauty of the figure. Mr. HERBERT MARSHALL, who has been identified

with London buildings, has forsaken them in favour of Whitby, and instead of fogs we see the northern mist which has often been rendered far less effectively. There is no artist who is so much fascinated by snow as Mr. FARQUHARSON. In his *Crofter Village* we have the strong lights and shadows which are only visible in summer, and we wonder some of the sanitarians do not inquire where the village is found, for in hot weather it should, if science is to be credited, be a plague spot. Everyone remembers the appeals on canvas for miserable children which Mr. KENNINGTON used to produce. This year, in the *Pedlar*, he suggests how the prehistoric trinkets found in excavations were acquired. In the primitive and sunny time the women could dispense with clothes, but after the trader's visit necklaces were sure to be indispensable. A new light is cast on archæology by the artist. Another ancient scene, less idyllic but it may be nearer to reality, is Mr. MATTHEW HALE'S *Fight for a Wife*, two men struggling in one of the ancient corrachs. Mr. JOHN LAVERY is generally known as a portraitist. In the *Bridge at Gres* we have a French scene painted in a French manner. But a longer distance than the room affords is needed for a standpoint if justice is to be done to the view. Mr. BYAM SHAW, who is usually allegoric, in the *Poet* gives what appears to be a side view of CHAUCER walking in the fields. We might cite other examples, but enough has been said to suggest that the painful toil of discovering new subjects is not unknown to members of the Society.

There is much that is familiar, and yet is satisfactory. Many as have been the representations of the fallen Campanile, not one can recall the structure so vividly as Mr. LOGSDAIL'S *The Tower that was*. Knowing Venice thoroughly, and appreciating architecture, his buildings are no mere scenic display. Mr. TOPHAM, who is familiar with Italian ways, has made a humorous scene out of one of the lions which support church porches in his *Captured*, for a young servitor in a red cassock and surplice bestrides the figure. Another successful Venetian scene is Mr. PIKE'S *Venetian Market Place*, in which, as is usual, there are more sellers than buyers. Mr. HENNESSY'S *Study near Bordighera*, a boy on a donkey with a girl looking down from above, is also true to life, and is almost French in the treatment of the old house.

Mr. N. M. LUND has attempted a daring experiment in his large view of *London*, which is taken from the campanile of the Royal Exchange. The area extends in one direction to the Albert Hall and in another to Hampstead. It is not often scenes of the kind are so thoroughly worked out, but foreigners are likely to take more interest in the painting than City men. Another work in which architecture predominates is Mr. D. Y. CAMERON'S *Dark Angers*, showing the bridge over the Maine and the old castle with its numerous towers. The view is sombre, as befits the place. No less remarkable, and more lightsome, is *Spring Blossoms, Touraine*, in which an old castle is seen rising over the river bank with its stiff and pruned poplars. Mr. COTMAN has only one view, *The Meeting of the Waters, Southampton*, in which a large expanse of sea and land is visible, and is bright with sunshine. The president, Mr. WALTON'S, principal work is *Cuckoo Cherry-tree*, which is delightful from its wealth of blossom. Mr. MELTON FISHER has a fine view of Venice, but as an example of colouring we prefer his lady reading, with a large bunch of poppies beside her, which is called *This Ancient Poesie like Poppies' Fragrance*. One of the most striking experiments in colour is Mr. L. R. GARRIDO'S *All Alive O!* a girl in black who is laughing while looking towards a spectator, and exhibits herrings in a basket, which form a *coup de main*. Mr. REGINALD FRAMPTON'S *St. Catherine* is out of place amidst so much of the earth, and it has been unfairly skied. It is in the Mediæval manner, limited in the number of colours used and severe in the drawing, but it might easily be made to appear as a copy of a panel by a monastic painter. Mr. A. MANN has a gorgeous sunset which could easily enhance some noble incident, but it suggests a waste of power when we find it serving no higher purpose than to exhibit a few sheep. Mr. A. G. BELL'S *Breezy Day in the Netherlands* suggests motion in air, canal and trees. Mr. W. H. BARTLETT is again successful with two sympathetic scenes on the west coast of Ireland, the *Dulse*

Gatherers and Sunshine and Shadow. Mr. BUNDY's humour is unforced in his *Three Generations* of hunters in red coats, and from the handling it is almost supreme on the wall. Mr. BRIDGMAN, the American painter, in his

Children of Algiers and Street in Flemen upholds the reputation gained by many Eastern scenes. Altogether the exhibition is enjoyable and excites anticipations of future excellence with many of the painters.



A FRENCH RENAISSANCE STAIRCASE RAMP.

ONE of the difficulties when arranging a ramp arises from the use of vertical lines in the composition. They afford more of a contrast than a combination with the inclined lines which have to follow the slope of the stairs. In the above example from one of the old French châteaux vertical lines are omitted, and a kind of figure is introduced which can be modified to suit any angle.

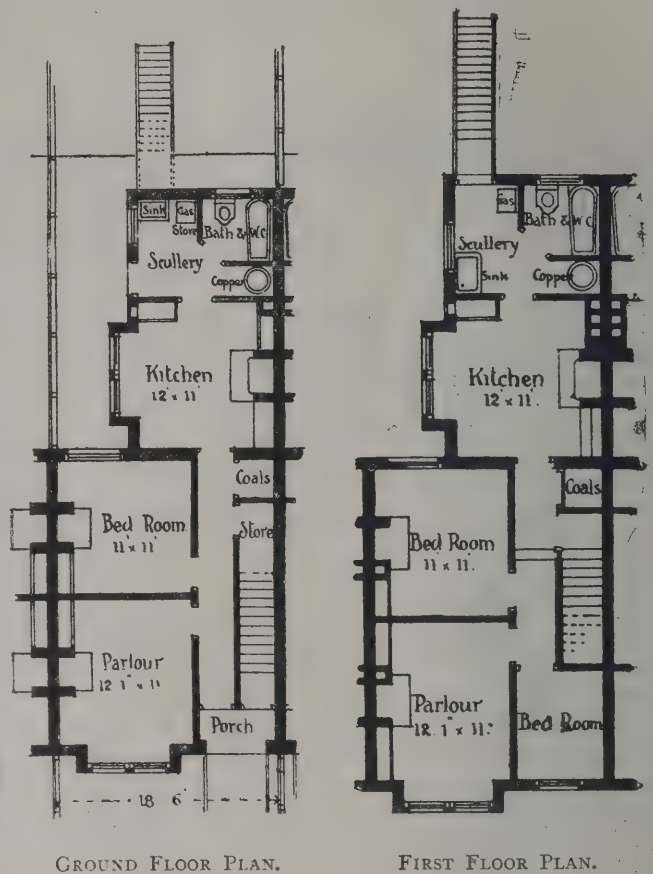
GROVE VALE, CAMBERWELL, IMPROVEMENT

THE slopes of Grove Hill, Camberwell, eulogised in the poems of W. Morris and Scott of Amwell, have witnessed many scenes, but none more interesting than the inauguration of a housing scheme. For years the meadows forming the valley known as Grove Vale at the foot of the south-eastern slopes of the hill, while lending enchantment to the view, have effectually barricaded every direct approach to East Dulwich station and neighbourhood, and have caused Copleston Road, Placquet Road, Bellenden Road, Placquet Terrace, Oglander Road and Wildash Road, which all infringed upon the boundary fences, to be *culs-de-sac*. The Borough Council of Camberwell after prolonged negotiations purchased these meadows (which formed portions of two estates), of a total area of 8 acres, for the sum of 8,000*l.*, in order to provide sites for the housing of the working classes, and this afforded a means of effecting a very desirable improvement by opening out the roads. The roads have all been made up, and the footpaths temporarily laid with tar-paving, so that the inhabitants have had the earliest possible use of this improvement. A portion of the estate has been used for a much-needed extension of Grove Vale depôt, and the remainder will be used for housing purposes.

The new roads will give frontages to 85 houses, which will contain about 170 tenements for the working classes, and, it is hoped, will tend to lessen the overcrowding on the northern fringe of the borough. The work of laying-out the land was started on September 29 by men in the direct employ of the Council under the direction of the borough engineer, and completed in ten weeks. When it is mentioned that 3,375 feet of boarded fence and 2,600 feet rail and post fence have been erected, 75 trees planted, besides sewer, tar-paving and road-work, it must be conceded that the transference of these ditch-lined meadows has been very rapid.

The Mayor (Councillor C. Goddard Clarke, J.P., L.C.C.), in the presence of the borough engineer and other officials, having drove to the boundary road fences, and along the several new roads and declared these thoroughfares open to the public for ever, the fences were thereupon removed, and this important improvement, which has been so heartily desired by the surrounding inhabitants for many years past, was completed.

The illustration shows the class of dwellings it is proposed to erect.



GROUND FLOOR PLAN.

FIRST FLOOR PLAN.



ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

AN ORDINARY meeting of the Council was held at the Institute rooms, 20 Lincoln Place, last week. Mr. William Mitchell, R.H.A., in the absence of the President, occupied the chair.

There were also present Mr. C. J. McCarthy, Mr. R. Caulfield Orpen, Mr. F. G. Hicks, Mr. W. K. Parry, hon. secretary.

The Hon. Secretary brought before the meeting a letter he had received in his private capacity from the clerk of the Bray Urban District Council, in reference to the forthcoming appointment of an architect in connection with the scheme of the Council under the Housing of the Working Classes Act.

The Hon. Secretary submitted to the Council the letter he had written in reply, which letter the Council approved.

The following is a copy of the letter:—

"December 29, 1902.

"M'Donnell, Esq.,

"Clerk of the Bray Urban District Council,

"Town Hall, Bray.

"Dear Sir,—A copy of your circular on the subject of the appointment of an architect for your Council has reached me. I am writing to you in my official capacity as honorary secretary of the Royal Institute of the Architects of Ireland, to express the hope that in making an appointment your Board will give a preference to candidates who are members of the Institute.

"I may point out to you that membership of our Institute is in itself a guarantee both as regards the character and qualifications of the architect.

"Almost all the responsible and qualified architects in Ireland belong to our Institute, and it is very much in the interests of the ratepayers that your professional adviser should be a member of a recognised body of architects.

"When the Dublin Corporation were making the appointment of city architect some years ago, they took this matter into consideration, and they elected the present city architect, Mr. McCarthy, who was and is still a prominent and distinguished member of our Institute.

"I enclose for the information of your Council the list of members for 1902, and I beg to remain, yours obediently,

"W. KAYE PARRY, Hon. Secretary."

Several accounts submitted by the Hon. Treasurer were officially passed by the Council.

This being the first regular Council meeting of the year the following gentlemen were appointed to form the standing committees:—

The Professional Practice Committee.—Mr. Batchelor, Mr. Owen and Mr. Orpen.

The Arts Committee.—Sir Thomas Drew, Mr. Mitchell, Mr. Hicks.

The Publication Committee.—Mr. A. E. Murray, Mr. Rawson Carroll and Mr. C. McCarthy.

TESSERÆ.

Precision in Greek Art.

FROM its first dawn to its last flickering gleams, one prevailing characteristic is observable in Greek art, namely, precision and completeness of execution. It is a mistake to suppose that beauty was the primary motive which influenced the Greek sculptor; indeed, beauty as an influence, whether it be in Pagan or Christian art, holds only a place of secondary importance; it is an effect not a cause. The æsthetic feeling, the desire to beautify, is, of course, the source of all art, whether it displays itself in the adornment of a savage's war-club or of the Temple of Pallas Athené. The first motive of the artist is imitation—truth of representation. The Greek, as has been truly said, thought in form; it was the habit of his mind to invest the phenomena of nature and abstract conceptions with a human form. With this was joined an innate love of precision and completeness. He was the best workman the world has seen, the Japanese, perhaps, running him rather closely in the race. His faultless skill of hand showed itself in everything it touched, whether he was carving the spiral curves of an Ionic capital or the wavy locks of Cythera's hair. He was surrounded by the most beautiful men and women in the world, whilst the absence of any feeling of shame attached to nudity and the constant practice in the gymnasium and the public exhibition of athletic sports gave him ample opportunities for observation and study. His favourite motto of "Nothing too much," inscribed on the gates of the Delphian temple, shows what importance he attached to the realisation of his aim and the subordination of parts to a whole. The ideas of grace and beauty came to him as a natural result, but they are not by any means a prevailing characteristic. The aim of Phidias was an ideal grandeur; he imparted to his figures a more than human nobility of

aspect, and his execution shows the happiest possible medium between the harsh and rigid insistency of form which marks his predecessors, and the softer and more sensuous rendering of later schools. In the miserably insufficient terminology in which language tries to convey ideas received through the eye the word "repose" has become conventionalised as descriptive of one of the greatest qualities of plastic and pictorial art; it is meant to convey that enduring, time-defying look which we see in great works of art, which exalts the imagination above the object it is contemplating.

Cathedral of Trent.

The Duomo is small but very solemn Romanesque, begun in 1022, finished in 1128 and with a new choir in 1205. The apse is round-ended, and contains an episcopal throne; the stalls are in the choir, and the high altar, under a baldachin, is westward of them under the lantern. In the middle of the choir is a huge lectern. The aisles are very lofty and vaulted; there is no triforium and a very small clerestory. The windows throughout are small, but very deeply recessed and finely moulded, and the interior abounds in strong contrasted effects of light and shade. The shafts are cylindrical, with bases almost purely Attic, upon a square plinth, with a kind of tongue overlapping at each angle. The caps have stiff flowers, rather like our Transitional, round the bell under a well-moulded abacus. A curious arrangement is that the stairs mounting to the roofs are visible, being arcaded in the side walls north and south of the aisles. There are a great many perishing frescoes in all parts. The nave has open seats, some of which are fixed to the face of the pulpit, which is against a pillar on the south side. Externally, there is a fine west door and a thin arcade on the outer walls. Round the apse and choir and transepts runs an external gallery. East of the south transept there is a regular Italian porch, namely, a gabled archway projecting from the wall and resting on shafts, which have their bases standing on grotesque beasts or else on a dwarf wall. Here the beasts are lions. The shafts, which are double, often, as here, are knotted together half-way up; a very unsatisfactory conceit in such a material as stone. A small round apse, panelled externally, also projects from the east wall of the south transept. There is a crypt under the choir. A small octagonal lantern surmounts the crossing.

The Ancestral Images of the Romans.

In his chapter entitled "Honos Imaginum"—the honour attached to portraits—Pliny says it was the custom of the Romans to adorn their palæstra and anointing-rooms with the portraits of athletes and to carry about on their persons the face of Epicurus, and that they also prized the portraits of strangers, and afterwards contrasting the habit of the Romans of his own day with those of the ancient Romans, he says:—"And since the former have no longer in them any likeness to the minds of their ancestors, they also neglect the likeness of their bodies. How different it was," he continues, "with our ancestors, who placed in their atria to be gazed at these *imagines* and not statues by foreign artists in brass or marble, and kept coloured portraits of their faces, each in its separate case, to serve as *imagines* to accompany their funerals." It would seem from this that, besides the draped images or effigies in the halls, modelled and coloured busts of others of the family, probably of less distinction, were also kept to be dressed up on occasion, made into effigies, and carried in procession. Other *imagines* of the most distinguished personages in the family were placed outside at the threshold of the house, hung with the spoils of the enemy. It is of these *expressi cera vultus* and these *imagines* kept by the Romans as proofs of their nobility, and on which their pedigrees were inscribed, that Ovid speaks when he says, "*Perlege dispositas generosa per atria ceras.*" On the sale of the house they were not allowed to be destroyed or removed, but passed with it and were bought by *novi homines* (men of no family), and passed off by them as the portraits of their own ancestors—just as the portraits of Wardour Street are at the present day. Nor were the Romans singular in this custom of draping figures with real stuffs. The images of the gods in early Greece were also draped and dressed in clothes, and crowns were placed on their heads. They also had false hair which was dressed regularly by attendants, and at stated times they were washed and adorned with jewels and had their dresses arranged just as if they were alive. In later times this custom died out, but the colossal Athena's solid drapery of gold was washed at a certain festival appointed for the purpose, called *Plyntheria*. In Rome, however, the custom was maintained to a late day. The images of the temples were adorned with real drapery, and purple mantles were hung on the statues of the emperors. The Greeks, however, did not thus treat their portrait statues, and in this the Romans were peculiar. The Roman *imagines* and *cera* were probably executed in plaster or some such material, certainly not in marble, or otherwise they would have been too heavy to be carried about in procession.

NOTES AND COMMENTS.

WHEN M. ROYBET exhibited his *Propos Galants*, an edacious cavalier in a long cloak making love to a woman who is plucking poultry, the humour was so irresistible and the painting so skilled, the médaille d'honneur was awarded to him. It is a work which is often referred to, as if its appearance formed an event in the history of French art. A large etching by M. MILIUS from the painting is presented to all subscribers to *L'Art*, and at this season no more valuable work has appeared in Paris. The periodical, apart from that attraction, has much to interest its readers. An article by M. HENRY CHENNEVIÈRES on HORACE VERNET as a caricaturist gives a new revelation of the military painter's skill. Having architects for friends, he was not afraid to use them as subjects. FONTAINE, who is now a classic, is seen in his studio, while one of his assistants is engaged in sawing through a series of frames, inscribed Musée de Versailles, Musées Royaux, Musée du Luxembourg. HUYOT appears outside a tobacconist's, VAUDOVER and LE BAS are seated at tables. SPONTINI, the composer, and other great men are utilised. There are also articles on the Strasbourg Museum, BERNARD PALISSY, French art in the United States, and a profusion of illustrations, besides a coloured etching.

"PERROT and CHIPIEZ" in the archæology of art correspond with "ERCKMANN-CHATRIAN" in fiction. The latter partnership was dissolved through a misunderstanding, death alone could sever the former. The volumes on "Art in Antiquity" have been a boon to many students, for they comprise all the discoveries derived from explorations up to the time of publication. M. GEORGES PERROT was the projector of the series, but, however learned in archæology, he knew there was a degree of knowledge which was only to be reached by a practical artist, and hence his invitation to the late CHARLES CHIPIEZ, the architect. At the last election of the Académie des Inscriptions the majority of votes were in favour of M. PERROT. From holding the presidency of that section he becomes president of the Institut for the present year. It cannot be said M. PERROT is an architect, but he comes so near one there will be satisfaction in the profession at his election.

MR. LOUIS FAGAN, who died suddenly in Florence on Monday last, was an amateur who was recognised as authoritative on some branches of fine art. During several years he served in the Department of Prints and Drawings under Mr. CARPENTER, Mr. REID and Mr. SIDNEY COLVIN. In that way he was able to render service to many inquirers. Ill health compelled him to resign. He was a protégé of Sir ANTONIO PANIZZI, and wrote a life of the famous chief librarian, besides editing the interesting correspondence which passed between PANIZZI and PROSPER MERIMÉE, the impeccable. He was sometimes sent on confidential missions to Italy. Mr. FAGAN was also the author of a "Handbook to the Department," a book on "Collectors' Marks," "The Art of Michel Angelo," &c. He contributed many articles to journals. The Italian language was as familiar to Mr. FAGAN as English, and he was often able by means of it to render assistance to friends in the Art Club.

ILLUSTRATIONS.

THE RETURN FROM THE DURBAR.

THE recent assembly of chiefs at Delhi was on many accounts one of the most remarkable pageants which can be witnessed on earth. As yet Western influence has not caused the substitution of the civil or Court costumes of Europe for the gorgeous robes made up of cloths of gold and silver which for so many ages have been worn by the native potentates of India. Costly materials can be afforded, for the labour in making them up is to be obtained at an insignificant price. "It is only in India," says a writer, "that patience, dexterity of manipulation, grace in designing, trustworthiness in handling gold and precious stones, and the skill which is the result of many years of application can be bought for threepence a day." There are signs that employment even at that rate will not be always awaiting craftsmen. While costume in the old style and which is in keeping with the architectural surroundings is not entirely superseded, opportunities for fine pictorial

subjects exist, and it is remarkable how few English painters have taken advantage of them. When occasionally Indian scenes are selected for pictures they suggest a timidity in utilising the splendour of the East. Mr. EDWIN LORD WEEKS, an American artist who has been a pupil of M. BONNAT, and who has long lived in Paris, has had the courage to utilise India, and the success of his paintings in the Salon is a testimony to the pleasure which they have given. His insight enables him to enter into the spirit of the various scenes, and in that way they have a naturalness which has been rarely attained by European artists in India.

THE TOWN HALL, COLCHESTER: GENERAL VIEW.

CATHEDRAL SERIES: WORCESTER.—THE CHOIR, LOOKING WEST.

HEAD OFFICES, NATIONAL MUTUAL LIFE ASSOCIATION OF AUSTRALASIA, LTD., MELBOURNE.

THE building shown in the illustration has been erected from the designs of Messrs. WRIGHT, REED & BEAVER, architects. The property has a frontage of 82 feet to Collins Street by a depth of 50 feet along Queen Street. The building is of Pymont freestone on subbase of polished granite, and the shafts to the entrance and windows are of marble. The general height is about 110 feet. The building is of fireproof construction throughout. The entrance in the centre of the Collins Street frontage opens into a hall 16 feet in width, finished in marble of different colours, and the ceiling is groined in masonry. The floor of the entrance-hall is of mosaic, with a design in the centre illustrative of the ramifications of the Association throughout the Empire. The floors of the other halls and corridors are paved with marble tiles, and the three lifts are situated at the end of the entrance hall with direct access from it. On the left of the entrance hall lies the Association's general office adjoining all necessary offices and strong-rooms, with additional strong-room and stationery-room below, and directly connected with them by a private stair. The fittings and furnishings of this portion of the building are of walnut, and the ceiling is panelled and enriched with beams carried on cluster shafts. On the right of the entrance hall is the Melbourne manager's room, loan department, &c. On the fifth and sixth floors are the board-room, the actuary's agency and correspondence departments. The other floors are divided into suites of offices, each provided with strong-rooms and efficiently ventilated and well lighted. The basement, the entrance to which is in the centre of the Queen Street front, contains, in addition to the portion to be used by the Association, suites of offices with strong-rooms, &c. Lavatory accommodation is provided on each floor, entirely disconnected from the other portions of the building. On the top floor are the caretaker's quarters, &c. The lighting is of gas and electric light throughout.

MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER.—VIEW ON PRINCIPAL STAIRCASE.

THERE is not a more complete example in this country of an industrial college than the group of buildings in Manchester designed by Messrs. SPALDING & CROSS, and carried out under the direction of Mr. A. W. S. CROSS. We published a view of the building on March 14, 1902, and now give an illustration of the principal staircase. This, like the other staircases and paving, was constructed by STUART'S GRANOLITHIC STONE COMPANY, LTD. The railing of the staircase, which is so effective a feature of the interior, as well as other examples of wrought-iron work, are creditable to the skill of Messrs. JOHN JONES & SONS, of Manchester. The constructional steelwork was entrusted to Messrs. DORMAN, LONG & CO. Messrs. KIRKPATRICK BROS. supplied the granite and Messrs. J. STEPHENSON & Co. the Tilberthwaite slates. The hydraulic lifts are by Messrs. R. WAYGOOD & CO., LTD. Messrs. EASTON & CO., LTD., constructed the electric lift, which is of the express coupled type with the patented cross-over sheave-gear. The patent glazing was executed by Messrs. HELLIWELL & CO., LTD. The furniture and fittings are by Messrs. GILLOW & CO. The cement was manufactured by the RUGBY PORTLAND CEMENT COMPANY. The STURTEVANT ENGINEERING COMPANY, LTD., carried out the heating and ventilation, including parts which had to be specially arranged. The windows, with typical figures, were produced by W. J. PEARCE, LTD. The general contractors were Messrs. R. NEILL & SONS.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER III. (continued.)

IN providing an argument, it is not amiss to try and anticipate criticism, by suggesting and demolishing contentious points. On this understanding another obvious criticism may be noted, namely, that buildings other than schools are to be met with possessing plenty of window-lighting, separate departments, plain and serviceable elevations, and (possibly) of only three storeys in height; and regarding playgrounds, seeing that in the case of schools this feature is frequently tucked out of sight of the street elevations, its presence or absence is powerfully discounted as affecting the argument; factories and warehouses may be cited as examples of buildings with somewhat similar requirements superficially.

In reply to the counter-argument, it may be at once conceded that there are elements of similarity, and that at times it is not easy to recognise from a casual glance for what purpose a building is destined, more particularly if looked at merely on paper, where it is detached from its actual surroundings, which tend so greatly to give the necessary local touch. This failure in discernment is, however, to be regarded more as a fault in the designer than in the original argument. To take a concrete example, a factory would usually be even more simply treated than a Board school; it would have a greater number of windows proportionately, and they would probably be disposed symmetrically both for economy and convenience; by preference they would be iron casements (a Board school might have wooden sash-windows), and a factory would also by preference have a flat roof for aid in case of fire, instead of the pitched roofs permissible in Board schools, whose well-planned and adequate staircases render unnecessary the aid of the roof as a means of escape from peril.

Warehouses would require loophole-framed doors for the passage of heavy goods to and from the different storeys. A typical warehouse is here shown (fig. 7). There is not



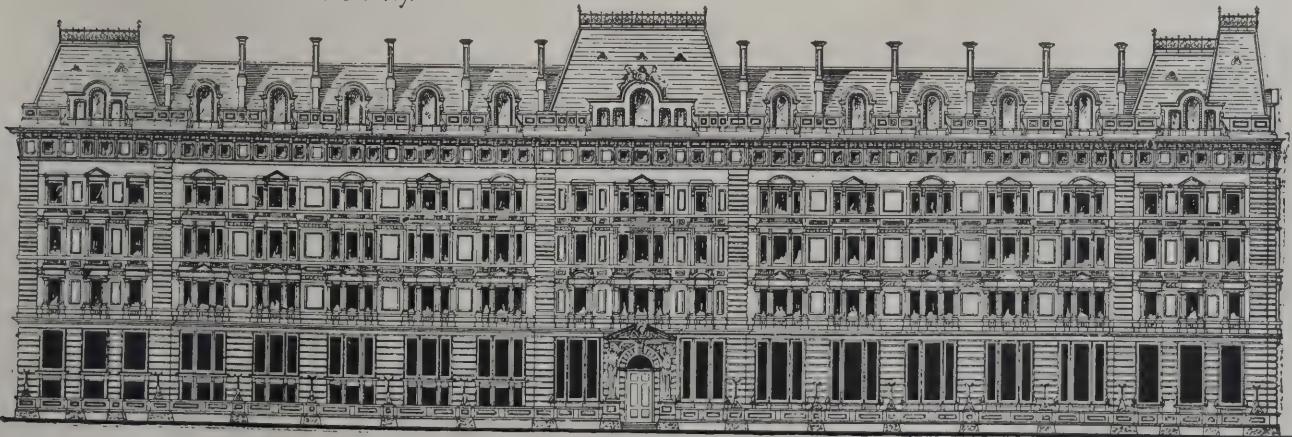
Elevation of a Warehouse (for perspective only)

FIG. 7.

the slightest intention to convey the idea that when a building is looked at, all, or indeed any of these points are consciously considered in any detail; it is the intuitive

Westminster Palace Hotel, London.

Architects: Ward & A. Moseley.

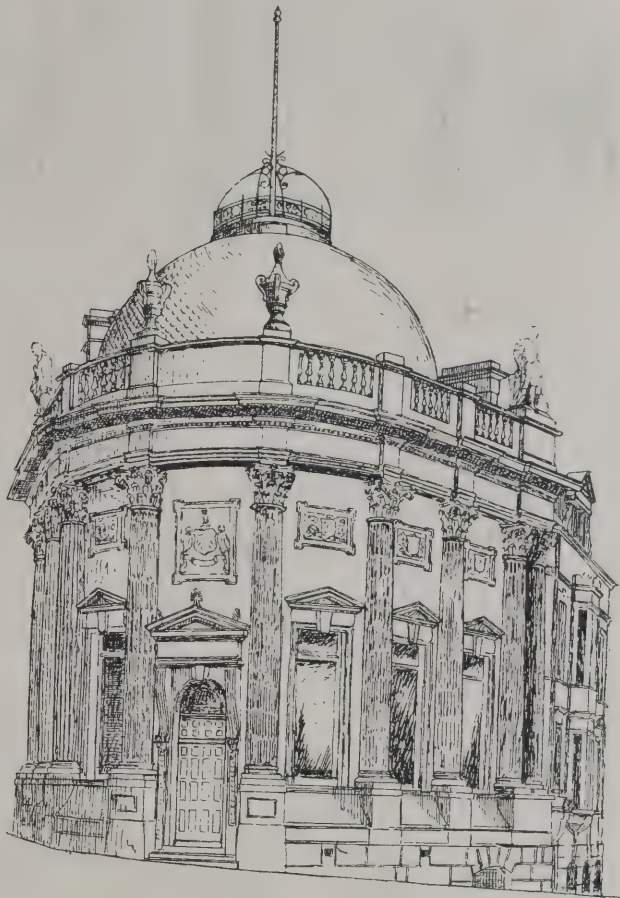


Elevation in Victoria Street

FIG. 8.

method employed for arriving at an apparently instantaneous deduction. And it will not do to strain any principles unduly; there are many buildings that express more or less successfully their *raison d'être*: if more so, we may offer up hearty thanks; if less so, let us look for the good points that have produced partial success and for the external influences that have checked its consummation. Westminster Palace Hotel, London (fig. 8), and the Market House, Bolton (fig. 9), are instances of successful expression, whilst the banking establishment at Leeds is an instance of partial success in this respect (see fig. 10).

Attention may be drawn in passing to those designers who, on occasions, tend to conceal expression of purpose of some structure by combining in one design two or more buildings variously destined. One example of recent date may be cited, designed by the late CHARLES J. PHIPPS.



Yorkshire Banking Co. Leeds:

W. W. Gwyther, Architect.

FIG. 10.

This block consists of Her Majesty's Theatre, with the Carlton Hotel, situated in Haymarket, London. An hotel and a theatre have totally different requirements, and should

be accordingly differentiated in treatment. Which of these two classes did the architect intend the block to suggest or to express? As an hotel, it makes a really fine block, and the artistic treatment would have been to define, and even to accentuate, the difference between the two buildings.

The same principle should be observed internally and externally. A scheme of plastic and pictile decoration

how can it be expected that a type so happily expressive of a temple to some divinity, with its very limited significance and its simple plan, shall answer for municipal buildings, as at Birmingham, with requirements so different and so varied? Or how can it be expected that the same type shall be suitable for a sacred temple and for a secular hall, such as St. George's, Liverpool?



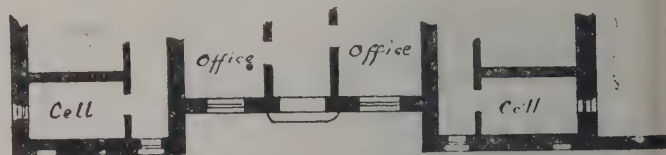
FIG. 9.—MARKET HOUSE AT BOLTON, LANCASHIRE. [G. T. Robinson, Architect.]

that would set off and be appropriate to a theatre would be utterly destructive of the best interests of an ecclesiastical building; in the latter it is requisite that everything shall harmonise (preferably in a minor key), and shall not provide anything distracting to the one object that should draw people to the building; whereas in a theatre a brighter, more playful and more varied treatment is in accord, and provides the wherewithal the public may while away the intervals in the stage performances; and, moreover, the use of these buildings solely in conjunction with artificial light justifies and, indeed, demands the brighter treatment. Not that brilliant colouring has not often been used in ecclesiastical buildings, and doubtless with success in more favoured and sunny climes than the United Kingdom, where the scale of comparison is altogether in a brighter key.

It is permissible to recall an amusing incident in connection with a scheme of colour decoration prepared for a place of worship by the present writer. The only adverse comment heard (and that indirectly) amidst a chorus of gratified approval was that the ladies' complexions had not been studied in executing the scheme. This was quite true, so far as allowing the consideration to interfere with the proper scheme was concerned, and the writer cheerfully admits it, though it is necessary to remember that there should not be any wilful disregard of such a point. The above veracious anecdote may be rounded off by stating that not one lady has so far been found to tax the architect directly with this "defect," nor as a matter of fact has there been any disastrous result to the complexion, as alleged.

It would be easy, but profitless, to multiply instances of successful or unsuccessful elevations in regard to expression; but before leaving the point attention may be drawn to the fact that certain assemblages of features have obtained (either by original sympathetic adaptation or by prescriptive right) a definite character, and this character should not be lightly used as a cloak for buildings of other purport. Consider, for example, the following:—The Greeks and Romans, in order to obtain certain effects for specific purposes, accustomed themselves and their successors for fifteen hundred years or so to recognise, as a temple sacred to one or other of their divinities, an edifice bedecked with columns suitably disposed around a simply planned chamber (or chambers); the elevations emphasised the plan, even if not expressing the purpose, and, granting that the latter remark may hold good, it is certainly the fact also that, as a rule, there is not anything against the spirit of the building, in the type of design, which the Greeks brought to such perfection. This being the case,

In expressing the nature of a building, it is to be borne in mind that it is not settled at all by the plans, which may indeed be correct to the utmost and yet have in conjunction absolutely unsuitable elevations. Consider such a façade-plan as shown in the accompanying fig. 11, and let it be granted for the sake of the argument that it is correct for the front of a prison, with windows, &c., all as shown. (It may, however, be remarked in parenthesis, that it would not be likely to satisfy Home Office require-



Hypothetical Façade Plan of Prison

FIG. 11.

ments.) An elevation such as is shown in fig. 12 would be eminently suitable as expressing the nature of the building; on the other hand, such an elevation as shown

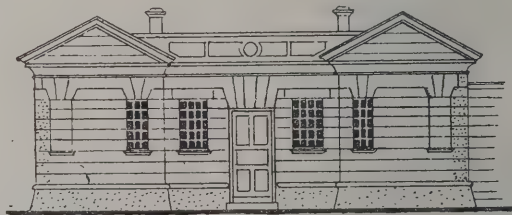


FIG. 12.—SUITABLE FAÇADE FOR PRISON.

in fig. 13 would be most inappropriate. These are merely given to illustrate how the same plan can receive entirely right or entirely wrong treatment in elevation. To sum up, the principle to be remembered carefully is to give full effect to the most salient characteristics of a building. (See Appendix A.)

Both the previous elevations, however, emphasise the plan shown, and this principle of *Emphasis* will now be considered. The slightly projecting wings are not a necessity, but they serve to give character and to show that there is not only a different use for the end portions from

that to which the central portion is devoted, but also that there is a similarity of use for the two ends.



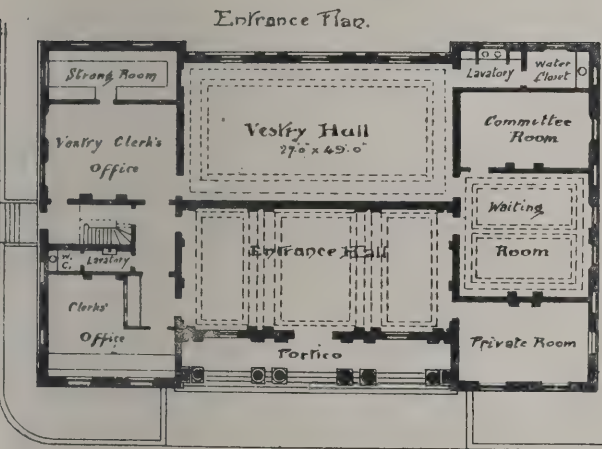
FIG. 13.—UNSUITABLE ELEVATION FOR PRISON.

In passing, Paddington Vestry Hall, London (fig. 14), as originally built, is illustrated as a good example of emphasis of plan.

Vestry Hall, Paddington, London.
James Lockyer is Architect.



Front Elevation.



HARROW ROAD
FIG. 14.

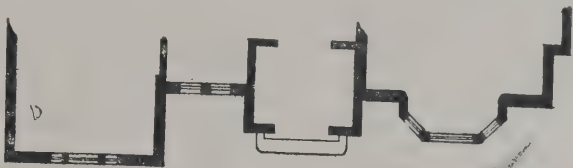
Let it now be supposed that an upper storey is required for similar purposes as on the entrance floor—but in this instance, the building not necessarily a gaol—then



FIG. 15.—FAILURE TO INTERPRET THE PLAN.

the elevations in the previous figures, adequately raised on the same lines, would equally well emphasise the plan. If, however, an elevation as shown in fig. 15 were used, the plan would not be interpreted—the motif would be utterly

destroyed. But if the upper floor were destined for one purpose throughout, the union of façade would be justified. With the plan given above it would be easy to give emphasis, the façade being symmetrical and simple in character. But a very different type might be met with, for instance, an outline such as is shown in fig. 16; it is



Façade Plan of Irregular Outline
FIG. 16.

still requisite to emphasise the plan, but satisfactory treatment may demand greater consideration than in the previous case. The elevation shown in fig. 17 satisfies the



Elevation emphasizing previous Plan.
FIG. 17.

demands both of emphasis and balance (the latter quality will be dealt with later in the series). It may be argued that, at a first glance, it is not clear how a plan of this out



Elevation failing to emphasize previous Plan.
FIG. 18.

line should be treated in elevation in any way that would fail to emphasise it; but it would be feasible, though undesirable, to produce such an elevation as is shown in fig. 18. All the character of the plan would be overlaid by such treatment, the projecting room on the one side being made of no more account than the mere bay window on the other.

(To be continued.)

Messrs. Dorman, Long & Co., Ltd., of Middlesbrough, have issued this year a diary, calendar, book of tables, and a cash-book united, which from being printed on india paper can be placed in the pocket of a coat without causing a protuberance. It is well bound in leather, and will serve as a useful companion and guide to those who, as the poet says, "meddle with cold iron."

THE KING'S SANATORIUM.

IN the *Lancet* of last week the three essays and plans which gained the prizes in the competition for the erection of a Sanatorium for Tuberculosis are published. Three prizes of 500*l.*, 200*l.* and 100*l.* respectively were awarded as follows:—

First Prize:—Motto: "Give him air; he'll straight be well." Dr. Arthur Latham (London), with whom was associated as architect Mr. William West (London).

Second Prize:—Motto: "If preventable, why not prevented?" Dr. F. J. Wethered (London), with whom were associated as architects Messrs. Law & Allen (London).

Third Prize:—Motto: "Vis medicatrix naturæ." Dr. E. C. Morland (Croydon), with whom was associated as architect Mr. G. Morland (Croydon).

Honourably Mentioned:—(a) "Fac Recte, nil time." Dr. P. S. Hichens (Northampton), with whom was associated as architect Mr. R. W. Schultz (London). (b) "Open air everywhere." Dr. Turban (Davos), with whom was associated as architect Herr J. Gros (Zürich). (c) "Honestam quam magna." Dr. Jane Walker (London), with whom were associated as architects Messrs. Smith & Brewer (London). (d) "Humus." Dr. J. P. Wills (Bexhill), with whom was associated as architect Mr. Wills (London).

In the first prize essay the following conclusions are arrived at:—

The buildings of a sanatorium must, as we have said, be so constructed that the atmosphere within them rivals the outside air in point of purity. For example, the smell of cooking destroys the appetite of an invalid while fresh air stimulates it, consequently great pains must be taken to shut off completely the dining and kitchen arrangements from the patients' rooms. Again, though it may be possible to keep a room where a single patient lies fairly free from impurity, the atmosphere of any room in which a number of people are gathered together for any length of time will certainly become more or less contaminated, and on this count alone it is obvious that the use of recreation-rooms or other places of assembly, such as churches, must be restricted within narrow limits. Finally the sanitation must be perfect and without flaw.

We are now in a position to say that in erecting a sanatorium arrangements should be made of such a kind that:—

1. The buildings are so situated, and of such a nature, that the formation of all dust is, as far as possible, avoided.

2. The dust, which inevitably collects, can be readily removed.

3. All infected material can be readily and effectually destroyed or disinfected.

4. The atmosphere of the buildings is free from all source of contamination, and rivals the outside air in point of purity.

5. The number of recreation-rooms and other places of assemblage is limited, and everything avoided which is calculated to tempt patients to stay in-doors.

In the course of the essay several objections are raised against the use of verandahs, one being that in the climate of England they block out too much light, unless the building is so arranged that they are placed before a basement or the interval between the storeys is much increased, both of which procedures lead to a large outlay without any compensating advantage. Verandahs are not easily kept clean, in the strict sense of the term, and in the nature of things cannot contain as pure an atmosphere as is found in the open, or even at the window of a room that contains only one person; further, they interfere with the privacy of patients confined to bed, and may disturb their rest, whilst in summer they sometimes tend to become insufferably hot.

The following summary is also given:—It is agreed that the accommodation for all patients must be comfortable, a separate room being provided for each; that the sanatorium should be on an elevated and sloping site with a sunny exposure and well sheltered from cold winds; that it should have a farm at a convenient distance, be surrounded by extensive grounds, well wooded and affording ample space for exercises of various kinds; that the soil should be dry and permeable and the water-supply abundant; and that it must be fitted with the latest sanitary arrangements and equipped with all requirements for scientific research. In addition we have shown in the preceding pages that:—

1. The ventilation should be such that the air contained within the rooms and passages is free from all sources of contamination and rivals the outside air in point of purity, whilst at the same time draughts are not encouraged.

2. The buildings should be so situated and of such a kind that dust is as far as possible avoided.

3. The buildings and the fittings should be of such a kind that such dust which inevitably collects can be readily removed.

4. Arrangements should be made for the ready and effectual destruction or disinfection of all infected material.

5. The buildings should be of such a nature that constant medical supervision can be readily exercised.

6. The doctor's quarters should, as far as possible, overlook the grounds.

7. The bedrooms of the sexes should, as far as possible, be in different blocks, but there is no necessity for separating the men and women in the dining-room or grounds.

8. Four classes of patients must be provided for both in the sanatorium and in the grounds:—(a) Those who can take exercise more or less freely; (b) those who can only take slight exercise on level ground; (c) those who must be isolated in their own rooms; (d) those who, though unable to take exercise, may be allowed to associate with a few other patients.

9. The accommodation for visitors must be limited.

10. No provision, so far as the buildings are concerned, need be made for amusements beyond an entertainment-room which may also serve the purposes of a library.

11. No provision should be made for games, such as billiards, golf and tennis, which involve much movement of the arms or lead to excitement.

12. A few open-air galleries are of service, but nothing approaching the Liegehalle system should be erected.

13. The dining-room and kitchen should be completely cut off from the patients' rooms, but no separate dining-room need be provided for the medical staff.

14. The kitchen arrangements should be of the most modern type and thoroughly sanitary.

15. The dairy and the farm should be of a model character.

16. There should be ample accommodation for hydrotherapeutic measures.

17. Adequate arrangements should be made for drying clothes.

18. The heating arrangements should be such that the temperature is never raised more than a few degrees above the outside temperature, so that no sudden variations are experienced when the patient leaves his room, and that the humidity of the air is not sensibly diminished.

19. Adequate shelter should be provided in the grounds and elsewhere against wind, excessive sun, or heavy rain.

20. No special arrangements need be made for exercise under cover in bad weather, though it is as well to provide covered ways between certain of the different buildings.

21. All facilities should be provided for the treatment and clinical observation of the patients by the aid of laboratories and special departments.

22. The facilities which should be provided for research include more especially facilities for observations in bacteriology and pathology, chemistry, physiology and meteorology.

The block plans show provision for eighty-eight male and female patients. There is a central administrative block, with corridors and rooms for patients at right angles for about 150 feet at each side and then trending at an obtuse angle. Only two storeys are recommended, both on account of the economy of service and the inability of patients to ascend many stairs, the amount of work done in raising the body vertically being equal to twenty times that expended in moving the body on level ground; or, in other words, five storeys or 60 feet is equivalent to a walk of 1,200 feet on level ground. In order to diminish noise it is suggested that floors should rest on steel girders laid on felt and filled in with concrete, the partitions being of cement. As little wood as possible should be used. The roof should be flat and asphalted. Rooms on ground floor should be raised about 4 feet above the ground on the higher side to insure the privacy of the bedroom. The floors of bedrooms should be of teak, with the joists well plugged and laid on cement. Zinc ceilings placed directly on the under side of the girders and fixed on a cement bed are recommended. The stairs should be of teak. The windows are to be carried flush with the ceiling, to be opened without effort, and not to clatter in the wind. The dimensions of bedrooms should be 10 feet high, 12 feet broad and 14 feet deep. As regards cost, it is said:—

It is impossible to give any definite statement as to the cost of the proposed scheme without knowing the cost of labour and of materials at the chosen site and other details. Many sanatoriums have been built for the poor at a cost of from 250*l.* to 300*l.* a bed, but modern sanatoriums, which contain single-bedded rooms and are constructed with a view to comfort, are more expensive. Thus, the Hohenhonnef, which consists of one large block and accommodates 109 patients, cost 660*l.* a bed; the Anstalt, at Nordrach Colonie, for 24 patients, which is usually held up as an example of cheapness, cost 500*l.* per bed; the projected sanatorium at Manchester (100 patients) is expected to cost 1,000*l.* per bed; and the projected Brompton Sanatorium at Frimley for 100 beds in one large block is to cost 56,000*l.*, whilst the most recent fever hospitals in England, hospitals which have as many as 20 patients in a ward, cost from 500*l.* to 550*l.* a patient.

The plan adopted in the second essay is a central building with two-storey segmental wings, arranged in the form of a curve so as to afford a certain amount of shelter without interfering with the south aspect, the total frontage of the building being about 700 feet. In front are placed deep verandahs.

The sanitary annexes are placed at the back of the wings facing the entrances from the grounds, which are in the centre

of the wings. The administrative block and kitchen offices are placed on the north side, centrally situated and connected directly to the main building by a corridor. The approach is from the north, whilst the laundry, engine-house and investigation buildings are arranged on a supposititious plan, and have been placed within easy distance.

The authors of the third essay say:—The ideal sanatorium consists of a series of isolated huts, with windows on all four sides, in which the patients spend their whole time except when they are actually out in the grounds; here they sleep and have their meals, breathing the while an atmosphere beyond the risk of contamination. On a small scale this appears to be practicable; but for a sanatorium of 100 beds the difficulties of heating, of carrying meals and of supervision over so large an area render the scheme impossible, with due regard to economy. The chief problem, then, is to effect a compromise whereby each patient's room obtains a maximum of sunshine and fresh air and yet is so placed as to insure economy of management. Hence the unit of our sanatorium is a room facing south, with unobstructed aspect, with a large window space, with a door on the north side opening on to a wide corridor in which there is a large window exactly opposite the door. These rooms occupy the whole south frontage, and everything else has been made subservient to the one essential of providing that a current of pure air shall constantly flow through them.

Each of the essays treats in detail, not only of the construction of the buildings, but of the furnishing, ventilation, drainage, as well as the administration. Nor are the arrangement and management of the farm and adjoining land neglected. The essays form treatises on sanatoria, and architects as well as physicians are indebted to the *Lancet* for enabling so much information on an important subject to be obtainable.

GEORGE WASHINGTON'S BUILDING LAWS.

ACCORDING to a paper by Mr. Snowden Ashford, inspector of buildings at Washington, the father of his country, took personal concern to make the national capital, or federal city, a model in every particular.

The plan of the city was entrusted to L'Enfant and Elliott, and after the broad streets and avenues were laid out Washington, with the wonderful forethought that characterised his public life, directed the Commissioners in 1791—while the capital was still in Philadelphia—to prepare the deeds transferring the property outside of the lines of the streets and reservations back to the owners or proprietors. There was a beautifully planned city on paper, and in keeping with the broadness and proportion of the plan Washington foresaw the necessity of regularity, permanency and safety of the buildings and improvements destined to flank the broad thoroughfares of his ideal city. He therefore directed that the trustees or commissioners insert such terms and conditions under and upon which conformed the first building regulations that govern the construction of buildings to this day, although formulated by George Washington on October 17, 1791—more than one hundred years ago.

Think of starting a city with a perfect system of streets, and with building regulations to govern for more than a hundred years, and think of the man who, amid the cares of state in Philadelphia, still had time to direct the manner of building the houses in his embryo capital. Some of George Washington's regulations show how much thought he gave to the plan of his city.

First, "The outer walls of all houses shall be built of brick or stone." Who would have thought 100 years ago of building steel or iron buildings or of concrete walls? And yet even such buildings come within the intent of this first regulation, and our present regulations repeat this requirement.

Second, "That all buildings on the streets shall be parallel thereto, but before the foundation or party wall shall be begun application must be made to the proper person appointed to superintend buildings to ascertain lines of the walls." The wisdom of this requirement is recognised by our present regulations, but seems to have been neglected for a long time, and as a result, buildings erected more than twenty years ago are in some instances one foot on the neighbouring lot, or in many cases in mind nearly 1½ feet in the public street.

The next, or third, regulation relates to the maximum and minimum height of buildings, and provides that no building shall be less than 35 feet in height on any avenue. But the terms of this article were declared suspended by proclamation of President Monroe about twenty years after the death of George Washington, and the height of buildings is now regulated by Act of Congress approved by President McKinley March 1, 1899.

The fourth regulation related to party walls and the method of locating and paying for same, and is in force to-day in the same terms as drawn up by Washington. He also realised the necessity for temporary buildings for convenience

of workmen while erecting buildings, and provided them a now regulated and permitted.

His sixth regulation related to the manner of building over alleys, which at that time were private property, but as most of the alleys are now public, so much of the regulation is seldom applied.

The other regulations adopted under Washington's directions applied to projections beyond the building line, such as vaults, areas, cellar doors and eaves of houses, and the limitations are similarly enforced to-day.

So it will be seen that the father of his country laid the basis of regulations which have been amplified and enlarged upon by Presidents Monroe and Polk, extended by the Board of Aldermen and Board of Common Council, with the approval of the President, increased in scope by Acts of Congress, and amended and revised by the Commissioners of the district under special authority of Congress; but to this very day they are the same in intent as the regulations of George Washington, expanded only to meet the changed conditions of 111 years.

A JESUIT ON BUILDING WORKMEN.

THE Order of the Jesuits have always taken an interest in architecture and the sciences and arts relating to it. There have been several amateur architects among the members, and a style was at one time adopted in the churches which was in part their creation. As missionaries they have to build churches and schools in districts where skilled labour is not always to be obtained. In this country they are satisfied with giving commissions and acting as observers. A gymnasium and other building works were lately in progress at the Jesuit College, near Chesterfield, and the following good-humoured remarks in the *Mountaineer* reveal what was thought of the workmen and their manner of labour:—

This term has afforded us an opportunity of studying the British workman on his native scaffolding. We have watched the new wing and the gymnasium rising from the ground not without some curious speculation as to when they would attain to their full growth. The more sanguine among us have professed a cheery optimism, and have predicted the speedy completion of both edifices in not more than three times the period specified in the contract. Others have been heard to mutter something about "Easter," or "Wait till the summer." But the unprejudiced spectator prescinds from such practical considerations as completion, or the proportion of the product to the time of production, and prefers to study the mind and methods of the producer.

And first, the British workman presents himself to him as an interesting type of eternity, inasmuch as he can never be said properly to have begun, he appears to be independent of the passage of time and he shows no signs of ever coming to an end. He is amiable and not at all shy. He courts investigation, and is never better pleased than when he is being questioned about his occupation. For this affords him an opportunity, first, of doing a little less work than he might otherwise have done; and, secondly, of throwing dust in the eyes of his questioner, who goes away honestly believing that the bricklayer is indeed laying bricks and the stonecutter really and truly cutting stones.

He guides himself by several sound maxims, the first of which, though he doesn't know it, is classical—"Ne sutor ultra crepidam." It is an unwritten law with him and his fellows (perhaps, though, it is written) that each workman shall keep rigidly and exclusively to his own department of work. A stonecutter may look at a brick, but he mustn't touch it; a bricklayer may have a general sort of notion that there are stones about, but he mustn't say so. The carpenter affects not to know that chisels are also used by masons, while the "labourer" (there is a subtle distinction in the word) carries his hod of mortar up the ladder, and is quite surprised to see it used by the builder. As for the man who mixes the mortar, he doesn't know why he does it. As each labourer comes and fills his hod he thinks to himself, "How funny. Now what is he going to do with it, I wonder? I shan't have any left soon if they go on like this."

If the bricklayer comes to a spot in his course at which a stone ought to be laid, he sits down and waits till the mason comes and lays it. If the mason comes, very good; if he does not, all the better. There is a lovable simplicity in all this which quite disarms the contractor, and often throws a spell over his employer.

Another golden maxim of the British workman's is, "Do as little as you can, and take your time about it." He does not say this in so many words, for he is often a married man and frequents only the best public-houses; but he acts upon it all the same. This leads him to scorn piecework, and to give his whole attention to that which is paid by the hour. And what his "whole attention" is, we all know. When the British workman gives his "whole attention" to anything, sensible

people who are not British workmen go away and wait until his attention is diverted into some other channel. They know that when once he begins to think about his work they are lost, for his reflections naturally take the form of self-examination and he asks himself, "Am I really doing as little as I can? Am I honestly taking as long about it as possible? When it is finished can I, without affectation, tell myself that it is as badly done as even I could do it?" And if he finds himself at fault on any of these points his duty to himself compels him to begin all over again.

A third aphorism which serves the British workman as a guide to his feet is, "You can't do two things at once." Some, indeed, hold that this proposition involves the corollary that "You can't do anything at once." Most workmen, however, distinguish; they make an exception in the case of ceasing work, they say that this can and ought to be done at once. Thus the foreman never has to whistle twice, nor the clock to strike in vain. But all agree that a man can't smoke and work at the same time:—"In justice to our employer," they say, "we won't attempt it." So when a bricklayer wants a smoke (and he generally does) he knocks off bricklaying and smokes. If a stonecutter lights his pipe while he is at work and finds that the smoke gets in his eyes and hampers him, he recognises at once that he is attempting too much, so he leaves off stone-cutting and has his smoke out.

Sometimes there are, in addition to the ordinary workmen, two officials who are humorously described as the clerk of the works and the foreman builder. The duty of the first is to look on and smoke, and of the second to smoke and look on. Their work does not of course interfere with an occasional nap over a newspaper, but on the whole they succeed in doing it pretty thoroughly.

The slater, whose calling, like most occupations of a lofty character, has often to be pursued in solitude, sometimes feels lonely; and on these occasions the good-natured fellow will make no difficulty of descending and mixing freely with his fellow-workers on a lower level. He will lend a hand to the clerk of the works or the foreman builder, or engage in a friendly chat with the plumber, who, having taken only three weeks to lay two gas-pipes, and having twenty-six more to lay, of course has plenty of time on his hands.

This is not the place in which to speak of plumbers. That subject would require a treatise to itself; and besides, we have not yet been granted sufficient opportunity of watching them at their work. This much, however, we may say, as the result of former observation: if there be anywhere a piece of piping which is obviously too long or too short for his purpose, that is the piece of piping which the plumber will inevitably choose for it; if there be a wall, or a floor, through which, by going completely out of his way, he can knock a hole four times too large for the insertion of an utterly unnecessary pipe through that wall or that floor the plumber will at once proceed to knock such a hole.

Matthew Arnold said of the sea that it was "salt" and "estranging," and so far he may be held to have abused that element. But to these adjectives he prefixed the word "unplumbed":—

"The unplumbed, salt, estranging sea."

And this epithet alone quite removes the reproach implied in the other two, and makes the sea at once pleasant and desirable.

But let the British workman go on; let him proceed on his artless way; we are at his mercy. Until we are able to purchase houses ready-made in America and set them up for ourselves we must remain bound to the wheels of his chariot or hang ourselves in our own purse-strings.

THE SOCIETY OF ARCHITECTS.

THE following students' competition has been arranged:—

A cottage hospital, with wards for men, women and accidents; each ward to contain three beds. Bath-rooms, lavatories and earth-closets to be provided. Waiting-room, surgery, nurse's sitting and bedroom, bath, lavatory and earth-closet. Kitchen, scullery and usual offices, and two servants' bedrooms. All the accommodation to be on the ground floor, except the servants' bedrooms, which may be on first floor (partly in roof if necessary). A detached mortuary to be provided. The site, which is level and raised 3 feet above roadway, has a frontage of 70 feet north to south and 250 feet west to east, the building line being set back 20 feet. There is a building on the north boundary with ancient lights up a height of 10 feet from the ground level, and 6 feet in width, the building being 40 feet deep. Water supply from main in roadway, and provision to be made for storing and using rain water, and for disposal of waste water from baths and sinks, &c. Materials, brick with stone dressings and tiled roofs. Cost not to exceed 2,000*l.*, including boundary walls.

Drawings to be executed in ink to a scale of 8 inches to

1 foot, with one sheet of details of roof construction and a sketch perspective. Approximate cost to be stated and method of obtaining same shown. Block plan to a scale of 16 feet to 1 inch, showing drainage and having true north point indicated thereon. Drawings must bear no distinguishing mark, but have attached thereto a sealed envelope containing the author's name and address, and must be delivered to the Secretary on or before March 19, 1903. Drawings must be sent flat. A student who is in arrear with his subscription is ineligible to compete. The award will consist of books or instruments to the value of 3*l.* 3*s.*, to be selected by the successful competitor. The Council may give additional awards or withhold the prize in accordance with the number and merit of the designs received.

THE LOMBARD STREET SIGNS.

IN a letter to the *Times* Sir George Birdwood writes:—As the readers of the *Times* are aware, one of the happiest features of the decoration of the streets of London for the Coronation was the revival in Lombard Street of some of the picturesque signs of the older banking houses and goldsmiths' shops of the City. There was a wealth of artistic decorations to be discovered in the streets by the discriminating spectator during the Coronation, but they were, for the most part, isolated and overwhelmed by the monstrosities about them, and therefore ineffective. Even where an attempt was made to decorate a street or a parish on some co-operative and locally relevant plan, through the manipulation of it in so many cases having been left in the hands of men who were not professional artists, the failure to achieve a creditable result was just as marked and far more humiliating. The rare success of Lombard Street is mainly due to the fact that its famous banking and insurance houses intelligently, liberally and zealously combined to decorate it as a whole—their notion being to restore to it something of the quaint and significant picturesqueness of its aspect in the eighteenth century; and that they then entrusted the fashioning forth of their "fair idea" to so accomplished and sympathetic an "artificer in brass and iron" as Mr. J. Starkie-Gardner. It adds to the impressiveness of the *signa tabernaria* executed by him that they are not shams to serve a passing occasion, but realities, designed to minister, practically for ever, to the human sense of beauty, if not in Lombard Street, still as treasured examples of nineteenth-century work in truly architectonic street signs. Each one of them is racy of the locality, of artistic merit, and possessed of its own individuality; and all of us who take an "emulate pride" in the artistic evolution of modern London—which is advancing far more rapidly than some dream of in their patriotic pessimism—hoped that these signs would remain fixtures in Lombard Street, and, indeed, that the use of similar signs would gradually extend into all the pent and populous streets of ancient renown centred in the Bank, the Guildhall and St. Paul's.

After, however, some months of anxious suspense it is now again being said that they are all to come down, and that what appeared to be a lasting memorial of the Coronation is to be swept away in stolid defiance of the earnestly expressed wishes and protests of the banking and insurance houses most interested in the matter. These signs are not vulgar and offensive, because ignorant and selfish advertisements. They are the natural, spontaneous, correlative and concordant embellishments of a constricted, lofty-shadowed, public thoroughfare of inspiring and fruitful historic name. They do not impede either the perspective or the traffic of the street. On the contrary, they give to it that iridescent play of light and colour much needed in a street which, while architecturally dignified, is sombre, owing to its narrow course lying at right angles to the daily path of the sun and the almost complete absence from it of open shops, with their bright and gaily decked-out windows of broad ("plate") glass.

Surely it betrays a culpable default of public thrift that, when hundreds of thousands of pounds are spent on the adorning of our streets in connection with such State pageants as Jubilees and Coronations, no part of the expenditure should be devoted to decorations of a permanent character. Compared with Paris, Munich, Vienna and Rome, very little has been done for the artistic embellishment of the streets and squares and open places of London, which present innumerable situations where gates, arches, fountains, vases, obelisks, columns, statues, busts, wall trophies, &c., would most appropriately emphasise and exalt the surrounding architecture. The practice in Paris is to direct some substantial portion of all such occasional expenditures to the abiding benefit of the city; and the most beneficent application of it in the long result is found to be on buildings and monuments of the highest art, dedicated "to all the stories of the country." Napoleon I. was quick to recognise the part played by such memorials in giving to the French national character its distinctive note of passionate and unselfish heroism, first struck, with a resonance

that filled the whole world, in the noble tragedies of Corneille. The streets and parks of London, which of itself is a county, are the only schools, art galleries, libraries and recreation grounds of at least one-half of a population of 4,536,663 (Whitaker) human souls; and the duty of making these thoroughfares and open places stately and splendid, in illustration of all that is profitable in our history for instruction in righteousness and for perfection "unto all good works," is becoming one of increasingly imperative obligation on those who desire to maintain the traditional character of the people of London in its full integrity. This is why "City men" are instinctively so jealous for the worshipful care of their churches, and for the conservancy of every time-worn relic of the past and of every solitary green tree and every patch of old-time flowers surviving in their midst, the passing sight of which soothes and elevates them in the daily round of their exacting duties. Watching them where, in one or other of Wren's churches they so often seek a momentary refuge from the distractions of the street without, it would almost appear as if the ultimate and fundamental rule of art and religion must be one and indivisible. In its own degree, every work of art creates a sphere of untroubled mental repose about its beholders; and it is therefore, I would fain trust, in spite of the sinister rumours whispered about, that the Lombard Street signs may be yet spared to refresh for years to come the eyes and hearts of all wayfaring "City men."

TECHNICAL EDUCATION.

THE annual general meeting of the Association of Technical Institutions was held on Tuesday at Goldsmiths' Hall, when Sir J. Wolfe Barry delivered his presidential address. He observed that he had for more years than he liked to remember taken the greatest interest in many of the institutions devoted to technical education, and he was not likely to undervalue it. But one might, perhaps, in 1903, ask who did? Its value and importance to the country at large was in the air. One heard of it everywhere as the necessity of our time; and, again, it was common ground that in our scientific mental equipment we were behind our two great trading competitors, America and Germany. Why was this backwardness? It was not for want of information, it was not due to want of advocacy, it could not be owing to want of resources in the richest country in the world, and one which had produced the most original minds and some of the highest masters of applied science. In such an assembly as that one ought to recognise with thankfulness all that was done by the late Prince Consort to endeavour to show us that a main road to commercial success in the future lay through science and not by rule of thumb. Much progress had been made in the past fifty years; but, after all, could we, or ought we to be in the least satisfied with the present results? The matriculated students in German technical high schools numbered 15,442, while in the whole of similar institutions and universities of Great Britain the number of students was returned as 3,873. In America much the same contrast with us was apparent. We were, however, a practical nation, and when we were really satisfied we usually acted. It was many years after the commencement of the supposed peace millennium of 1851 before we thoroughly grasped the idea that a strong navy was absolutely necessary for our very existence as a nation, and that we were not loved on the Continent; but, once we felt sure of this, there was no more starving of our navy. The only danger with respect to the navy which a Government of Great Britain ran was that it should be suspected of neglecting it. If the public opinion of this country were as firmly convinced on technical education as that of Germany and America, there could not be that want of funds which we now sorrowfully recognised. What was wanted above all things was to convince our manufacturers of the extreme value of technical education.

He wanted, however, to use a word of caution against any exaggeration in the estimates of the influence of technical education on trade competition. It was of the greatest weight; but unquestionably there were other very important economic reasons for the great development of German and American commerce during the past twenty or thirty years. In the juxtaposition of coal and iron in this country we had for the first half of the nineteenth century an advantage over the other countries of the world who had not developed their mines or their means of internal communication. This condition of things existed no longer. Again, though we still were, he supposed, the richest nation in the world in accumulated capital, we in this respect occupied formerly a more commanding position than we did now. All our competitors, too, were Protectionist countries. He was not going to enter upon such a subject as Free Trade *versus* Protection; but it must be obvious that if manufacturers were secure in the possession of the home market they could afford to undercut in foreign ventures those who were not so happily placed. Another matter which had had of late an important influence in the competi-

tion of German and American trade with that of this country was standardisation. Both these countries recognised years ago its value, and characteristically set to work to bring it about. Some one might say that standardisation was a result of technical education, but he thought it was rather the result of practical business appreciation of the necessities of trade. He was happy to say that at last we were alive to the advantages of standardisation, and that before this year was out we should probably see it adopted in all the important engineering trades of Great Britain. One more matter affecting our trade might be referred to, namely, that owing to our long supremacy we had begun to look upon the trade of the world as almost our inherent right, and had not felt the present necessity of pushing it with zeal, intelligence and careful consideration of the real wants or tastes of our customers. This was, no doubt, in process of amendment. It was undoubted that all these matters should not be lost sight of or belittled when we discussed German or American competition with ourselves; and, as it was dangerous to overstate a case, he thought we ought to be careful not to appear to trace the whole or nearly the whole of the stress of the competition which we now encountered to the better technical education of our rivals. Perhaps this had been too much done. But in spite of well-grounded alarms our feet had not at present been very badly pinched by the shoes of the competition of other countries; the Board of Trade returns did not indicate—what we often heard of—the decadence of British trade. Up to now this country was holding its own, both in excellence of work and in its volume. He did not say that she would continue to do so, but, on the contrary, he recognised real dangers. He thought, however, that another main reason why we had been and still were backward in getting on equal terms with our competitors in matters within our control—for example, in technical education—was due to the fact that the sharp pinch of necessity had not yet absolutely come. That it would come, and come sharply, if we did not mend our ways he had little doubt.

He ventured to say that, first, we wanted to render available the highest intellects among us for research as applied to the arts, and, secondly, to discover and utilise the best possible directing minds in our manufactures. As a means to these ends we must educate widely. We wanted to see in Great Britain the man of science installed in his laboratory in most important manufactories, and encouraged to help in their developments. We desired to see in this country what was so observable in America, namely, that almost every one was a mechanic and knew something of applied science, valuing it, as was the case in Germany, as the handmaid of commerce apart from its inherent charm. We wanted to obtain our men at their best—when they were young, but not so young as to be without experience. Our object ought to be to turn out our best men fully equipped in every kind of scientific and practical education at from twenty-eight to thirty years of age, and then "to give them their head." A man like this would know when to discard obsolete methods, to get rid of wasteful machinery and still more wasteful hand or animal labour, and to march with the time—to walk with certainty and not haphazard. He wanted to suggest that our present methods required amendment. He ventured to think that we frequently endeavoured to produce the manufactured article of the educated man in technology at too early an age. This seemed to be the case from the lowest to the highest classes—we allowed children to go to work at 11 years of age, while Germany said 12, France 13, Switzerland 14 were the earliest legal ages. He noticed that the universal complaint among those who directed the technical studies of the artisan class was that they came to them deplorably deficient in primary education, and we could not be surprised that this was the case with an 11 years' limit at which parents could be tempted to earn money by their children's wages. Take, again, the youth leaving any of our public schools; how much had he learnt for the battle of life? He had spent some seven years in having Latin and Greek classics driven into him, generally with most indifferent success, and he had little or no knowledge of the classics of his own language. He knew very little of the geography or history of his own or any other country. He might know some mathematics of a rudimentary kind, if he had shown any taste that way and had had some encouragement. He knew no foreign language, and he scarcely knew his own. He knew little or nothing of any science, but, if a clever lad, he could write rather ordinary Latin verses and construe Greek plays. Most unfortunately, in many—he thought he might say in most—cases our public school boy of eighteen or nineteen had, with but a few exceptions, acquired a rooted dislike of all learning and all culture, possibly from perfunctory teaching in unduly large classes and undue exaltation of athletics. It seemed to him that, apart from the healthy atmosphere of a good public school, the whole was a pitiable result in the way of preliminary education. He hoped he should not be thought to suggest that some training in Latin or Greek was of no value. He thought quite

differently. But why drive every one along the same road, and why spend seven or eight years of a most receptive time of life in the impossible task of trying to make every one a classical scholar? Surely out of the seven or eight years of public-school life mental training could be given in the scientific and structural study of foreign modern languages, which should also be, of course, taught colloquially. If the exaggerated time given to dead languages were saved, there would be no difficulty in teaching geography of all kinds, some history and applied mathematics, and at least one science, in a reasonably efficient way. But, leaving the subject of our public schools, and without discussing the curricula of the old universities, we found, as in primary education, that in this country we began and finished technical education at an age which seemed to him too early. He had before him a statement prepared at the Merchant Venturers' Technical College at Bristol—a return of all the students fifteen years old and upwards taking day technological courses at all the teaching institutions in Great Britain and Germany. He had alluded mournfully to the absolute numbers of technical students in the two nations, but the grouping into years was even more disheartening; and much the same state of things was found in the United States as in Germany as regarded third, fourth and post-graduate study.

He ventured to hope that, as a large proportion of our technical students were in London, we might look for help in the London University, now happily constituted a teaching university, which would co-ordinate the work of so many teaching institutions of many various kinds, and would induce longer courses of study. It was a satisfaction also to record that the older universities were working on the same lines, though not in all cases so liberally; and we must all recognise the valuable work done of late at Cambridge, Victoria, Glasgow, Edinburgh and other universities. Let us then not be content with present methods, but aim at something better—some system which would bring out at the really valuable years the best of our British intellect. It had no inferiority to that of other nations, its records were of the most brilliant kind and it was for us to be satisfied with no system that was deficient in grasp or which stopped short of perfection. Finally, let us endeavour each in his own sphere of influence to direct, without any exaggeration, but with profound conviction, the attention of our commercial classes to the fact that technical education of the best and thorough kind was an urgent and crying necessity if we were to continue in our position among the nations of the world.

A vote of thanks was passed to the President for his address.

ARCHITECTURAL ASSOCIATION OF IRELAND.

THE Architectural Association of Ireland has issued a very interesting programme of lectures on architectural history and building construction in connection with the second half of the session 1902-3, which opened on Tuesday. The Association was restarted in 1896 with a view to the improvement of educational facilities and of architectural study in Ireland. With this end in view the Association has done much by means of lectures, classes, &c., but while a good deal has been accomplished, much remains yet to be done. The members of the Association seek to establish in Ireland such regular courses of study and other educational facilities as now exist in London and elsewhere. The matter is one which ought to interest the general public no less than the architects, for it is only by such means that a sense and appreciation of the beautiful and good in architecture can be cultivated and insured. A glance at the lectures, both historical and practical, which make up the present programme will convince any careful reader that they are very comprehensive in extent and subject, and they will be delivered by lecturers whose knowledge enables them to speak as experts. We notice that the Association has now an interesting lending and reference library, which will be of great use to the members. The volume of by-laws contains also a catalogue of the library, and particulars with reference to the travelling studentship and the various prizes offered for competition amongst members and students.

GENERAL.

The Painted Plaster Statues which were experimentally placed in the gallery of the Petit Palais, Paris, have now been removed. It was considered that they failed as an element of decoration.

The Housing Committee of the Glasgow Corporation have decided to recommend that the scheme for providing houses for workmen in the east end of Glasgow be not proceeded with. The sanction of the Council will in the usual way require to be secured. The estimated cost of the scheme was 100,000*l.*, and it was proposed to erect 700 houses on the

Kennyhill estate of one, two and three apartments at an annual rental of 5*l.*, 8*l.* and 12*l.* Seventy designs for the scheme had been sent in by architects and the premiums awarded.

Mr. A. J. Evans will deliver a course of three lectures at the Royal Institution on "Pre-Phoenician Writing in Crete, and its Bearings on the History of the Alphabet." On January 30, Professor W. E. Dalby will lecture on "Vibration Problems in Engineering Science."

The Tramways Committee of the Leicester Corporation have accepted tenders for nearly 78,000*l.* for the first section of the electric tramways scheme for the borough. The whole of the contracts have gone to English firms.

The Poplar Council are considering the advisability of carrying out street improvements in the borough at a cost of nearly 9,000*l.*

Messrs. Lyons & Co., Ltd., state that they designed and executed the whole of the work at the Trocadéro Restaurant.

M. Legrain, the French sculptor, was possessed of a reproduction in bronze of *La Dentellière*, which his friend Jules Dalou presented to him. He set it up in the courtyard of his house. A few days ago it was stolen. It is the only copy in existence, and the original is in a public gallery of the United States.

The Archbishop of York proposes to institute a special fund intended to assist needy schools in the matter of necessary repairs, and also in cases where alterations and improvements may be required by the local education authority.

Mr. A. Hunter Crawford, president, began on Wednesday last before the Edinburgh Architectural Society the first of a series of eight lectures on the "Building of a House."

The Model of the statue of Alfred de Musset by M. Mercié has been accepted by the Municipal Council of Paris. It is expected that the work, which is being presented by M. Osiris, will be ready in a year.

The Holborn Borough Council have instructed Messrs. Douglas Young & Co to dispose of two freehold building sites, one situated in the Gray's Inn Road, having a frontage of 83 feet 6 inches to that thoroughfare and covering an area of 22,460 square feet; the other is situated in Little Saffron Hill, close to Farringdon and Clerkenwell Roads, and covering an area of 6,662 feet.

Mr. Henry Syer Cuming, F.S.A., vice-president of the British Archaeological Association, has bequeathed to the parish of St. Mary, Newington, his museum, representative of natural history, archaeology and ethnology, and his library and his collection of coins and medals and his curios, to be retained as the Cuming Museum, and he bequeathed to the parish 8,000*l.* in trust, to apply the income thereof in payment of the salary of a competent curator.

The Paddington Urban Council are negotiating with the Regent's Canal Company with a view to the provision of a new bridge over the canal at Warwick Road, and abutting improvements, at an estimated cost of 10,000*l.*

Mr. Herbert Kynaston has been appointed by the Colonial Office director of the Geological Survey of the Transvaal. In 1895 Mr. Kynaston was appointed to the Geological Survey of Scotland, and during the eight years of his service has done valuable work in the Western Highlands, and published several papers dealing mainly with researches on igneous rocks.

Mr. James Foster Wadmore, architect, died on Saturday last at Tonbridge in his eighty-first year. He was a member of several archaeological societies, and was a former Master of the Skinners' Company. He designed and erected the first chapel at Tonbridge School.

M. Bouguereau has been re-elected president of the Society of French Artists, and MM. Scelliers de Gisors and Bartholdi vice-presidents. M. Robert Fleury has been appointed president of the jury for paintings, M. Bartholdi president of the jury for sculpture, and M. Albert Maignan for the decorative arts in this year's Salon.

The War Department at Washington has decided that the German Emperor's gift of a statue of Frederick the Great shall be placed in the park of the new Military College, the grounds of which will be arranged for the reception of statues of various international military heroes.

The International Congress of Hygiene, the eleventh of the series, will be held at the Palais des Académies, Brussels, during the first week in September next.

The Premium of 2,000 rs. offered by the committee of the Queen Victoria Memorial for the best design for a clock tower and canopy, to be erected at Allahabad, India, has been awarded to Mr. Robert F. Sherar, chief assistant to Mr. Peter L. Henderson, architect, Edinburgh.

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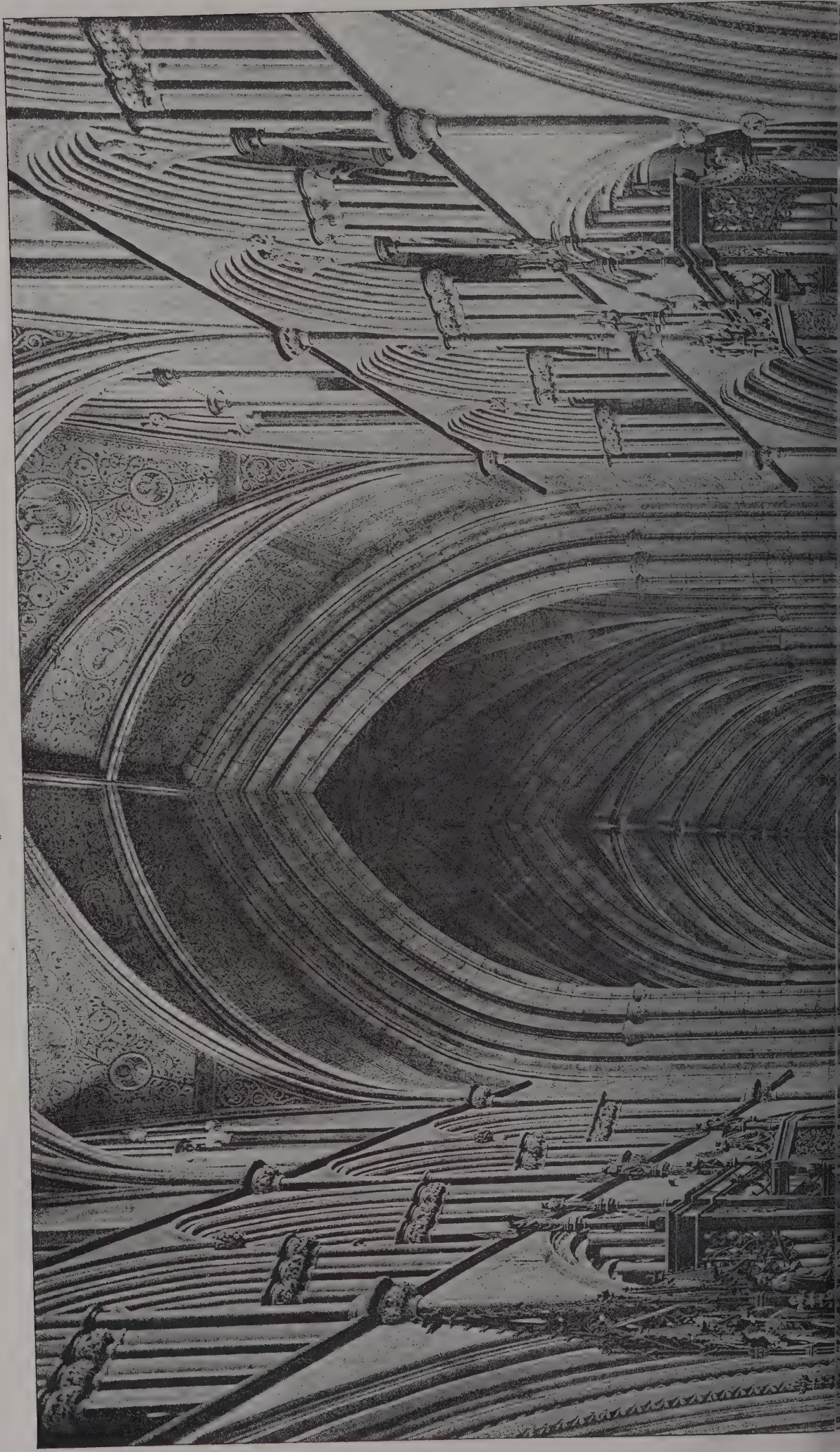
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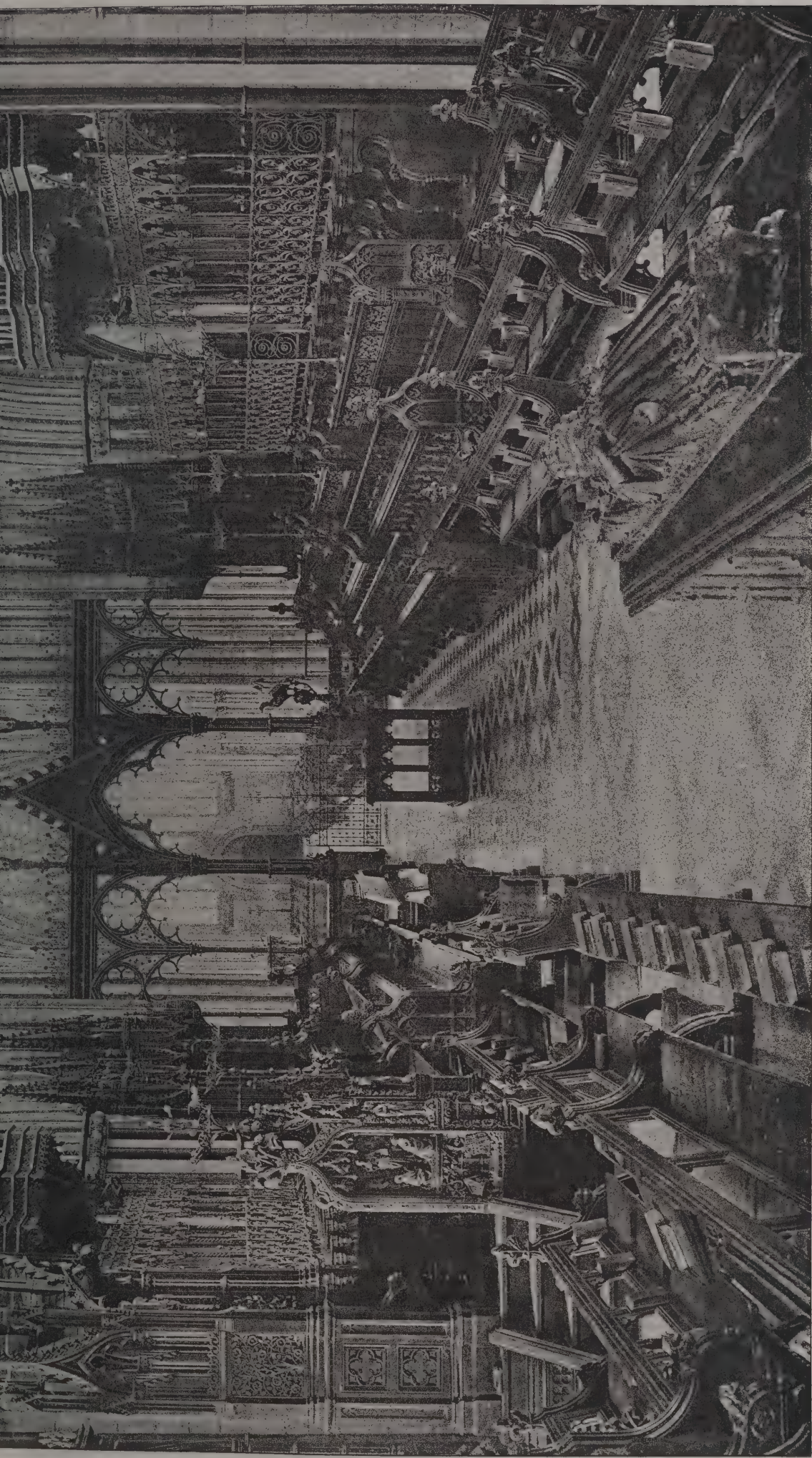
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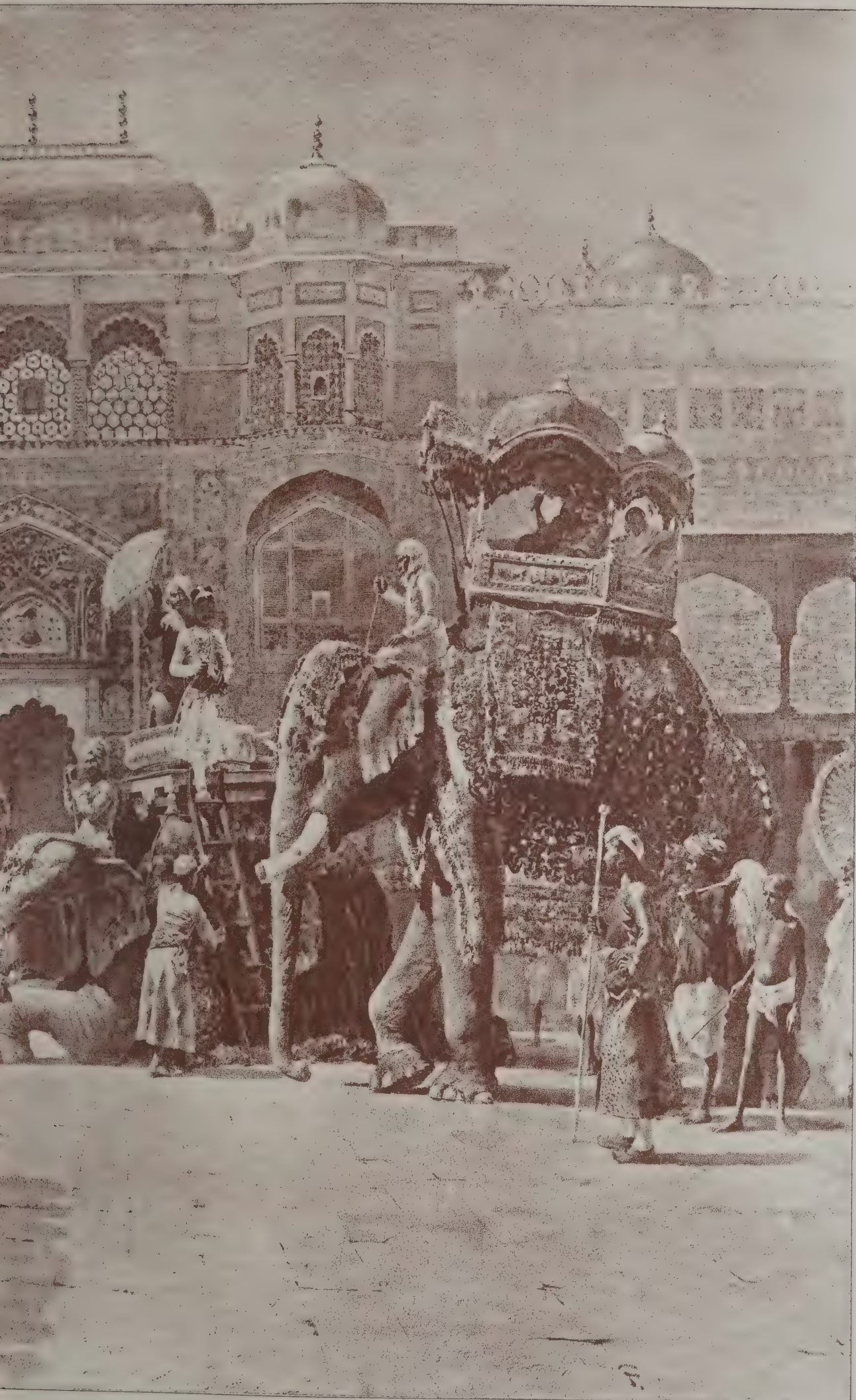
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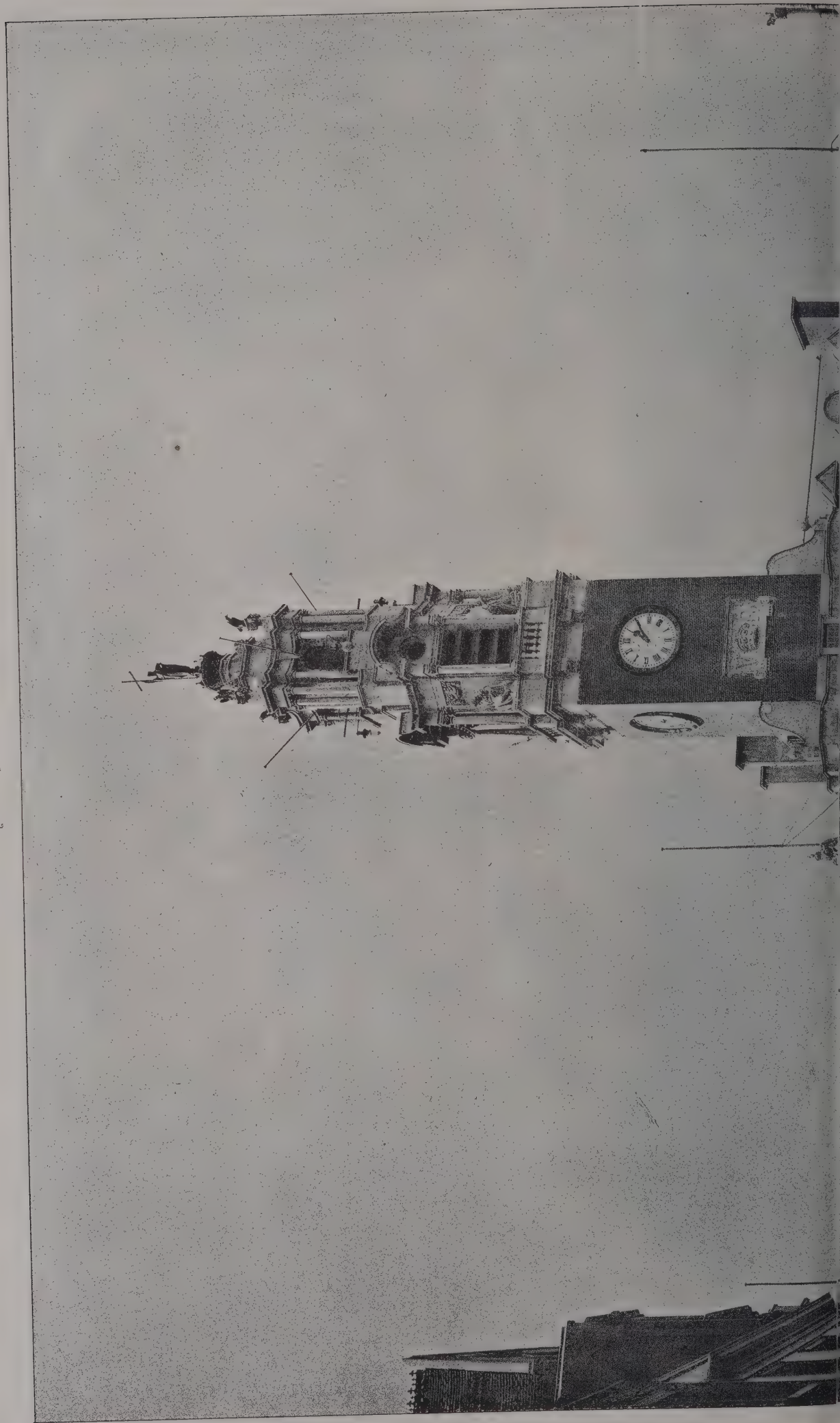
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THE TOWN HALL, COLCHESTER: GENERAL VIEW.

JOHN BELCHER, A.R.A., Architect.

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MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER: VIEW ON PRINCIPAL STAIRCASE.

A. W. S. CROSS, F.R.I.B.A., Architect.

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THE
Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER" Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Parrett. Mr. W. T. Baker, town clerk, King Square, Bridgewater.

CAPE TOWN.—Jan. 31.—The Council of the University of the Cape of Good Hope invite designs for the erection of university buildings. Premiums of 400*l.*, 200*l.* and 100*l.* will be awarded to the authors of the designs placed first, second and third respectively. Particulars of the competition may be obtained on application to the Registrar at Cape Town, or to the Agent-General in London.

CASTLEFORD, YORKS.—Mar. 31.—Designs are invited for a free library. Premiums 15*l.* and 10*l.* respectively. Mr. H. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

HULL.—Mar. 31.—Designs in competition are invited for the extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

KINGSTON-ON-THAMES.—Jan. 15.—Plans and designs are invited for a central home and cottage homes for children of both sexes in the Kingston Road, in the parish of New Malden. A premium for the first three selected plans of 25*l.*, 15*l.* and 10*l.* respectively is offered. Mr. Jas. Edgell, clerk, Union Offices, Coombe Lane, Kingston-on-Thames.

SMETHWICK.—Jan. 31.—Competitive designs and tenders are invited for erection of a refuse destructor. Mr. C. J. Fox Allin, borough surveyor, Town Hall, Smethwick.

ST. IVES, CORNWALL.—Jan. 31.—Competitive plans are invited for the erection of municipal buildings, to consist of a guildhall, council-chamber, jury room, public hall, town clerk's office, surveyor's office, treasurer's office, muniment room, parochial office, mayor's parlour and fire-brigade station and offices. Premiums of 70*l.* and 30*l.* respectively will be awarded to the architects whose plans and specifications are considered to be first and second in order of merit. Mr. Edward Boase, town clerk, Town Clerk's Office, St. Ives, Cornwall.

SUTTON COLDFIELD.—Feb. 20.—Designs are invited for the erection of a town hall adjoining the council house, the total expenditure to be limited to 7,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* respectively will be awarded for the three best designs in order of merit. Mr. W. A. Clarry, C.E., borough surveyor, Council House, Sutton Coldfield.

CONTRACTS OPEN.

ASHTON-UNDER-LYNE.—For pulling-down twenty-five old cottages in Church Street and Fleet Street, and the erection of twelve new houses in Church Street and Booth Street. Messrs. Thos. George & Son, architects, Old Square, Ashton-under-Lyne.

ASHTON-UNDER-LYNE.—Jan. 16.—For providing conveniences for ladies at the public baths, Henry Square. Mr. H. Lindley, architect, Market Avenue, Ashton.

BEXLEY HEATH.—Jan. 31.—For the adaptation of the buildings known as Oak House, Broadway, Bexley Heath, Kent, for council offices, and the erection of council chamber, waiting and cloak-rooms, &c. Mr. Thos. G. Baynes, clerk, Public Hall, Bexley Heath, Kent.

BIRMINGHAM.—Jan. 30.—For erection of ten cottages for the use of the walksmen stationed along the line of aqueduct from Wales to Birmingham, for the Birmingham Corporation. Mr. Edward Orford Smith, town clerk, Council House, Birmingham.

BLESSINGTON.—Jan. 28.—For erection of a medical officer's residence, dispensary and out-offices in the town of Blessington, including the formation of yard, the construction of drains, the erection of yard wall, entrance and side gates, closets, baths, lavatory, basins, &c., and providing a hot and cold-water supply for the premises. Mr. D. J. Purcell, clerk of the Naas Union, Blessington.

BOW.—Jan. 20.—For the reconstruction and widening of Bow Bridge, carrying Bow Road over the River Lee, and situate partly in the County of London, and partly in the County of Essex. Particulars at the Engineer's department, L.C.C. County Hall, Spring Gardens, S.W.

BULWELL.—For additions to Quarry Road Stores, Bulwell, Notts. Mr. William V. Betts, architect, Bank Offices, Old Basford.

CAMBORNE.—Jan. 22.—For erection of Council offices and fire station at the Camborne Cross, Camborne, Cornwall. Mr. Sampson Hill, architect, Redruth.

CANTERBURY.—Jan. 16.—For repairs, painting, &c., to stone house, stables, cottages, farm buildings, greenhouses, &c., at the Canterbury Borough Asylum, St. Martin's Hill. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

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CARLISLE.—For erection of hotel buildings, Carlisle. Messrs. Oliver & Dodgshun, architects, Carlisle.

CHANDLERSFORD.—Jan. 12.—For partial reconstruction of the bridge, Chandlersford, Hants. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

CLACTON-ON-SEA.—For alteration and conversion of two large villas into shops, showrooms and workrooms. Mr. George Gardiner, architect, 5 Marine Parade, Clacton-on-Sea.

CROMER.—Jan. 12.—For erection of an electric-light station, comprising boiler-house, engine and accumulator rooms, stores and offices at Cromer. Mr. James K. Frost, clerk, Council Office, Cromer.

DEVIZES.—Jan. 20.—For erection of a female ward at the Wilts County pauper and lunatic asylum, Devizes. Mr. Charles S. Adye, county surveyor, County Offices, Trowbridge.

DEVONPORT.—Jan. 14.—For construction of septic tanks, bacterial filters, buildings, &c., at the Fish Pond, Camelshead. Mr. J. F. Burns, borough surveyor, 39 Ker Street, Devonport.

DUNMOW.—For erection of a block of six cottages on ground adjoining the railway station at Dunmow, Essex. Messrs. Hasler & Clapham, Dunmow.

DURHAM.—Jan. 19.—For construction and erection of a road bridge over the river Wear, near Harelaw, about one mile west of Wolsingham. Mr. George W. Egglestone, highway surveyor, Stanhope.

FINCHLEY.—Jan. 17.—For carrying-out certain new sanitary arrangements, structural alterations, decorations and renovations in connection with Christ's College. Mr. H. T. Wakelam, engineer, Guildhall, Westminster.

GRIMSBY.—Jan. 12.—For supply of an electrically-driven capstan for use at the electricity works. Mr. W. A. Vignoles, borough electrical engineer, Corporation Electricity Works, Grimsby.

HACKNEY.—Jan. 14.—For extension of the existing boiler-house and the provision of additional boilers at the workhouse, Sidney Road, Homerton, N.E. Mr. W. A. Finch, architect, 76 Finsbury Pavement, E.C.

HACKNEY.—Jan. 20.—For erection of a block of balcony dwellings for the working classes on a site situated at London Fields. Particulars at the Housing Section of the Architect's Department, London County Council, 19 Charing Cross Road, S.W.

HASTINGS.—Jan. 14.—For covering in the sides of the covered ways to the blocks of the new workhouse. Mr. A. W. Jeffery, architect, 5 Havelock Road, Hastings.

HAWORTH.—For erection of two houses in Main Street, Haworth, Yorks. Mr. A. Booth, South View, Haworth.

HENDON.—Jan. 19.—For street works in First Avenue, Cowley Place, Wilberforce Road and The Burroughs. Mr. S. Slater Grimley, engineer to the Council, Hendon.

HERTFORD.—Jan. 12.—For erection of a hotel and shop adjoining at Hertford. Mr. James Farley, architect, Old Cross, Hertford.

HOMERTON.—Jan. 14.—For extension of the existing boiler-house and the provision of additional boilers at the workhouse, Sidney Road. Mr. Frank R. Coles, clerk to Guardians, Sidney Road.

ILKESTON.—Jan. 13.—For erection of a public free library at Ilkeston. Messrs. Hunter & Woodhouse, architects, Belper.

IPSWICH.—Jan. 13.—For additions to workshops at St. John's Home, Ipswich. Mr. Henry J. Wright, architect, 4 Museum Street, Ipswich.

IRELAND.—Jan. 13.—For erection (1) of 42 artisans' dwellings, (2) of 10 cottages at Williamstown, and (3) of 22 artisans' dwellings at George's Avenue, Blackrock. Mr. F. C. Caldbeck, architect, 2 St. Andrew Street, Dublin.

IRELAND.—Jan. 14.—For erection of a free library, Waterford. Mr. Albert E. Murray, architect, 37 Dawson Street, Dublin.

IRELAND.—Jan. 15.—For alterations, additions and repairs to the manse property of Bovevagh Presbyterian church. The Rev. T. E. Culbert, B.A., Manor House, Dungiven, County Derry.

IRELAND.—Jan. 20.—For erection of branch premises and hall at Spencer Road, Londonderry. The Secretary, Equitable Co-operative Society, Ltd., 59 Strand Road.

KENDAL.—Jan. 16.—For demolishing walls and buildings at Windermere Road and rebuilding boundary wall, &c.; setting back fence wall, Milnthorpe Road, west side; and working a gravel pit, Wattsfield Estate. Mr. R. Hampton Clucas, borough surveyor, Town Hall.

KINGSWOOD.—Jan. 14.—For construction of Kingswood sewerage and sewage disposal works (Conham section), consisting of about 7,100 yards of 9-inch stoneware pipe sewers, 5,000 yards of 12-inch stoneware pipe sewers, 1,219 yards of

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LANCASTER.—Jan. 14.—For supply of fireclay pipes, grit setts, road materials, setts, flags and curbs (Haslingden or Freestone). Particulars may be obtained at the Borough Surveyor's Office, Town Hall.

LANCHESTER.—Jan. 15.—For erection of three pairs of semi-detached cottages at the workhouse, Lanchester. Messrs. Newcombe & Newcombe, architects, 89 Pilgrim Street, Newcastle-upon-Tyne.

LANCHESTER.—Jan. 20.—For taking-down a small block of outbuildings at the workhouse, Lanchester, and rebuilding it on another part of the site; also for repairs to boiler-house. Messrs. Newcombe & Newcombe, architects, 89 Pilgrim Street, Newcastle-upon-Tyne.

LEEDS.—Jan. 12.—For erection of three wooden shelters on Woodhouse Ridge. Particulars may be obtained at the City Engineer's Office, Leeds.

LEEDS.—Jan. 24.—For erection of a retort-house at the New Wortley gasworks. Mr. R. H. Townsley, general manager, Gas Offices, Municipal Buildings, Leeds.

LONDON, S.E.—Jan. 20.—For erection of a steel and galvanised iron car shed at Easing Road, Rye Lane, Peckham, for the London County Council. Particulars at the Architect's (Highways) Department, L.C.C., 19 Charing Cross Road, W.C.

MIDDLETON.—Jan. 22.—For erection of the new Post Office and tenement offices in Long Street and Sadler Street. Messrs. Stones & Stones, architects, 10 Richmond Terrace, Blackburn.

PLYMOUTH.—Jan. 13.—For erection of a lecture table and fume closet at the pupil teachers' centre, Salisbury Road school. Mr. E. Chandler Cook, clerk to School Board, 18 Princess Square, Plymouth.

RAINHILL.—Jan. 22.—For erection of a w.c. block at the main asylum building. Mr. Jas. Pornall, clerk's office, Rainhill Asylum.

ROCHDALE.—Jan. 19.—For supply and fixing of new pitch-pine dressing-boxes, concrete flooring, &c., in the first-class swimming-baths at the Public Baths, Smith Street. Mr. James Leach, town clerk, Town Hall, Rochdale.

ROTHWELL.—Jan. 12.—For erection of a school at Rothwell, Yorks. Mr. W. E. Richardson, architect, Rothwell.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

SCOTLAND.—Jan. 14.—For erection of a dwelling-house in West Road, Elgin. Messrs. Sutherland & Jamieson, architects, Elgin.

SCOTLAND.—Jan. 14.—For alterations on central police office, and erection of weights and measures office and sheriff clerk's office at 41 and 43 Charlotte Street, Leith. Mr. George Simpson, town architect, Town Hall, Leith.

SCOTLAND.—Jan. 19.—For erection of new station buildings at Wemyss Bay and Inverkip. Mr. J. Blackburn, secretary, Caledonian Railway Company, 302 Buchanan Street, Glasgow.

SCOTLAND.—Jan. 24.—For erection of Broughton higher-grade school. Mr. Carfrae, architect, 3 Queen Street, Edinburgh.

SEVENOAKS.—Jan. 12.—For street works in Bayham Road (from Quaker's Hall Lane to Seal Hollow Road) and Circular Road. Mr. S. Towson, surveyor, Town Hall, Sevenoaks.

SHREWSBURY.—Jan. 20.—For removing, excavation and construction of abutments, &c., in connection with a new access to the Shropshire Union goods yard at Shrewsbury station, for the joint committee of the London and North-Western and Great Western Railway Companies. Mr. A. E. Bolter, secretary to the joint committee, Paddington Station.

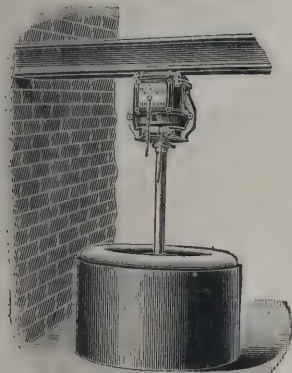
ST. MINVER.—Jan. 14.—For erection of a Wesleyan church, Sunday schoolroom, coach-house and stable, &c., at Stoptide Rock, St. Minver, near Wadebridge, Cornwall. Mr. S. Symons, Gonvena Cottage, Wadebridge.

SUNDERLAND.—Jan. 24.—For erection of a Congregational church and school in Roker Baths Road, Monkwearmouth. Messrs. Joseph Potts & Son, architects, 57 John Street, Sunderland.

SWINDON.—For erection of a Baptist church and schools at Cricklade Road, Gorse Hill, Swindon. Mr. G. A. Lansdown, 9 Regent Street, S.W.

TOTTENHAM, N.—Jan. 20.—For erection of stables, cartsheds, workshops, three cottages and general depôt buildings on land facing The Green. Mr. W. H. Prescott, engineer, Coombes Croft House, 712 High Road, Tottenham.

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Ornamental Work, Castings, &c.

For Index of Advertisers, see page x.

WALES.—Jan. 15.—For alterations and additions to Old Siloh chapel, Pentre, Rhondda Valley. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Glam.

WALES.—Jan. 19.—For erection of sixty cottages on the Gellifaelog estate, Merthyr Tydfil. Mr. Isaac Edwards (Edwards Bros.), Cambria Chambers, North Street, Dowlais.

WALES.—Jan. 19.—For supply and delivery of from 12,000 to 14,000 square yards of rock-faced blocking facing for the main dam of the Cray Reservoir and Tunnel Works, Breconshire. Mr. H. A. Dix, manager, Cray Reservoir Works, Breconshire.

WALES.—Jan. 25.—For alterations and extensions to the infants' school, Onllwyn, near Neath, and for the erection of boundary walls at the Seven Sisters school, Dylais. Mr. J. Cook Rees, architect, St. Thomas's Chambers, Neath.

WALSALL.—Feb. 9.—For erection of a school to accommodate 1,000 children, and a cookery centre and caretaker's house at the Chuckery, Walsall. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WALTHAMSTOW.—Jan. 26.—For erection of a school to accommodate 520 at Selwyn Avenue, Hale End, and alterations and additions, including nine new classrooms, to the Maynard Road schools. Mr. H. Prosser, architect, School Board Offices, Walthamstow.

WANDSWORTH.—Jan. 26.—For construction of underground sanitary conveniences at Tooting Broadway. Particulars may be obtained at the Surveyor's Office, 215 High Road, S.W.

WINCHESTER.—For erection of a dwelling-house at St. Cross, Winchester. Messrs. Colson, Farrow & Nisbett, architects, 45 Jewry Street, Winchester.

WREXHAM.—Jan. 13.—For providing and fixing boarding on the underside of the roof over the swimming-bath. Particulars on application to the Borough Surveyor.

THE new Roman Catholic Cathedral at Westminster was completed on Wednesday as regards its exterior, after being seven and a half years in course of construction, by the erection of the gilt iron cross on the top of the campanile. The cross stands some 10 feet high, and before its erection Cardinal Vaughan had specially blessed it. The Cardinal had also placed a reputed fragment of the true cross, which had been in England for several hundred years, in a cavity in its central part.

TENDERS.

ASHFORD.

For external painting and repairs to the various properties of Ashford Urban District Council. Mr. WM. TERRILL, surveyor.

Masters & Son	£111 9 0
W. E. Bowles & Sons	61 12 6
G. NEWTON, Harding Road (accepted)	55 9 0

BARNESLEY.

For pulling-down the present old buildings and erection of new clerk's offices, relief offices and relieving officer's house in Pitt Street, Barnsley. Messrs. CRAWSHAW & WILKINSON, architects, 13 Regent Street, Barnsley.

Accepted tenders.

R. Ruffles, Sheffield Road, mason.
Hey & Pashley, Dodworth Road, joiner.
Fleming, Eastgate, slater.
W. Dransfield, Dodworth Road, plumber.
T. Lindley, Park Grove, plasterer.
Beaumont Bros., George Yard, Market Hill, painter.
Snowden & Son, Market Street, heating apparatus.
J. Taylor, Queen Street, electric lighting.

BRIGHTON.

For construction of tramways and the laying of wood paving on the tramway tracks, and for the laying of wood paving on each side of the tramway tracks. Mr. F. J. C. MAY, borough engineer.

E. Nuttall	£34,409 17 7
R. W. Blackwell & Co., Ltd.	33,189 14 6
A. Graham & Sons	32,022 11 5
J. A. Ewart	30,313 0 2
J. Brunton	29,192 9 11
Dick Kerr & Co., Ltd.	28,595 4 10
J. G. White & Co.	27,348 17 5
Acme Wood Flooring Co., Ltd.	26,147 12 4
W. Griffiths & Co., Ltd.	25,937 2 3
E. Alcott, Westminster*	24,983 19 9
W. L. Meredith	14,467 8 8

* Recommended for acceptance.

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tested Hot-water Pipes, Castings, Connections and Fittings
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BRISTOL.

For carrying-out the second section of the foundations for electrical station at Avonbank.

C. A. HAYES, Bristol (accepted)	£1c,969	0	0
C. A. PARSONS, for two steam turbines (accepted)	9,854	0	0

BROMLEY.

For storm-water drainage and other works in Sherman Road, Bromley, Kent.

Lowes Sanitary Engineering and Patent Pipe Joint Co., Ltd.	£134	15	2
H. Woodham & Sons	127	4	0
E. Peill & Sons	126	15	0
Wilson, Border & Co.	115	4	1
J. Meston	103	11	8
LAWRENCE & THACKER, Clapham Common (accepted)	90	1	0
D. H. Porter	84	15	10

BURNLEY.

For supply and delivery of steel steam-piping required for conveying steam from the refuse destructor boiler to the electricity station. Mr. G. H. PICKLES, borough surveyor.

Delivered and fixed.

Blackwell & Co.	£434	0	0
E. Le Bas & Co.	334	16	0
J. Spencer & Co.	332	10	0
Aiton & Co.	317	5	0
BABCOCK & WILCOX, London (accepted)	238	3	0

Delivered only.

Blackwell & Co.	351	10	0
J. Spencer & Co.	272	10	0
Stewart & Menzies	269	5	8
E. Le Bas & Co.	259	17	0
Lloyd & Lloyd	250	0	0
Aiton & Co.	249	5	0
Babcock & Wilcox	212	3	0
British Mannesmann Tube Company	198	12	3
Russell & Sons	90	0	0

BURNLEY—continued.

For street works in a number of streets and back streets.

Accepted tenders.

R. H. Wadge, 95 Dall Street, Langham Street, £17 17s. 9d.; J. Wadge, 5 Willow Street, Holmsley Street, £51 8s. 8d.; Shepherd Street, £13; street off Cog Lane (1) £16 cs. 10d.; ditto (2) £15 cs. 10d.; street off Lowerhouse Lane, £15 18s. 10d.; J. Green, 189 Brunshaw Road, Beverley Street, £48 17s. 3d.; W. Sutcliffe, Rosehill Road, Dorset Street, £119 1s. 2d.; Netherby Street, £41 17s. 6d.

DEPTFORD.

For addition to the Council's laundry at the public baths and washhouses, Laurie Grove, New Cross Road, S.E.

A. WILSON, 2 Vulcan Road, Brockley, S.E. (accepted). £164 19 8

For supplying and fixing drying horses, wash stalls, hydro extractor and mangle at the public laundry at the baths and washhouses, Laurie Grove, New Cross Road, S.E.

MOORWOOD, SON & CO, LTD., Harleston Iron-works, Sheffield (accepted) £182 10 0

ESSEX.

For alteration and enlargement of existing Board school and erection of new infants' school, &c., Stifford. Mr. C. M. SHINER, architect, 6, 7 and 8 Crutched Friars, E.C.

J. Brown	£7,350	0	0
Hammond & Son	7,050	0	0
W. Smith & Sons	6,977	0	0
S. Parmenter	6,957	0	0
Davey, Ltd.	6,914	0	0
W. Potter	6,842	0	0
E. West	6,781	0	0
H. R. Rons	6,697	0	0
E. Moss	6,290	18	0
Pavitt & Son	6,225	12	8
C. Wall	6,050	0	0
H. J. CARTER, Grays (accepted)	5,755	0	0

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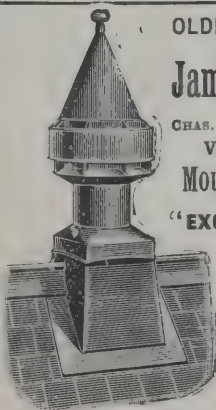
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GREAT BURSTEAD.

For lengthening of a bridge near Barleylands Farm, Great Burstead, Essex. Mr. R. J. W. LAYLAND, surveyor, Billericay.

S. Parmenter.	£67	0	0
J. Jackson	65	0	0
Harris Bros.	54	4	6
J. H. Jones	51	3	6
Gentry Bros.	34	15	0
F. C. CLARK (accepted).	29	10	0

GUILDFORD.

For street works in Manor Road, Stoke-next-Guildford. Mr. JOHN ANSTEE, surveyor, Commercial Road, Guildford.

W. Peters & Co.	£1,413	1	5
W. Norris.	1,387	14	6
B. Porter	1,375	0	0
Streeter & Todhunter	1,348	19	10
G. A. FRANKS, Station Approach, Guildford (accepted)	1,292	1	11

HULL.

For erection of thirty-four artisans' dwellings in Rustenburgh Street. Mr. JOSEPH H. HIRST, city architect, Town Hall, Hull.

Amalgamated Builders, Ltd.	£7,452	17	9
C. Greenwood	6,507	19	6
F. Southern	6,410	8	5
E. Good & Son, Ltd.	6,324	5	2
T. Goates	6,259	0	0
Hull General Builders, Ltd.	6,168	13	0
Hill & Stephenson	6,110	5	7
F. Blackburn & Son	6,046	15	0
J. R. Woods	5,989	15	9
J. Carr	5,956	14	10
F. Singleton	5,950	0	0
Simpson & Son	5,934	19	6
B. Ashton & Son	5,934	1	6
W. Barton	5,890	0	0
G. Jackson & Son	5,889	6	2
J. H. FENWICK, Albert Avenue, Hull (accepted)	5,875	14	4

HANLEY.

For provision and fixing of iron fencing and wood fencing at the infectious diseases hospital at Bucknall. Mr. ELIJAH JONES, architect, Albion Street, Hanley, Staffs.

A. Hutchinson	£257	4	2
L. Price	232	0	0
C. Cornes & Sons	210	0	0
T. & R. Nicholls, Ltd.	180	0	0
H. P. Embrey, Ltd.	172	0	0
T. Godwin	149	0	0
Brain & Smith	148	0	0
C. R. Clark, Ltd.	146	0	0
J. Bagnall	133	0	0
J. Moss	120	0	0
R. E. JAMES, Stoke-on-Trent (accepted)	108	10	0

IRELAND.

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J. DONOVAN, Parkmore, Creagh, Ballinasloe (accepted).	£585	0	0
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For erection of cottages, North Dublin.

W. LACEY, Howth, for building twenty-three cottages at Howth, £139 each, and four cottages at Baldoyle, with pigstyes, £150 each (accepted).

LAMBETH.

For rebuilding the Royal Hospital for Children and Women, Waterloo Bridge Road. Messrs. WARING & NICHOLSON, architects, 38 Parliament Street, Westminster.

Higgs & Hill	£34,384	0	0
H. Burman & Sons	33,933	0	0
Johnson & Co.	32,880	0	0
Mark Patrick & Son	32,822	0	0
B. E. Nightingale & Son	32,777	0	0
J. Appleby & Son	32,770	0	0
F. & H. F. Higgs	32,350	0	0
J. Marsland & Son	32,244	0	0
Colls & Son	32,222	0	0
Wm. Smith & Son	31,857	0	0
C. Ansell	31,700	0	0
Patman & Fotheringham	31,523	0	0
HOLLIDAY & GREENWOOD (accepted)	30,949	0	0

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For Index of Advertisers, see page x.

PADDINGTON.

or construction of a convenience at the Paddington Recreation Ground, Portsdown Road, W.	Mr. E. B. NEWTON, borough surveyor.
A. C. Harnden	£1,715 11 10
Doulton & Co.	1,234 0 0
G. Jennings, Ltd.	1,191 1 0
F. Mark	1,179 0 0
B. Finch & Co.	1,037 17 6
SPIERS & SON, St. John's Wood (accepted)	998 0 0

PRESTON.

For erection of mortuary and post-mortem room at the police station, Lancaster Road.	
T. CROFT & SON (accepted)	£399 8 2
For construction of a public convenience at junction of Friargate and Moor Lane.	
T. & R. COTLEY (accepted)	£174 17 9

SCOTLAND.

For laying a sewer in Station Road and Wards Road, &c., Elgin	
W. Duncan	£754 14 6
D. Mathieson & Co.	697 13 6
T. Munroe	688 13 10
J. H. Clark	641 3 8
J. Warrack	611 15 4
T. MACLEAN, Elgin (accepted)	557 11 5

For constructing a store reservoir on the Caee Water, three miles from Dalry railway station, Ayrshire. Messrs. J & A. LESLIE & REID, engineers, 72A George Street, Edinburgh.	
Henderson & Duncan, Edinburgh	£51,955 4 0
J. Laing, Carlisle	49,567 3 9
Blair & White, Glasgow	48,259 10 10
W. C. Harvie & Co., Peeblesshire	42,934 0 0
J. Urquhart, Ardrossan	41,530 6 7
Kirkwood, Kerr & Co., Lochwinnoch	41,388 9 7
A. Stark & Sons, Glasgow	40,615 17 5
Stirling & Kinniburgh, Glasgow	38,459 13 6
J. J. MacLachlan, Irvine	38,141 14 8
J. Young, Ltd, Glasgow	36,172 3 0
T. Crawford & Son, Strathaven	24,053 18 10

SOUTHAMPTON.

For erection of assembly hall, Park Street, Shirley. Mr. A. BURNETT, architect, Southampton.	
Exors. of W. Franklin	£2,336 0 0
F. Reeks	2,207 1 6
A. Wright & Son	2,200 0 0
Jenkins & Sons, Ltd.	2,185 0 0
H. J. Hood	2,184 0 0
Bagshaw & Son	2,178 1 6
A. Doggrell & Son	2,111 19 0
H. Stevens & Co.	2,097 0 0
H. CAWTE (accepted)	2,078 0 0
J. Nichol	2,043 0 0
G. I. Britten	2,015 19 4
P. H. Jerram	1,997 3 1

For enclosing corridor arches at the Incorporation Infirmary, Shirley Warren, Southampton. Messrs. MITCHELL, SON & GUTTERIDGE, architects, Portland Street, Southampton.	
Jenkins & Sons, Ltd.	£455 0 0
Stevens & Co.	448 0 0
J. Nichol	444 0 0
F. Osman	440 0 0
Coslon & Co.	440 0 0
Golding & Ansell	440 0 0
CAWTE, Church Street, Southampton (accepted)	420 0 0

STRATFORD-ON-AVON.

For erection of new schools to accommodate 150 children in the village of Pebworth. Messrs. HARVEY BROS., architects, 30 King's Road, Evesham.	
J. G. Fincher & Co.	£1,995 0 0
Espeley & Co.	1,810 0 0
W. White	1,763 16 2
T. Vale	1,750 0 0
Executors of the late J. STANLEY, Broom, Alcester, Redditch (accepted)	1,695 2 0

WALLASEY.

For providing and erecting retort fittings and iron flooring at Poulton gasworks.	
W. C. HOLVES & Co., Huddersfield (accepted)	£2,564 0 0

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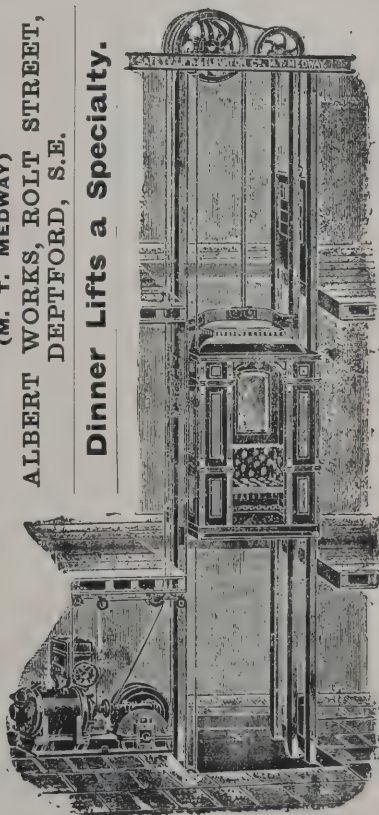
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WALES.

For street works in Church Road. Mr. JAMES HOLDEN, surveyor, Llandaff Chambers, 35 St. Mary's Street, Cardiff.

E. Rees	£599	14	0
E. Osmond	586	15	0
H. Smith	576	2	0
S. Shail	557	9	6
E. Gronow	543	0	0
J. Rees	537	2	0
F. Ashley	464	13	5
T. R. WILLIAMS, Cardiff (accepted)	426	14	2

For erection of new stables at Cardiff, for Councillor Arthur Sessions. Mr. EDGAR G. C. DOWN, architect, 31 High Street, Cardiff. Quantities by architect.

W. Thomas & Co.	£449	0	0
Cox & Bardo	365	0	0
Knox & Wells	357	0	0
E. R. Evans & Bros.	345	0	0
W. T. Morgan	332	0	0
WM. SYMONDS & Co. (accepted)	322	0	0

For erection of new business premises at the corner of Alexandra Road and Terrace Road (opposite the railway station), Aberystwyth. Mr. J. ARTHUR JONES, architect, 7 Queen's Terrace, Aberystwyth.

Lewis Bearne	£1,998	0	0
Wm. Jones	1,950	0	0
J. P. Lewis	1,871	0	0
Edward Jenkins	1,650	0	0
Evan Owen	1,615	0	0
Jones & Lewis	1,610	0	0
Hopkins & Co.	1,505	0	0
David Williams	1,489	0	0
Humphreys & Williams	1,400	0	0
EDWARDS BROS., Aberystwyth (accepted)	1,397	0	0

WOLVERHAMPTON.

For supply of about forty new church benches for St. Patrick's Church.

FISHER, SON & WEAVER, West Bromwich (accepted).

WOLVERHAMPTON—continued.

For waterworks construction at Penybont, viz.:—(Contract No. 1) Supply and delivery of about 160 tons of cast-iron pipes, 4-inch diameter, with the necessary irregulars, &c.; (2) construction of intake and pipelaying, the laying and jointing of about four miles of 4-inch cast-iron pipes and the construction of intake tank and drains. Messrs. J. & F. J. HURLEY, engineers, 10 Bridgend Road, Tondur.

Contract No. 1.

T. SPITTLE, LTD, Newport, Mon., £5 4s. per ton (accepted).

Contract No. 2.

G. Baker	£1,199	11	0
N. Bagley	1,126	14	8
H. Shardlow	1,116	0	0
W. Brown	1,056	19	9
Barnes, Chaplin & Co.	923	19	1
W. L. Meredith & Co.	853	5	11
M. Thompson	837	6	4
J. C. Hitt & Son	772	14	7
R. JONES, Coychurch (accepted)	753	7	3

WEST WYCOMBE.

For erection of new schools, &c., to accommodate 150 children, for the West Wycombe School Board. Mr. ARTHUR VERNON, P.S.I., architect, 29 Cockspur Street, S.W.

G. W. Stratford	£1,854	0	0
W. H. Siarey	1,818	0	0
A. W. Morton	1,810	0	0
Nash & Sons	1,789	0	0
F. Chapman	1,714	0	0
John Furness	1,675	0	0
C. H. Hunt & Son	1,638	0	0
G. H. Gibson	1,588	0	0
J. T. Harris	1,549	0	0
H. FLINT (accepted)	1,467	0	0

Received too late for Classification.

FRINTON-ON-SEA.

For erection of thirty-two timber groynes on foreshore, Frinton-on-Sea, for the U.D.C. Mr. R. J. SINFIELD, Sea-defence engineer to the Council.

GRADWELL & Co., Barrow-in-Furness (accepted) £1,595 0 0

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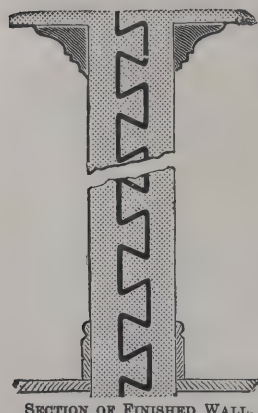
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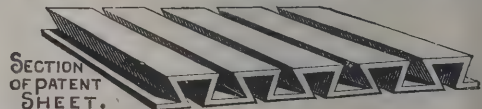
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HANWELL.

For alterations to the Boston Road schools, Hanwell. Mr WILLIAM PYWELL, A.R.I.B.A., architect, Cumberland House, Hanwell, W.

T. H. Kingerlee & Sons	£5,524	0	0
Kellett & Sons, Ltd.	5,095	7	1
Foster Bros.	4,981	10	10
R. S. Buckeridge	4,555	0	0
R. L. Tonge	4,525	9	0
W. Braybrook	4,270	1	6
W. J. Dickens	4,171	0	0
M'Carthy E. Fitt	4,139	0	0
Chamber Bro.	4,099	8	8
G. Bollom	3,898	0	0
The General Builders, Ltd.	3,815	0	0

LEYTONSTONE.

For erection of the Norlington Road schools, Leytonstone, E., for the Leyton School Board. Mr. WILLIAM JACQUES, architect, 2 Fen Court, E.C. Quantities by Messrs. R L CURTIS & SONS.

Foster Bros.	£36,744	0	0
Shelbourne & Co.	34,203	7	2
S. Lintern	33,459	0	0
Stimpson & Co.	31,770	0	0
Shillitoe & Son	29,950	0	0
P. Banyard	29,546	4	6
Smith & Sons	29,450	0	0
Kerridge & Shaw	28,975	0	0
Lawrence & Son	28,928	0	0
Appleby & Sons	28,600	0	0
A. E. Symes	27,818	0	0
A. Reed	27,665	0	0
Gregar & Son	27,333	0	0
F. & E. Davey	27,154	0	0
W. J. Maddison	26,759	0	0
F. J. Coxhead *	26,337	0	0

* Accepted, subject to the approval of the Board of Education.

NEWQUAY.

For building new fire station, for the Newquay Urban District Council. Mr. JOHN ENNOR, jun., surveyor.

A. Crowle	£275	13	0
W. S. Tippet	275	0	0
Carne & Trenerry	183	14	0
C. CARRIVICK, Newquay (accepted)	159	0	0

NEWQUAY—continued.

For building boundary and retaining walls, fixing ironwork, &c., at Narrowcliff, for the Newquay Urban District Council. Mr. JOHN ENNOR, jun., surveyor.

R. J. Pearce	£362	10	0
C. Carrivick	309	17	6
H. Clemens	293	14	6
W. S. TIPPETT, Newquay (accepted)	250	0	0

NOTTINGHAM.

For erection and completion of new Carlton and Gedling Wesleyan school chapel in Gedling Road, Carlton, Nottingham. Mr. W. H. HIGGINBOTTOM, architect, King John's Chambers, Nottingham. Quantities by the architect.

G. Caulton	£2,660	0	0
Pask & Thorpe	2,524	0	0
F. M. Thompson & Sons	2,464	0	0
A. Allcock	2,447	0	0
Marshall & Coppin	2,432	0	0
G. A. Pillatt	2,399	0	0
J. Herring & Sons	2,390	0	0
J. Hutchinson & Son	2,376	0	0
Deabill & Co.	2,370	0	0
G. T. Lovett	2,335	0	0
J. Cooper & Son	2,320	0	0
J. Oliver & Son	2,310	0	0
T. H. Harper	2,290	0	0
J. Lewin	2,218	0	0
T. Barlow	2,200	0	0
G. T. TEGERDINE (accepted)	2,098	0	0

CONTRACTS OPEN.

BIRMINGHAM.—Jan. 24.—For supply of certain materials and goods for one year, ending March 31, 1904, viz. Haslingden and granite kerbs, granite sets, granite crossing stones, granite chippings, Rowley setts, flags, paving bricks, wood paving blocks, ragstone, gravel, sand and slag. Mr. John Price, city engineer and surveyor, the Council House, Birmingham.

CASTLEFORD.—Jan. 22.—For relaying of causeway in Carlton Street, Castleford. Mr. W. Green, surveyor, the Urban Council, Carlton Street, Castleford.

HULL.—Jan. 12.—For erection of engine-house, foundations for cement kilns, chimney, &c., for Messrs. Burstall & Co., Ltd., Stoneferry, Hull. Messrs. Gelder & Kitchen, architects, 76 Lowgate, Hull.

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VARIETIES.

A PORTRAIT in oils of the late town clerk of Paddington, Mr. Frank Dethridge, is being painted by Mr. Sidney Paget, and will, with other gifts, shortly be presented to Mr. Dethridge in appreciation of thirty-four years' public service in the borough.

MR. J. R. ELLIOTT, Assoc.M.Inst.C.E., of Burton Buildings, Parliament Street, Nottingham, announces that he has taken into partnership Mr. A. Goodwin Brown, civil engineer, who has been assistant to his father, Mr. Arthur Brown, M.Inst.C.E., the city engineer of Nottingham.

THE Chorley Rural District Council have just completed a water-supply scheme for the townships of Whittle-le-Woods, Clayton-le-Woods, Heapey and Wheelton, at a cost of 8,600*l.*, and water was turned on for the first time by Mr. J. N. Boothman, manufacturer, who has taken a prominent part in the promotion of the scheme. A reservoir has been constructed at Heapey, and water is obtained from the Thirlmere aqueduct. A gold key was presented to Mr. Boothman as a memento of the occasion, and the members of the Rural Council were entertained to dinner at Whittlesprings.

THE Duke of Westminster has become a patron of the International Engineering, Machinery, Hardware and Allied Trades Exhibition to be held at the Crystal Palace from March to May next. Among other patrons of this exhibition are Lord Strathcona and Mount Royal, Lord Avebury, Lord Kelvin and many distinguished gentlemen occupying a prominent place in the industries represented, all of whom recognise the importance of an exhibition which cannot fail to be of immense educational benefit and tend to promote the commercial prosperity of this country.

ST. JOHN'S United Free Church, Carlisle, was reopened, after alterations and repairs, on Sunday. The alterations have been rendered necessary owing to the want of sitting accommodation, and operations on the building were begun in May last. The side walls were removed and transepts built at either side, which will give accommodation for over 800 persons. The roof has been entirely removed, and a substantial arched wooden roof, painted a dark brown colour, takes its place. Some improvements have also been made in the pulpit, and the windows have all been fitted with cathedral glass. The cost of the alterations is over 1,000*l.*

THE most recent addition to the schools of the School Board of Glasgow was formally opened on Monday evening in

North Montrose Street. This school takes the place of the old city public school, formerly the High School, the site of which was acquired for the new technical college. It has been called Provanside public school. The site extends to about 7,075 square yards, and in the accommodation and arrangement of classrooms the most modern ideas have been carried into effect, resulting in perhaps the finest educational institution belonging to the Board. On the ground floor is the central hall, 96 feet long and 28 feet wide, the main infant-room and eight classrooms. On the first floor are ten classrooms, and on the second floor are three classrooms, drawing and cast-room, chemical and physical laboratories and a well-equipped gymnasium. In the basement there is a manual instruction room for 50 scholars. Apart from the laboratories, &c., there is accommodation for 1,376 scholars. The heating and ventilating are mechanical, being on the propulsion system, and the whole building is lighted by electricity. The school is carried on as a higher-grade school with a commercial curriculum, and a large evening school is also held in the building.

THE formal dedication of the new mission church which has been erected in Tithelbarn Road, Littleworth, Staffs, to meet the growing requirements of the district, took place on the 28th ult., when the service was conducted by the rector (the Rev. the Hon. C. J. Littleton) in the presence of a good congregation. The building, which is in the late Gothic style, and will be known as St. John's Church, measures 52 feet by 24 feet in the interior, and there is a vestry on the north side 15 feet by 12 feet. Built of red brick, with stone dressings and white painted woodwork, the church has a neat and tasteful appearance. It stands on a triangular piece of land, and provides accommodation for 170 persons. The lighting and ventilation arrangements are good, and a heating apparatus has been installed. A bell has been placed in the gable at the west end. The reredos at the east end of the interior is of wood, painted sage green, with gold mouldings. The church was erected by Messrs. Adams & Pemberton from the designs of Mr. George Wormal, architect. The cost amounts to about 800*l.*

THE telephone committee of the Glasgow Council have recommended that application be made to the Secretary for Scotland for further borrowing powers to the amount of 80,000*l.*, making a total of 300,000*l.*

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(Telegrams, "BRASS, BIRMINGHAM.")

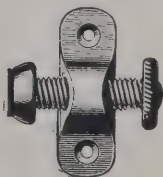
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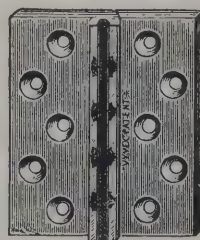


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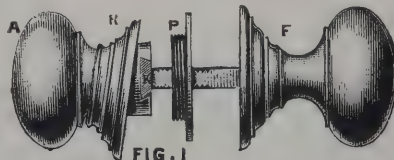
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Made in over 30 sizes and strengths.

TONKS' PATENT IMPROVED KEYED FURNITURE, Unequalled for Strength, Durability, Facility in Fixing, and Exactness of Adjustment.

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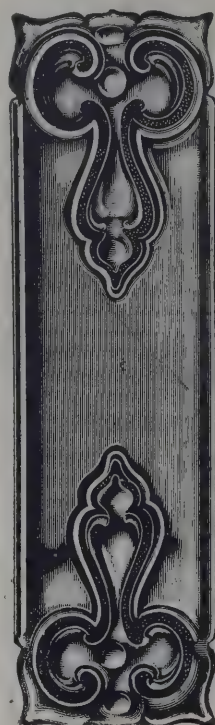
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Door Furniture to match,
T2602 4/3 set.

FENDER SUITES IN ALL STYLES.

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ILLUSTRATIONS.

THE RETURN FROM THE DURBAR.

CATHEDRAL SERIES: WORCESTER.—THE CHOIR, LOOKING WEST.

THE TOWN HALL, COLCHESTER: GENERAL VIEW.

HEAD OFFICES, NATIONAL MUTUAL LIFE ASSOCIATION OF AUSTRALASIA, LTD., MELBOURNE.

MUNICIPAL SCHOOL OF TECHNOLOGY, MANCHESTER.—VIEW ON PRINCIPAL STAIRCASE.

TRADE NOTES.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have just supplied their patent warm-air ventilating Manchester grates to the small-pox hospital, Warrington.

STRETTON CHURCH, Oakham, has recently been fitted with the well-known "Small Tube" hot-water heating apparatus, by Messrs. John King, Ltd., engineers, Liverpool, employing their latest improved economical coil heater.

A NEW Cambridge quarter-clime clock, showing the time upon one large external dial and striking the hours on the fine tenor bell of over a ton weight, has been formally set going at Crewkerne parish church, Somersetshire. The frame is fixed on strong iron brackets fixed to the wall of the tower, thus giving a firm foundation for the clock to rest upon, and, there being ample room in the clock chamber, a long 2-seconds compensated pendulum was attached to the clock, which has got all Lord Grimthorpe's improvements inserted, and was made and fixed by Messrs. W. Potts & Sons, clock manufacturers, Leeds.

MESSRS. EASTON & CO., LTD., successors to Easton, Anderson & Goolden, Ltd., engineers, Broad Sanctuary Chambers, S.W., have secured the order for the complete installation of electric lifts (19 in number) for the new Midland Grand Hotel at Manchester, now in course of construction. The hotel in question is intended to be in every respect an example of what a modern, up-to-date hotel of the highest class should be; and it is satisfactory that the order has gone to an English company, and that, as a result, every electric lift in the hotel will be British-built throughout.

A VERY USEFUL DIARY.

WE have received from the Patent Victoria Stone Company, Ltd., of Hamilton House, Bishopsgate Street Without, a copy of their handsome and exceedingly useful diary, which comprises, in addition to the diary itself, which is of large folio size, an excellent blotting pad and a not less handy scribbling pad. The diary contains, in addition to the abundant writing space, a calendar, some valuable postal information, some interesting particulars as to the composition, qualities and capabilities of patent Victoria stone, and a number of admirably reproduced photographic views of the company's premises and of the numerous and very various buildings in whose erection the patent Victoria stone has been employed.

ELECTRIC NOTES.

THE Frodingham (Lincs) ratepayers have approved of a provisional order for electric lighting being obtained.

THE electrical engineer, Mr. Price White, is preparing plans for an electric-lighting scheme for Holyhead.

SANCTION to a loan of 69,000*l.* for electric lighting has been obtained by the Ipswich Town Council.

THE Devonport Town Council seek power to borrow 30,000*l.* for the electric-light undertaking.

THE Galashiels Town Council sub-committee are considering the introduction of electric lighting.

THE Private Bill Office has issued the text of the Bill for the construction of an electric railway between London and Brighton. The capital of the company will be 4,500,000*l.* Six years is allowed for the completion of the railway, which is to be a mono-rail.

ARBITRATION proceedings in connection with the purchase by the borough council of the Marylebone undertaking of the Metropolitan Electric Supply Company have already, it is reported, cost the ratepayers between 60,000*l.* and 70,000*l.* The award of the arbitrator is now awaited. It is anticipated that the purchase price will not be less than a million sterling.

IN connection with the electrification of the London County Council trams large bodies of men are engaged at Kennington in pumping the old river Effra. It is conjectured that had this step not been taken the water would at no distant date have interfered seriously with the working of the trams. The operations, it is expected, will occupy several weeks.

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JANUARY...

The Furnishing
Event of
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Postal enquiries solicited, but immediate
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Main Entrances:
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**TOTTENHAM
COURT ROAD
LONDON, W.**

A RATEPAYERS' meeting was held at Dover on the 6th inst. to consider the proposal of the Corporation to take over the electricity supply undertaking at a cost of 155,960*l.* There was much opposition, and after the Mayor had declared carried the resolution in favour of the proposal a poll of the town was demanded. This will cost four or five hundred pounds.

BUILDING AND BUILDERS.

THE Aberdeen Town Council seek authority to borrow 25,000*l.* to acquire the bathing establishment and also to erect additional baths.

THE work of constructing St. Thomas outfall sewer, Exeter, to the length of 1,000 feet, at an estimated cost of 390*l.* is to be taken in hand.

THE scheme for a new Methodist New Connexion church at Dudley Road, Birmingham, is far advanced, and it is proposed to lay the memorial-stones when the conference meets at Dudley.

PLANS of the new Bluecoat Hospital to be erected at Wavertree have been prepared for submission to the Charity Commissioners, and it is hoped that building operations will commence in the coming spring.

HOMERTON College, Cambridge, is being enlarged at a cost of 8,000*l.*, so as to provide for fifty more students. A principal's house, new classrooms and a scientific laboratory are included in the extension scheme. Eleven acres of land have been added to the college estate.

THE Sedgley School Board have approved the designs of Mr. S. H. Eachus, architect, of Wolverhampton, for a new school to accommodate 350 girls, as well as designs for a cookery and laundry centre and caretaker's house, and for the rearrangement of the old schools at Mount Pleasant.

A LOCAL Government Board inquiry has been held at West Hartlepool respecting the application of the Council to borrow 9,250*l.* to defray the cost of the new promenade and levelling of the banks between West Hartlepool and Seaton Carew.

A SCHEME is being developed for dealing with the Notting Dale area, by which it is hoped that some of the worst part of the property in that neighbourhood will be demolished, and better dwellings erected for the residence of the North Kensington poor.

THE works committee of the Paddington Borough Council are negotiating with the Regent's Canal Company with a view to the provision of a new bridge over the canal at Warwick Road, and abutting improvements, at an estimated cost of 10,000*l.*

THE building of a new infectious hospital is about to be commenced at Ackton, in the urban district of Featherstone, for the accommodation of the districts of Castleford, Normanston, Featherstone, Whitwood and Altofts. Mr. W. Hamilton Fearnley has been appointed architect for the work.

THE foundation-stones of a new cottage hospital have been laid at Rhymney, Wales. The estimated total cost of the building is 2,285*l.* The contract is in the hands of Messrs. W. Williams & Sons, New Tredegar and Bargoed, the architect being Mr. Llewellyn Smith (Messrs. Llewellyn Smith & Davies), Aberdare.

THE Poplar Council are considering the advisability of carrying out street improvements in the borough necessitating an outlay of about 9,000*l.* The works committee have directed that the London and India Docks Company be communicated with regarding the defective condition of the footways on the dock bridges in Bridge Road and West Ferry Road.

THE memorial-stones have been laid of the new Baptist church and schools which are to be erected in Bearwood Road, Smethwick. The church, which is estimated to cost 3,500*l.*, will accommodate 500 worshippers, whilst the school buildings are estimated to cost 1,270*l.* At present it is proposed to proceed with the erection of the schools, which will be used as a church until the scheme is completed.

ST. MARY'S CHURCH, the oldest church in Harrogate, has been closed. The Harrogate borough surveyor examined the building, and declared it unsafe for public worship. The piers supporting the nave arches have shown signs of giving way, and there is every appearance of a further settlement. The church will now without doubt have to be rebuilt, and plans have already been approved. The proposed new building is estimated to cost between 9,000*l.* and 10,000*l.*

IN Portsmouth dockyard a site is being prepared for a large block of engineering workshops that are to be erected at a cost of 188,000*l.* The greater part of the money is expected to be voted in the next Naval Estimates. When finished the new shops will be thoroughly equipped, and will add materially to the resources of the naval establishment. During the engineering strike a year or two ago the Admiralty



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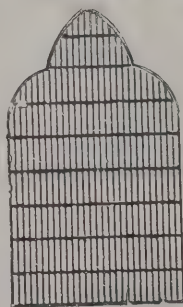
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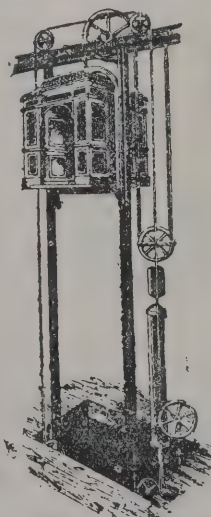
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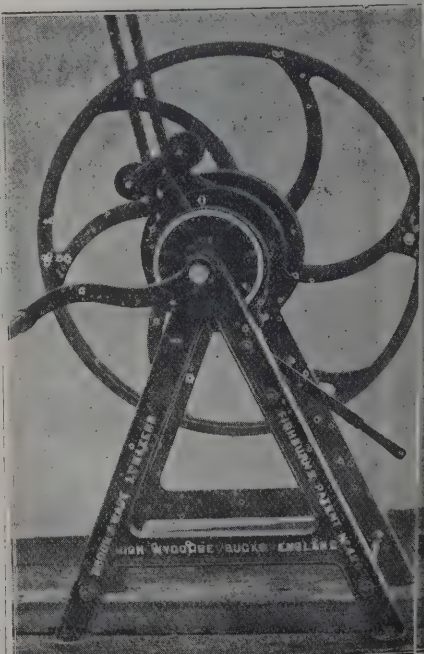
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was put to great inconvenience, and it is to obviate a recurrence of the difficulty, a news agency states, that the erection of the new shops at Portsmouth has been decided on.

FIVE blocks of working-class dwellings, each six storeys in height, are to be erected by the Chelsea Borough Council in Beaufort Street. The site was acquired some time ago for the purposes of housing the working classes, but the details of the adopted scheme have only just been made public. Accommodation is to be provided for 933 persons, the number of tenements being 261 and the number of rooms 583. The total estimated cost is 49,532*l.*, or about 85*l.* per room, and the capital outlay in connection with the scheme will not fall far short of 70,000*l.* The metamorphosis of King's Road is proceeding apace. The pulling down of a block of houses adjoining the Poor Law Offices has been taken in hand, and on the site thus cleared will shortly be raised the imposing workhouse extension which is so much needed. The new Palace of Varieties is nearing completion, whilst on the opposite side of the way the municipal baths have been closed preparatory to extensive alterations, perhaps to entire reconstruction. The widening of a portion of the main road near Beaufort Street is now completed, as is the first instalment of several other improvements of a like nature, including the widening of the entrance from Sloane Square.

LAST Friday's *Gazette* contained a notice of the Mersey Docks and Harbour Board announcing their intention to alter and extend the Liverpool Landing-stage. The work, which is to provide additional berthage accommodation for passenger ferry steamers, consists of continuing the western face of the stage a distance of 15 feet to a point opposite the present south end of the stage, and extending it beyond that point a further distance of 15 feet. This extension will be supported on pontoons, which will rise and fall with the tide in the same way as the existing stage, and have similar draught—about 3 feet. The work will be commenced in six weeks' time, and will not project beyond the western face line of the existing structure, nor further impede or interrupt the tidal or other waters of the river.

THE housing committee of the Southampton Corporation have had submitted to them by Mr. Hair, architect, another scheme for the development of the area north of Simmel Street. The plans provide for sixty-two three-room cottages and four four-room cottages, giving accommodation for 404 persons. The rents are estimated at 7*s.* 9*d.* per week for four-

room cottages and 5*s.* 9*d.* to 6*s.* for three-room cottages. Mr. Hair estimates that the scheme will cost 11,400*l.*, embracing 10,655*l.* for cost of buildings, 532*l.* 15*s.* architect's fees and expenses, and 200*l.* clerk of works. To raise this amount it will be necessary to issue 12,391*l.* 3 per cent. stock. The maximum period allowed by the Local Government Board for buildings of this class is forty years. It is estimated that there would be an excess of income over working expenses of 596*l.* 18*s.* 2*d.* The housing committee have approved of the plans, and have decided to recommend the Council to make application to the Local Government Board for sanction to borrow 12,500*l.* to carry out the scheme. The Council are to be requested to engage Mr. Hair as architect at a fee of 5*l.* per cent. on the total cost of the buildings, such amount to include the cost of preparing all plans.

MR. E. P. BURD, Local Government Board inspector, held an inquiry at the Stafford Guildhall on the 30th ult. respecting the application of the Mayor and Corporation of Stafford for the issue of a provisional order under section 303 of the Public Health Act, to partially repeal, alter, or amend the Stafford Corporation Act, 1882, so as to enable the Corporation to borrow, with the sanction of the Local Government Board, additional money up to 5,000*l.* for the purposes of their water undertakings. Mr. Matt. F. Blakiston (town clerk) appeared for the Mayor and Corporation, and there were also present Messrs. R. Battle (deputy town clerk), G. S. Parker (borough accountant), W. Blackshaw (borough surveyor), Aldermen F. Greatrex and S. G. Lovatt, Councillors T. Swift, J. Holmes, M. Bedford, W. Salisbury and T. Westhead. The town clerk explained that the application was for a provisional order which would enable the Corporation to apply to the Local Government Board for sanction to borrow money in order to extend their water mains to the dwellings being erected by Messrs. Siemens, and to the new cottage property being put up off Newport Road, for Dr. F. H. Marson. The borough surveyor produced plans of the districts named. Mr. Swift asked what was the amount of the loan to be asked for, and the town clerk replied that there would be two sums of 346*l.* and 30*l.* Mr. Swift said he supposed the 30*l.* was for Dr. Marson's cottage property which was outside the borough, and he contended that the mains ought not to be laid outside the borough unless more was paid for the water than was paid in the borough. The borough accountant explained that the residents in the outside districts did pay more for their water

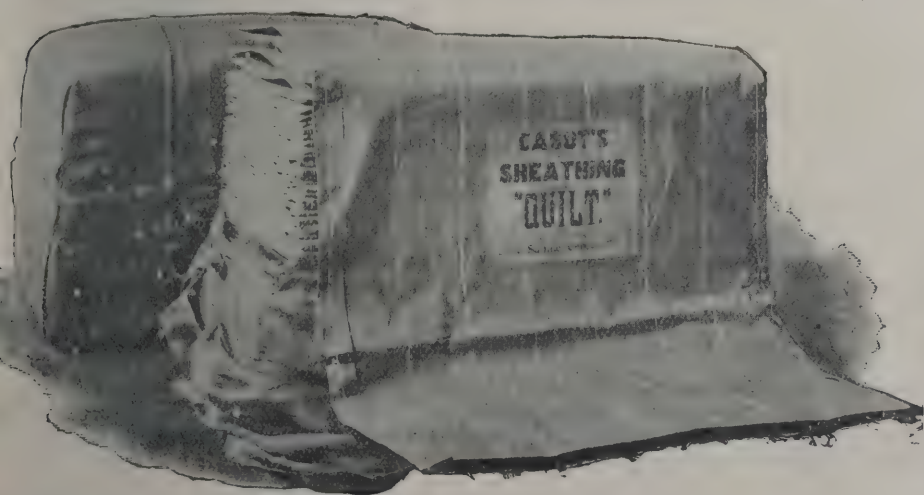
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with the exception of those in Rowley Park, who allowed the Corporation certain privileges in consideration of no extra charge being made for water. Mr. Swift said the privileges were not really privileges. The inspector said that was a matter which he could not go into and the inquiry was closed.

OBAN ELECTRIC LIGHT.

THE electric-lighting installation which has been carried out by the Oban (N.B.) Corporation under the Oban Electric Lighting Order, 1901, has been completed, and the light was switched on last night. The installation is on the continuous current three-wire system, the pressure at consumers' lamps being 230 volts. The supply is suitable for light, power, heating, cooking, &c. Distributing mains have been laid in the principal streets of the town and where a demand is anticipated in the first instance, but they are so arranged that they can be readily extended when required without interfering with the streets in which the mains are laid. The mains are water-tight throughout, to guard against the possibility of floods, and consist of three core cables, which are drawn into stoneware ducts in the principal streets. The esplanade, north pier and the main streets are lit by thirty-one arc lamps, the posts carrying these having also brackets for incandescent lamps, which will be switched on in place of the arc lamps late at night. In other thoroughfares Nernst lamps will be tried in the existing lamp-posts. The generating station is situated at Lochavullin on land belonging to the Corporation, and close to the railway, from which there is a siding running close to the boiler-house. The plant at present installed consists:—In the boiler-house, two Babcock & Wilcox water-tube boilers, each of sufficient size to supply steam for engines of about 300 h.p. The boilers are specially arranged to burn Scotch coal with a minimum of smoke. A large feed tank, and under it a pump-room, is provided, in which is placed a feed pump of Messrs. J. P. Hall & Co.'s manufacture. The feed pipes are in duplicate, and in addition to the feed pump, injectors are fitted to each boiler. In the economiser-house is a Green's economiser, having ninety-six tubes, and space is provided for another economiser of the same size. The steam pipes between the boilers are in duplicate throughout to minimise the risk of breakdown. In the engine-room are three steam dynamos, each consisting of a vertical compound high-speed engine, coupled direct to a continuous current dynamo, and

running at 500 revolutions per minute. Each engine is of about 100 horse-power. The whole regulation of the machines in the engine-room and distribution of electricity to the town is regulated from a switchboard placed in a gallery at the east end of the engine-room. The station and plant have been arranged with a special view to economy and to be worked with a minimum staff, and the buildings are so arranged that extension can be done without interference with the present structure. The whole installation has been carried out from the designs of Burstell & Monkhouse, Westminster, Mr. M. P. Plunkett being resident engineer for the Corporation. Mr. Alexander Sharp, C.E., Oban, was architect for the station.

DEEP-WELL BORES.

SOME two years ago the Wallasey Urban District Council, which supplies water not only to Wallasey itself, but also to Seacombe, Liscard, New Brighton and Egremont, with a total population approaching 60,000 inhabitants, found it necessary to augment their sources of supply. They accordingly in July 1900 placed a contract with Messrs. Mather & Platt, Ltd., for two deep boreholes, which were successfully completed by June, 1901. Each borehole starts with a diameter of 33 inches at the top, and finishes with 15½ inches at the bottom, which in one case is 903 feet from the surface, and in the other 810 feet. The 903 feet were bored in 110 working days, giving an average rate of sinking of 8·2 feet per day; the bore was almost entirely through red sandstone rock. These two boreholes yield 2,250,000 gallons per day, but to serve as a stand-by the Urban District Council has determined to carry to greater depths an existing well 12 feet in diameter and 166 feet deep, in which two pumps are at work side by side. For this purpose another contract has been placed with Messrs. Mather & Platt, Ltd., for two new boreholes, to commence at the bottom of the well, and both to be carried down for 150 feet at a diameter of 42½ inches. Here at a depth of 316 feet one borehole will stop, but the other will be continued 300 feet at a diameter of 20 inches, and yet another 200 feet at a diameter of 15 inches making a total depth of 650 feet from the well bottom, or 816 feet from ground level. A feature of the contract is that only one of the pumps in the well is to be stopped at a time, and special arrangements have therefore been made to secure the continuous availability of the other during the boring operations.

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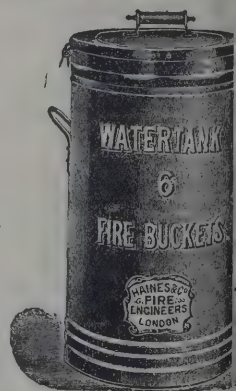
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REGISTERED PLUMBERS.

At a meeting of registered plumbers (masters and operatives) held at the Memorial Hall on the 29th ult., Mr. C. Hudson (late Master of the Company) in the chair, the undermentioned were elected to fill the vacancies in that section of the registration committee which represents directly the registered plumbers of London and the district:—

Masters.—W. E. Bone, W. C. Clegg, G. B. Davis, S. S. Hellyer, J. Hume, J. Knight, F. Nichols, C. Parks, T. L. Pitt.

Operatives.—F. Brown, J. W. Clarke, C. Dean, J. A. Mills, R. A. Nurse, G. W. Stacey, G. Taylor.

The remaining sections of the committee are directly elected to represent the London Society of Master Plumbers, London lodges of the Operative Plumbers, and the sanitary and professional bodies concerned in the plumbers' registration system in the public interest.

NICARAGUAN LABOUR LAW.

THE Labour Law of Nicaragua of June 30, 1901, recently put into effect, contains some rather startling provisions in the way of defining the relations between labour and capital.

1. A labourer is defined as any person, male or female, over sixteen years of age not having a capital of 500 pesos (about 100 dols.).

2. All labourers must have an employer. Anyone found unemployed will be imprisoned for twenty days and made to labour on public works while awaiting an employer. Every employer of labour must purchase a small booklet (cost, about 20 cents), in which are registered the name, age, description, general characteristics of the person, and conditions of the contract. The employer gives his employé a receipt for the book, which the latter can produce as proof of his good standing whenever arrested by the police on suspicion of being idle. When a labourer has finished his contract with one employer and desires to go to another, he must take his "book of labour" and present it to his next employer and take a receipt, the change being registered by the judge of agriculture.

3. If a labourer desires money in advance, his employer can give it to him only as a loan without interest, to be paid by retaining one-half of the salary or wages until the debt is cancelled.

A labourer leaving his employer without satisfactory settlement of his debt will be imprisoned, fined and obliged to return and work it out.

4. Any person employing labourers without this "book of labour" will be fined 200 pesos (about 40 dols.).

The purposes of the law are to do away with the pernicious habit formerly in vogue of advancing wages to labourers on a contract, which made the labourer a slave until he settled his account, and to prevent idleness and viciousness, by obliging everyone without capital to be employed. Consul Donaldson, in "Consular Reports" for December, states that the law caused general consternation at first among all classes, but as it is being enforced everyone is becoming reconciled, and the general effect seems to be beneficial.

BARNET CHURCH.

A FEW years ago the Chancel Estates Trustees adopted a plan for reseating the whole of Barnet parish church. It was found impossible at that time to do more than to reseat the nave. The fittings of the chancel had long been unworthy of so noble a church, but this defect has been remedied by the provision of an elaborately carved set of choir stalls, fitted with ornate screenwork at the back. This addition to the furniture of the church has been made at a cost of about 1,000*l.* The stalls, erected on the north and south side of the chancel, are of the fourteenth-century Decorative style of architecture, which harmonises with the ornate workmanship of the pulpit. There are six stalls on either side for the adult members of the choir, and the ends are carved and surmounted by figures of angels holding musical instruments. There is a canopy over each set, and running along the front in gold letters are the words:—"We praise Thee, O God, we acknowledge Thee to be the Lord. All the earth doth worship Thee, the Father Everlasting." The boys' stalls are treated in the same elaborate style. On each of the front panels is a figure of a boy chorister, and these figures are represented as joining in singing, "They rest not day and night, saying, Holy, Holy, Holy, Gord God Almighty, which was, and is and is to come." The stalls are supplemented by two new prayer-desks, which are carved and ornamented. The decorations include symbolical figures of the four Evangelists—Matthew, Mark, Luke and John. Mr. J. C. Traylen, Stamford, was the architect, and the work was executed by Messrs. J. Thompson & Co., Peterborough.

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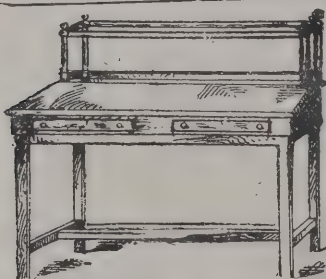
GROWTH OF MANCHESTER.

WITHIN the year ended October 31, says the *Manchester Courier*, 855 sets of plans for all kinds of buildings in the city were submitted for approval to the improvement and buildings committee of the Manchester City Council, and of these 754 were approved and 101 disapproved. In addition to these approvals, which related to permanent buildings, seventy-eight licenses were granted for temporary structures. New dwelling-houses to the number of 1,662 were in the same period certified as fit for habitation. By way of comparison it is worthy of mention that in the year ended October 31, 1898—four years ago—2,773 new houses were certified as fit for habitation. That was the largest number ever so certified within the city in the course of a single year. Five years previous to that date, in 1893, only 682 new dwellings received certificates of fitness. Thenceforward the yearly total showed steady increases up to 1898, when the highest point was reached, and since then there has been a falling off. In 1899 there was a slight decline, the figure being 2,704, or only 69 below that of 1898, but in 1900 there was a further drop to 2,308, a difference of 396 by contrast with the previous twelve months, and in the year ended October 31, 1901, there was a further reduction to 1,677, or 1,096 fewer new houses were certified than in 1898. Still, the figures show that during the past five years 11,124 new residences have been constructed, so that the yearly average has been maintained well above the level of 2,000. It has often been stated that at the time when the Ship Canal was opened Manchester had apparently arrived at her zenith, and was showing signs of coming decay in commerce and industry, and of a decrease in her population. Comparison with the figure of new houses in 1893, the year before the Ship Canal was brought into use, shows that side by side with the progress of the port has gone a steady increase in the number of inhabitants of our municipal area. The borough of Salford and other areas of local government within the radius of the Canal's influence can tell tales of proportionate advancement. The sum total of residences which have sprung up as the direct outcome of the making and working of the Canal must be enormous. Three or four years ago it was publicly declared to be 20,000. Lately we have not heard any calculations or speculations as to the number which have since been erected. Coming back to city figures it has to be added that whilst many buildings have

sprung into existence, others have suffered from the ravages of time and wear. No fewer than 550 buildings in the city were reported to be dangerous in the past municipal year. In 445 cases out of this total it was found necessary to serve notices for the removal of the danger, which perhaps, as a rule, meant the removal of the structure affected. It will be borne in mind that dwelling-houses formed only a proportion of the condemned structures, and that old walls, factories, warehouses, chimney-stacks and nondescript buildings were included.

An important change with regard to public improvement in Manchester is the establishment in this newly-ended year of a city architect's department to meet the extraordinary demands which were made upon the administration of the city surveyor's department under the old system, whereby architecture was but a branch section of Mr. T. De Courcey Meade's sphere of action. Mr. Henry Price was appointed the first city architect. He came from Birmingham, and entered upon his new duties at the beginning of June. That is little more than half a year ago—not long enough for great achievements. He has, however, not merely set his house in order, but has done good work sufficient to emphasise the wisdom of the Council in having appointed a city architect. In referring to matters relating to architecture so far as city improvements are affected, it is to be understood that much of the work referred to in this article was accomplished under Mr. Meade, the city surveyor, and his architectural staff, of whom a number of the best of its members still ably discharge their duties under Mr. Price. Among the committees actually engaged in new building projects is the baths committee, which is responsible for the construction of the Victoria baths.

These premises are in Chorlton-on-Medlock. They will have three frontages, the main one being towards High Street. The centre of the main façade (which stands back from the road a distance of 33 feet) will be three storeys in height, with high-pitched roofs and ornamental gables, surmounted by a clock turret. The left and right wings are one storey in height, also with high-pitched roofs and gables. The buildings have been designed in the Renaissance style of architecture, the facework being in Ruabon red pressed bricks, and the mouldings, cornices, quoins and other architectural features in buff terra-cotta. The accommodation will consist of three large swimming-baths. That for the males, first class, will be used at times for gala purposes, and has a gallery around same to accommodate about 350 persons, and each person will



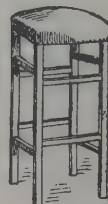
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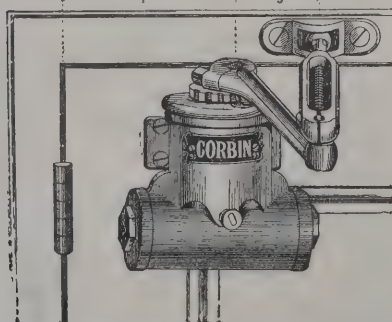
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have a good view of the pond below. The other two swimming-baths are for males, second class, and females respectively, each having a balcony containing twenty-three wash baths. The males' first-class wash baths are on the ground floor. There are club-rooms and bicycle-rooms for the convenience of bathers to each bath. There are Turkish and Russian baths, comprising three hot-rooms, separate shampooing-rooms, and separate room for douche bath and large and well-lighted cooling-room. The supply of water for the three swimming-baths will be obtained from a deep well sunk on the site and stored in two large tanks constructed over the boiler and engine-houses with a combined capacity of 160,000 gallons. The baths committee are further considering a scheme for the erection of baths and public hall on a site at Bradford, and preliminary plans have been prepared by the city architect. There is also a scheme under consideration for the conversion of dwelling-houses in Hulme into cottage baths.

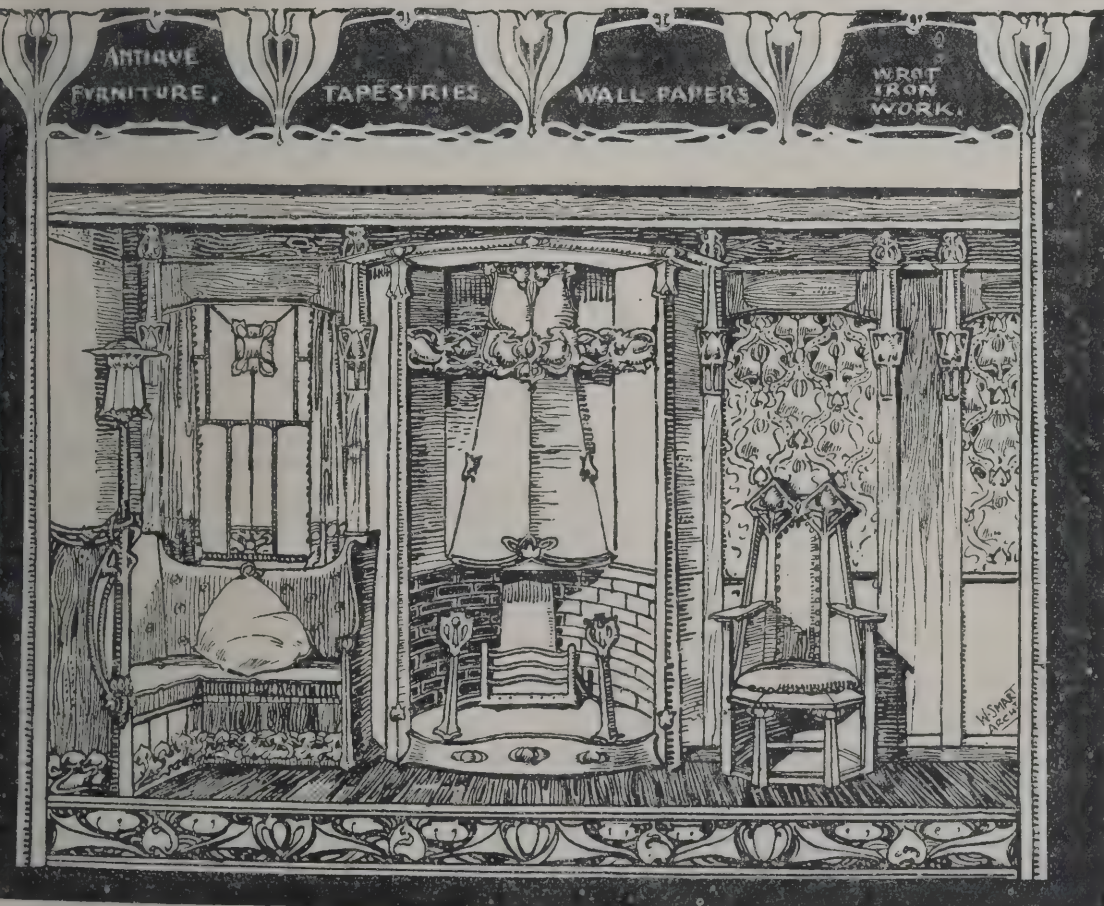
The members of the sanitary committee have had under consideration for some time a scheme for laying out their estate at Blackley, and the erection thereon of 203 houses for the accommodation of the people displaced by the demolition of insanitary property and various improvement schemes. Designs have already been prepared for the erection of eighty-two dwellings in keeping with the rural surroundings. Several blocks will be in short terraces and a few semi-detached with gardens back and front; three bedrooms are provided and a bath-room. A main avenue will be formed through this estate 20 yards wide, and will join a proposed road which will connect Heaton Park with Rochdale Road. A portion of the estate will be reserved for allotments.

A police and fire-station for the C Division is in course of erection in Mill Street, Bradford, between Rhyl Street and Brownhill Street. In addition to the accommodation provided for the police this building will give plenty of space for three horse-ambulances and two fire-engines at a cost of about 30,000*l*. In consequence of the office accommodation to the town hall becoming every year more limited, it has been found necessary by the watch committee to make provision for the weights and measures department outside the building, and large workshop and offices are to be provided in connection with the Newton Street police-station. Owing to these alterations a large shed is being erected over a portion of the yard at Albert Street police-station to store the barriers which originally were stored at Newton Street. It is also intended to erect a new chief fire-station at the junction of London Road

and Whitworth Street, concerning which much has already been heard from time to time.

On the order of the parks, &c, committee at the present time extensions are being carried out in connection with the registrar's office at Philips Park Cemetery and the extensions to refreshment-room at Boggart Hole Clough. By the markets' committee an extensive addition has been made to the retail fish market, and the city architect and city surveyor are preparing a scheme for the cold-air stores under the market. The electricity committee are about completing the erection of nineteen electric substations within the city and the suburbs. Some of these buildings have handsome exteriors in keeping with the surrounding property. Their total cost will amount to about 80,000*l*.

The Whitworth Hall at Owens College and the Municipal School of Technology in Whitworth Street have been opened in 1902 with great ceremony, in the one case by the Heir-Apparent, who was accompanied by the Princess of Wales, and in the other by the Premier. St. Mary's Hospital is completed so far as the outer structure is concerned, and internal fitting and furnishing are at present engaging attention. The hospital is a handsome embellishment of the approach to Oxford Road station, and will be equipped in the most up-to-date fashion. To the passer-by the situation of the building suggests that the sick women and children to whose surgical needs it is meant to administer may be disturbed by the hum of scores of tram-car trolleys or the overhead wires, with an occasional shriek from engines on the adjacent railway. Yet perhaps it may be taken for granted that such possibilities have been fully discussed by all who are connected with the administration of the hospital, and that everything will be done to secure the peace and comfort of the patients. The Midland Hotel rears its majestic bulk opposite St. Peter's Church with great effect just now, for the maze of scaffolding has been removed from all its upper storeys, and the terra-cotta and faience and polished granite which enter into its construction have been cleaned until they glitter in the winter sunshine. Some four years have elapsed since building operations commenced, and there is a prospect that ere the close of another year the huge hotel will be completed internally and ready for occupation by numerous guests. It will long feast the eyes of onlookers as one of the handsomest buildings in the city. In Spring Gardens the new offices of the Economic Fire and Life Company and premises of Parr's Banking Company give a vastly better outlook to the widened thoroughfare. Albert Square



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has been much improved in appearance by the extension of a good-looking stone building for the Northern Insurance Company at the corner of Clarence Street, and the building of offices for the Eagle Assurance Company is rapidly approaching the final stage in Cross Street, between King Street and South King Street. New structures have been brought into occupation since the end of last year on three sides of the Conservative Club, the greater portion of the block having an outlook upon St. Ann's Churchyard. In Oldham Street a large block of business premises bids fair soon to add to the importance of that old-established shopping quarter, and some distance away an immense warehouse of imposing design is being pushed forward. These, of course, are little more than a selection out of the many extensive building projects which are in various stages of realisation in the centre of the city, and which are to be met with on all hands.

Among a fair number of important street widenings and improvements which have been carried out in various parts of the city, under the direction of Mr. Meade, is the widening of Rochdale Road, under the powers of the Manchester Corporation Act, 1897, from 14 to 25 yards. The work was previously commenced, and has been continued from Lees Street to Pilling Street. The buildings of the Corn Exchange Company in Hanging Ditch are rapidly nearing completion, and the widening of the street in front of the handsome structure will shortly be effected in a style well calculated to make the word "Ditch" a misnomer. In connection with the improvement of Corporation Street, Cannon Street and Hanging Ditch, the whole of the property bounded by these streets has been purchased. Operations have been started by the demolition of the Spread Eagle Hotel and Messrs. Lever Brothers' corner premises. When the adjoining property in Corporation Street is taken down the width of that important thoroughfare will be increased by nine yards.

The intended new street between Ashley Lane and Charter Street will soon be completed. The whole of the property has been removed, and the street is in course of formation. As a result of the scheme the Corporation will have several desirable plots of vacant land for sale suitable for the erection of warehouses, workshops and other business premises. A continuation of this better means of access to and from the manufacturing district along the Irk Valley is being made by the widening also of Long Millgate from 9 to 16 yards, the purchase of the property required for the purpose being now in progress. When the projected change has been entirely

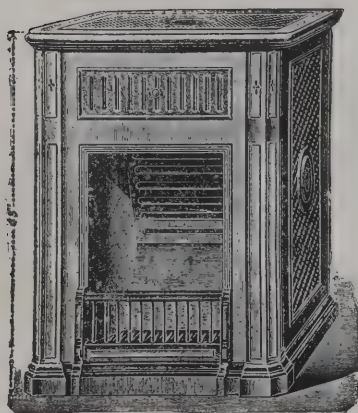
effected the city will be in possession of a fine new thoroughfare 16 yards wide, extending from Corporation Street to Charter Street.

At the Knott Mill end a great improvement has been accomplished in Whitworth Street West during the year by the reconstruction of the canal tunnel running under Deansgate, and the provision of a towing path under the street level in lieu of the boats being worked through with boat hooks. The work was of considerable magnitude. It was carried out in Whit-week at a cost of over 10,000 $\frac{1}{2}$. Its completion has been the means of allowing the whole width of Whitworth Street to be constructed to the one level, and further of providing a fine street area at this point. In Whitworth Street West, between Knott Mill and Gloucester Street, the Corporation have recently sold several plots of vacant land along the line, but there are others still in the market. Incidentally it may be mentioned that the Corporation have now disposed of the whole of the vacant land along Deansgate, although several plots still remain for sale in the neighbourhood of Quay Street and New Quay Street.

Newton Heath district is practically divided by the Rochdale Canal, and the means of access to the two sections has been by narrow bridges at Grimshaw Lane, Ten Acres Lane and Droylsden Road. During last Whit-week, when the traffic was suspended, and the water could be run off from the canal, these bridges were widened, that in Droylsden Road from 6 to 14 yards, the one in Grimshaw Lane from 3 1-2 to 14 yards, and the third, in Ten Acres Lane, from 5 to 14 yards. All the works relating to them are now completed, and the new bridges will no doubt much facilitate both vehicular and pedestrian traffic between the localities divided by the canal.

A much needed widening of Wilmslow Road at Fallowfield Brow has been commenced by the setting back to the new building line of the walls and gates of Oakley, the former residence of Mr. S. Baerlein, which is being transformed into a residential club, and this line will be continued to the present footpath in front of Grangethorpe. The large trees, whose preservation was the subject of much public discussion, have been carefully protected on the new footpath. At the base of each of the trees seats of a rustic type have been provided, and now that the citizens are able to see what the Corporation intend to do on this portion of the road they will probably admit that the "City Fathers" are really not the vandals that by some they were imagined to be.

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TREES IN STREETS AND ROADS.

A REPORT has been prepared by Mr. G. B. Simpson, of Horsham, on the roadside trees at Worthing, the cutting and pruning of which have given rise to a good deal of adverse comment lately. He says that many trees were planted too closely, and others are not fit for the purpose they are intended for. These latter ought to be cut down and cleared away at once, and other trees, where necessary, should be planted in their places. It is always understood that when trees are cut or pruned it is either to attain some particular shape or for fruiting purposes, but Mr. Simpson cannot conceive for what reason the limes in Homefield Road have been cut, or what shape trees they are intended to be trained to. Some instructions, he assumes, must have been given for such wholesale slaughter, but it will, he says, take years for them to look like natural trees again. In Farncombe Road some of the trees are cut off level on top, but had each other tree been taken down and the remainder carefully thinned out, it would have been a great improvement on the present mode. The trees having been so long neglected, it requires rather drastic measures to bring them within bounds, but what shape, Mr. Simpson asks, are they eventually to be? There are but few trees, the report proceeds, except in one or two roads, at any regular distance apart. This is in some cases caused by cross-roads and entrance-gates, but the height of pruning off the branches from the ground might be uniform instead of varying, as now, from 7 to 18 feet. The roots also should be looked after; in some instances the pavement is too close to the tree and will not allow of swelling and water getting to the roots.

Passing on to give his own opinions as to how the work of planting and attending to roadside trees should be carried out, Mr. Simpson says the shape of trees for roadways should be pyramid tops on straight stems. Trees should also be trained as much as possible to copy nature, each variety having its special requirements as to pruning. No trees should be planted nearer than 25 feet apart, and should the houses be close together 35 feet apart diagonally, but discretion must always be used both in distances and the variety of trees. A birch, acacia or Cornish elm, for instance, would never spread like a chestnut, sycamore or plane, and hence would not take up the same amount of room or air space. In planting young trees choice should only be given to those trees having straight stems with perfect leaders; clean, well-grown stuff with fibrous

roots. This, Mr. Simpson says, has not been done at Worthing, and many trees lately planted are not worth the labour used or the stakes supporting them. With regard to pruning, Mr. Simpson suggests that all trees should be done twice a year. With proper tools, a little knowledge and proper instructions one can train and keep any tree in bounds, but one must start when the tree is young, and if regularly done no one will notice that they have been cut. Some of the elm trees, Mr. Simpson remarks, have been well and properly cut, but require further attention by cutting out the superfluous young shoots, and leaving only those that are required to make permanent branches.

It is not advisable to plant trees in business roads without very wide pavements, but if it is done the trees should be kept 3 feet from the kerb and protected from hungry horses, of which, Mr. Simpson incidentally observes, there must be a lot in Worthing, as there are "but few trees that have not been gnawed and damaged by them in the town." The trees suitable for road planting in Worthing, Mr. Simpson says, are elm, lime, sycamore, maple, sorbus, birch, acacia and beech, but in selecting the varieties, the position must be taken into consideration; elm will stand the most wind, and the others will do where sheltered.

CROMER CHURCH.

THE new Baptist church at Cromer, which was opened on the 1st inst., is situated between the gangway and Brook Street. The building, which is in Gothic style, makes a handsome addition to the public edifices of the town. With the space at their disposal, the architect, Mr. A. F. Scott, of Norwich and Cromer, and the contractors, Messrs. Girling & Smith, of Cromer, have put up a very ornate structure. It is built of red brick with Cossey ware dressings and slated roof. It has a street frontage of 32 feet. A pair of wrought-iron gates at the entrance lead into a small vestibule, from which access to the main building is had through folding doors at either side. This has a total length of 53 feet, with an average depth of 22 feet. Above the vestibule is a spacious gallery, with ornamental iron railing. The building has a carved panel ceiling, with a lead-glazed dome-light. There is a considerable fall in the floor, the pulpit at the far end being lower than at the main entrance. From the vestibule an iron staircase connects with the gallery. Including floor and gallery, the seating capacity is about 300. The pews



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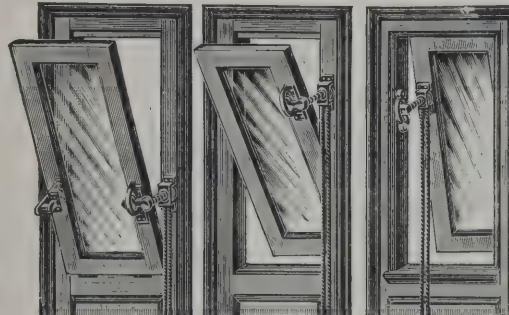
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8/8	Iron	4 in. 9/6
9/8	Iron	5 in. 11/-
11/8	Iron	6 in. 13/-
13/8	Iron	7 in. 15/-
15/8	Iron	8 in. 18/-
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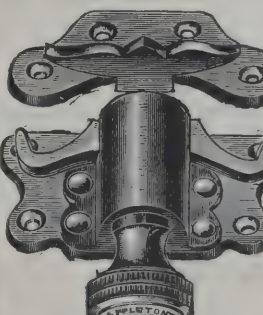
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5760	Brass	5 in. 54/-
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are about 15 feet long. A new feature of the seating is that down both aisles a number of folding-back seats are placed. These can be put up and down at will, and when in use there is ample space for persons to pass along. The idea originated with the builders, Messrs. Girling & Smith, who are taking steps to have the seat patented. Ordinary wood-block flooring has been laid, and the furnishing throughout is in pitch pine. The heating is done by the well-known independent dome-top boiler. The chapel is lit by four large two-light and one small three-light gas pendants. The walls are panelled with elliptical arches, and the gallery is divided from the main building by the same type of arch. The baptistery is placed between the pulpit and the first row of pews. It is approached by a flight of fine white marble steps. In size it is 12 feet long by 4 feet wide and 3 feet 6 inches deep. The sides are plain white glazed tiles, and the floor consists of ribbed glazed ones. At the front of the building are five ruby-tinted glass windows, one large and four of them small. Above the entrance are the words, "The meeting house of the Baptist Church." At the rear, connecting with Surrey Street, is the vestry, and above rooms well adapted for Sunday-school work.

THE WARRINGTON WATER SUPPLY.

MR. JAMES DEAS, the Warrington water engineer, has made the survey and completed the designs for the proposed Daresbury storage reservoir. In an exhaustive report he points out that the present trade supply is derived from the Appleton reservoir, which has not anything like sufficient capacity to store all the water flowing off its own watershed of 520 acres. The Appleton reservoir is supplemented by the discharge from a catchwater conduit tapping an additional area of 820 acres of the watersheds of the Daresbury and Hatton brooks, so that it will be seen that during the winter the supplementary supply merely passes over the waste weir of Appleton reservoir as flood water. The supplementary conduit being rather leaky, there is a risk of that supply not being fully available. The Appleton reservoir, constructed with a capacity of 62,000,000 gallons, is much silted up, and as part of the water cannot be drawn off, and the bank is not perfectly sound near top-water level, the available capacity does not exceed 50,000,000 gallons. They were now working above the real capacity of the works. The Corporation executed an agreement with Sir Gilbert Greenall for the construction of a reservoir on Danesbury Brook, and he (Mr. Deas)

recommends the construction of the reservoir for the following reasons:—

(a) The water to be obtained is particularly valuable for various purposes required by manufacturers, for which purpose Winwick water is most unsuitable; in fact, manufacturers will not use Winwick water at all.

(b) The Appleton works are at present discharging at their maximum capacity, and, with the increase of the town, will soon be unable to cope with the demand; and as the new reservoir will take four years to construct and one year to fill with water, and it will be one year from this date before it can be commenced—making a total delay of six years—it is imperative that extensions of the supply be made at once.

(c) Under the agreement with Sir G. Greenall, the reservoir must be completed by 1907.

If the construction is delayed for any length of time the Corporation would be put to enormous expenditure for the complete overhauling of the Appleton reservoir, construction of additional filter beds, alterations on the distributing main in the town, and other improvements. The capacity of the proposed reservoir would be about 190,000,000 gallons, and the cost is estimated at 70,000*l*.

The water committee have resolved that the report and plans be adopted, and the matter will come before the Council for confirmation.

CHATHAM DOCKYARD.

THE Admiralty have under consideration an important scheme for constructing a new basin at Chatham on a considerable scale, for the better accommodation of the warships attached to that port. The site provisionally selected is on the north side of the fitting-out basin, and communication with the river Medway could be easily effected. Each of the three basins already in existence has a water area of about 26 acres, but the accommodation thus provided is altogether inadequate, and has been found necessary to moor certain of the ships in some of the reaches of the Medway. Recourse to this makeshift has proved unsatisfactory, and is objected to by the shipping using the river—hence the project for constructing a new basin of much greater capacity than either of those now existing. The new basin, which will have a water area of about 60 acres, will probably be included in the next Navy Estimates.

The authorities are greatly disappointed about the new dock at Chatham, which it was expected would be completed

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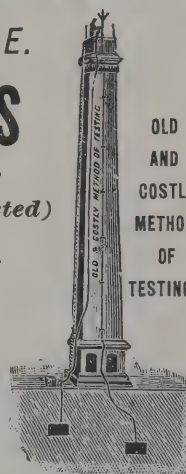
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very shortly. The delay, however, has been quite unavoidable, and arose from circumstances which could not be foreseen. Instead of being able to concentrate their attention upon the completion of the dock, the contractors have for several months been compelled to virtually restrict their energies to the task of repairing the wall of the adjoining basin. The "blow" in this wall caused the new dock to be flooded, and in order to stop it it has been found necessary to construct an additional dam right out round the defective portion of the wall; to cut what is technically known as a "grip" right through the wall itself and to close pile it. The object of the piling is to prevent the water getting through beneath the foundations of the wall. The work has been of a most difficult nature, and has been mostly performed by divers. The water in the dock has been gradually lowered by means of powerful pumps, but no attempt will be made to clear it altogether until the "blow" has been effectually stopped.

Directly the new dry dock is finished, another one will be begun. The necessity for docks 600 or 700 feet in length is very pressing. At the present time there is only one dock at Chatham Dockyard capable of receiving vessels 440 feet in length, the other three docks being only able to take in vessels 405 feet in length.

Whilst accommodation is being provided at Chatham for the reception of battleships and first-class cruisers of the largest type, the Admiralty have also furnished the means for producing these giant ships. A new building slip has been constructed, with machinery shops and storehouses, and will be ready for use directly the huge derricks now being erected are in position. Labour-saving machinery of the most improved pattern has been installed in the shops, and the motive power will be electricity. The total cost of the new building slip and its adjuncts and accessories has been about 150,000%.

HEAT RESISTANCE OF BUILDING MATERIALS.

At the recent meeting of the American Society of Mechanical Engineers a paper was presented by Mr. William Kent proposing the use of the reciprocals of the values of heat conductivity of substances in order to facilitate the comparison of different combinations of the substances. As stated in the report of the convention, he makes the co-efficient of heat resistance or heat insulating power of a substance equal to unity divided by the number of British thermal units trans-

mitted in one hour by a slab 1 square foot in area and 1 inch thick per degree Fahrenheit of difference of temperature between the two faces of the slab, both surfaces being exposed to still air. In this way the total resistance of a combination can be indicated by the addition of the several resistance co-efficients. The author points out, however, that while the co-efficient is thus a constant quantity for a given substance, it can only be so considered when the differences in temperature of the air on the two sides of the slab are small—say, less than 100 degs. Fahr. When the temperature range is great, experiments on heat transmission indicate that the quantity of heat transmitted varies not directly as the difference in temperature but as the square of that difference.

The question of the effect of surface resistance when the surface is in contact with air or with another body, the author treats as follows:—"Authorities on the subject of heat transmission generally agree that the resistance to the passage of heat through a plate consists of three separate resistances, viz. the resistances of the two surfaces and the resistance of the body of the plate, which latter is proportional to the thickness of the plate. It is probable also that the resistance of the surface differs with the nature of the body or medium with which it is in contact. Thus a very rough surface on a metal plate would be likely to transfer more heat to adjacent air than a smooth surface would, since it has a greater area in actual contact with the air, while two rough surfaces of metal touching each other would transmit from one to the other less heat than two smooth surfaces."

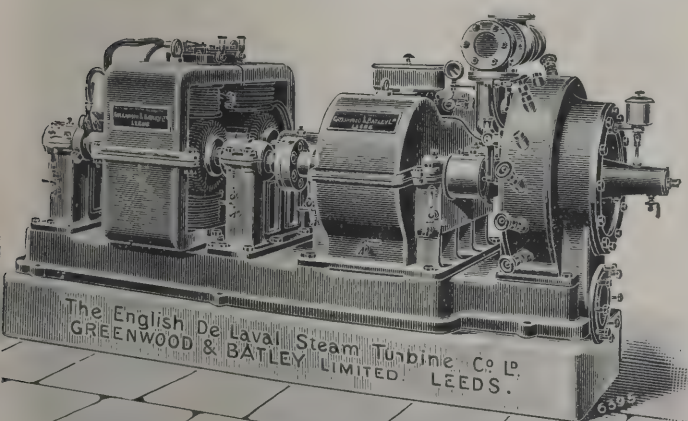
He has computed the figures for heat resistance of several insulating substances from the figures of conducting power given in a table published by Mr. John E. Starr in a paper on "Insulation for Cold Storage," published in *Ice and Refrigeration* for November 1901. Mr. Starr's figures are given in terms of the British thermal units transmitted per square foot of surface per day per degree of difference of temperature of the air adjacent to each surface. The author's figures, the co-efficients of heat resistance, given in the second column of the accompanying table are calculated by dividing Mr. Starr's figures by 24, to obtain the hourly rate, and then taking their reciprocals.

"Analysing some of the results given in the last column of the table, we observe that, comparing Nos. 2 and 3, 1 inch added thickness of pitch increased the co-efficient 0.74; comparing Nos. 4 and 5, 1½ inches of mineral wool increased the co-efficient 1.11. If we assume that the 1 inch of mineral

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wool in No. 4 was equal in heat resistance to the additional $1\frac{1}{2}$ inches added in No. 5, or 1.11 reciprocal units, and subtract this from 5.22, we get 4.11 as the resistance of two $\frac{7}{8}$ -inch boards and two sheets of paper. This would indicate that one $\frac{7}{8}$ -inch board and one sheet of paper give nearly twice as much resistance as 1 inch of mineral wool. In like manner any number of deductions may be drawn from the table, and some of them will be rather questionable, such as the comparison of No. 15 and No. 16, showing that 1 inch additional sheet cork increased the resistance given by four sheets 6.67 reciprocal units, or one-third the total resistance of No. 15. This result is extraordinary, and indicates that there must have been considerable difference of conditions during the two tests."

Heat Conducting and Resisting Values of Building Materials.

Brick Wall: Thickness.	Cond.	Res.	Revised.	
			Res.	Cond.
4-inch . . .	0.68	1.47	1.50	0.667
8-inch . . .	0.46	2.17	2.30	0.435
12-inch . . .	0.32	3.03	3.10	0.323
16-inch . . .	0.26	3.85	3.90	0.256
20-inch . . .	0.23	4.55	4.70	0.213
24-inch . . .	0.20	5.00	5.50	0.182
28-inch . . .	0.174	5.75	6.30	0.159
32-inch . . .	0.15	6.67	7.10	0.141
36-inch . . .	0.129	7.75	7.90	0.127
40-inch . . .	0.115	8.70	8.70	0.115

Wooden-beam construction, planked over or ceiled:—

	Cond.	Res.
As flooring	0.083	12.05
As ceiling	0.104	9.71

Fireproof construction, floored over:—

	Cond.	Res.
As flooring	0.124	8.06
As ceiling	0.145	6.90
Single window	1.030	0.97
Single skylight	1.118	0.89
Double window	0.518	1.93
Double skylight	0.621	1.61
Door	0.414	2.42

The author has also calculated the co-efficients of heat resistance from the heat transmission figures of various building materials, as given by Mr. Alfred R. Wolff, based on German experiments. These values are reproduced in a table herewith, the first column giving the conductance in British

thermal units per hour, and the second, the reciprocals, or heat resistances. It will be noted that there is an irregularity of the differences in the value of the resistance for each increase of 4 inches in thickness of the brick walls, which the author holds to indicate a difference in the conditions of the experiments. He finds the average difference is 0.80, and that the approximate formula for the resistance is $0.70 + 0.20 t$, in which t is the thickness in inches. In the third and fourth columns are given the revised values of the resistance and conductance respectively, ascertained in accordance with his formula:—

Heat Conducting and Resisting Values of Different Insulating Materials.

	Conductance.	Resistance.
1. $\frac{5}{8}$ -inch oak board, 1-inch lampblack, $\frac{3}{8}$ -inch pine board (ordinary family refrigerator) . . .	5.7	4.21
2. $\frac{7}{8}$ -inch board, 1-inch pitch, $\frac{7}{8}$ -inch board . . .	4.89	4.91
3. $\frac{1}{2}$ -inch board, 2-inch pitch, $\frac{3}{8}$ -inch board . . .	4.25	5.65
4. $\frac{3}{8}$ -inch board, paper, 1-inch mineral wool, paper, $\frac{3}{8}$ -inch board . . .	4.6	5.22
5. $\frac{7}{8}$ -inch board, paper, $2\frac{1}{2}$ -inch mineral wool, paper, $\frac{3}{8}$ -inch board . . .	3.62	6.63
6. $\frac{7}{8}$ -inch board, paper, $2\frac{1}{2}$ -inch calcined pumice, $\frac{3}{8}$ -inch board . . .	3.38	7.10
7. Same as above, when wet . . .	3.90	6.15
8. $\frac{7}{8}$ -inch board, paper, 3-inch sheet cork, $\frac{7}{8}$ -inch board . . .	2.10	11.43
9. Two $\frac{3}{8}$ -inch boards, paper, solid, no air-space, paper, two $\frac{7}{8}$ -inch boards . . .	4.28	5.61
10. Two $\frac{7}{8}$ -inch boards, paper, 1 air-space, paper, two $\frac{3}{8}$ -inch boards . . .	3.71	6.47
11. Two $\frac{7}{8}$ -inch boards, paper, 1-inch hair felt, paper, two $\frac{3}{8}$ -inch boards . . .	3.32	7.23
12. Two $\frac{7}{8}$ -inch boards, paper, 8-inch mill shavings, paper, two $\frac{3}{8}$ -inch boards . . .	1.35	17.78
13. The same, slightly moist . . .	1.80	13.33
14. The same, damp . . .	2.10	11.43
15. Two $\frac{7}{8}$ -inch boards, paper, 3-inch air, 4-inch sheet cork, paper, two $\frac{3}{8}$ -inch boards . . .	1.20	20.00
16. Same, with 5-inch sheet cork . . .	0.90	26.67
17. Same, with 4-inch granulated cork . . .	1.70	14.12
18. Same, with 1-inch sheet cork . . .	3.30	7.27
19. Four double $\frac{3}{8}$ -inch boards (8 boards), with paper between, three 8-inch air-spaces . . .	2.70	8.89
20. Four $\frac{7}{8}$ -inch boards, with three quilts of $\frac{1}{4}$ -inch hair between, papers separating boards . . .	2.52	9.52
21. $\frac{7}{8}$ -inch board, 6-inch patented silicated strawboard, finished inside with thin cement . . .	2.48	9.68



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The Architect.

THE WEEK.

A NEW departure in the history of the Royal Institute was witnessed on Monday last, when the President, Mr. ASTON WEBB, was "At home" to a thoroughly representative gathering of members, from the oldest of Fellows to the most recent of Associates. Members of the Royal Academy and high-art men, district surveyors and quantity surveyors, specialists and general practitioners, City men and provincials, every shade of architectural activity to be found in the membership of the Royal Institute were present. To afford an opportunity for social intercourse amongst the members was the avowed object of the new President, and most successfully and completely was this object attained. The rooms were filled to their utmost capacity, friends and acquaintances who had met in the past in the classroom, the studio, the Academy schools, again clasped hands and revived the memories of auld lang syne. The isolation that is, for the most part, the general experience of the architect in his everyday life was exchanged for the delights of companionship and good fellowship. The entertainment was of the simplest character, light refreshments and tobacco, and a deeply interesting collection of drawings of the late Mr. J. F. BENTLEY were all the extraneous adjuncts of the function—no band, no speeches, no formal reception were needed to supplement the camaraderie that was the keynote of the evening. Every one seemed to meet some one with whom to chat, no one seemed bored, all were contented and happy. Such meetings as this should go far to establish that *esprit de corps* which is so eminently desirable in the architectural profession, and if this is reached, the presidency of Mr. ASTON WEBB should be marked *cum creta alba* in the annals of the Royal Institute.

It is hardly to be expected that a young sculptor, although he may be only an apprentice, will have the deliberation of the ordinary working man. Rashness in such cases may be condemned, but it must also be deplored. Last May an apprentice to Mr. JOHN S. RHIND, the architectural sculptor, was engaged in carving at a new bank in Edinburgh. His field of operation was on the upper part of the building. He was not able to reach the stonework which was to be carved from the scaffold. He therefore obtained a joiner's trestle and stood on it. As it was unsteady he slipped and fell into the street, where he was fatally injured. His father brought an action claiming 500*l.* damages for his loss, and alleged that the insecure state of the scaffolding which was not protected by a caging was the cause of the fatality. It was pleaded on behalf of Mr. RHIND that a caging was not then necessary, that the scaffolding was quite secure, and that the accident arose from the deceased voluntarily putting a joiner's trestle on the platform and standing on the top of it, instead of waiting until the foreman properly raised the scaffold. The case was heard by Lord M'LAREN, and the jury returned a verdict for the defendant, Mr. RHIND. The young man's fate should be taken as a warning, for as sculpture is coming into favour it will be well to avoid creating the prejudice against the art which arises from fatal accidents.

As Irish gentlemen were never remarkable for encouraging art, it is no wonder that doubts should be raised about some of the family portraits which are to be seen in the first winter exhibition in Dublin. One represents the Right Hon. ANTHONY MALONE, and is ascribed to Sir JOSHUA REYNOLDS. Two members of the executive committee, one being Mr. OSBORNE, the portrait painter, opposed its admission on the ground that it was no more than a bad copy of a faded original. Mr. LANE, who got up the exhibition, has considered it to be his duty to bring forward some evidence on the subject. According to him, the Right Hon. ANTHONY MALONE, of Baronstown, Prime Serjeant and Chancellor of the Exchequer in the Irish Parliament, died in 1776, about a year after his portrait was painted by REYNOLDS (1774-75). In his will, proved July 19, 1776, he leaves his personal estate, which included his pictures, to his nephew, RICHARD

MALONE, created Baron SUNDERLIN, who died in 1817. The latter was succeeded by HENRIETTA MALONE, of Baronstown, whose will was proved in 1825, and she in her will specifically refers to a "picture of the late Right Hon. ANTHONY MALONE," "painted by Sir JOSHUA REYNOLDS," and thereby gives her sister, CATHERINE MALONE, a "life-use" in the picture, a RICHARD MALONE to get it after CATHERINE'S death. CATHERINE MALONE in her will, proved June 23, 1831, refers to "a picture of the late Right Hon. ANTHONY MALONE, painted by Sir JOSHUA REYNOLDS." RICHARD MALONE, in a codicil, which, with his will, was proved on October 25, 1834, bequeaths all the pictures and plate left to him by Miss CATHERINE MALONE, deceased, "to his sister, ALICIA O'CONNOR, of Baronstown," who, on her brother's death, resumed her maiden name of MALONE. She in her will, proved 1866, bequeaths all her books and the pictures of the MALONE family to her cousin, the Right Hon. Colonel F. PLUNKETT DUNNE, of Brittas, Queen's County, where the picture in question was ever since hung beside the engraving by J. R. SMITH in 1778. Colonel F. PLUNKETT DUNNE was succeeded by his brother, EDWARD M. DUNNE, J.P., whose son and heir, FRANCIS PLUNKETT DUNNE, was father to the Misses DUNNE, now owners of Brittas. It is not often so circumstantial a history of a picture is to be obtained. If such evidence was always needed we are afraid there would be few winter exhibitions in Burlington House. REYNOLDS was acquainted with the MALONE family. EDMUND MALONE, the commentator on SHAKESPEARE, was one of the painter's executors, and brought out the posthumous edition of his works. There seems to be no mention of the portrait in any of the lists of REYNOLDS'S pictures which were published after his death, although SMITH'S engraving necessarily was derived from such a work.

THE announcement of openings in the Procuratie Vecchie in Venice is enough to excite a panic in the mind of the most courageous citizen. That building is so connected with others there cannot fail to be apprehension that if it should succumb various other structures on the Piazza must share the same fate. Then what becomes of the centre of Venetian life? The Procuratie Vecchie is the oldest of the buildings of the Piazza, which many of the observers consider to be only one palace. It was constructed about 1500 by BARTOLOMEO BUONO. The procurators were originally no more than the churchwardens of the basilica of St. Mark. By degrees their power was extended until they became almost like the old Chancery Court in England. They embodied the equity of the Republic. It was at one period the custom to select the Doge from among the members. In the sixteenth century it was necessary to provide further accommodation for them, and the Procuratie Nuove was commenced under the direction of SCAMOZZI; but it is believed that SANSOVINO had much to do with the preparation of the design. The ancient library which is connected with the palace was declared by PALLADIO to be the richest and most ornamented that had been erected since the time of the ancients. The Procuratie Nuove was converted into a palace when EUGÈNE BEAUHARNAIS was Viceroy of Italy. The buildings have been allowed to fall into the occupation of several people. They are not likely to leave their apartments so long as they have a prospect of compensation. At any cost repairs will have to be undertaken, and, once embarked upon them, there is no saying where they may end.

ON the 2nd inst. we referred to the efforts of the Steyning Board of Guardians to make unusually economical terms with their architects, Messrs. CLAYTON & BLACK. The subject, which was postponed for a fortnight, again came up for consideration on Tuesday. A letter from the architects was read expressing willingness to meet the views of the guardians. But the spirit of opposition which had been raised did not become quiescent. One guardian cavilled with the letter because there was no reference to other buildings than those of the infirmary, and because a price had not been named for the plans instead of the usual architects' fees. Another representative of economy maintained that they should not be tied to one firm, but eventually the letter from the architects was approved.



"ASTRONOMY."—BY H. S. MARKS, R.A.

THE ACADEMY WINTER EXHIBITION.—II.

THE three examples by JOHN SELL COTMAN in the exhibition must excite surprise when it is recalled that so able an artist was compelled to accept the position of a drawing-master, as, with all his versatility and conscientiousness as a painter, he was unable to live by his art. Could it have been that his numerous etchings of buildings made people imagine he was only an architectural draughtsman, and was therefore devoid of any colour sense or skill in composition? Every work of his which has been exhibited of late years may be regarded as a protest against the defective judgment of amateurs and the public. The first picture, *Homeward Bound*, a three-masted vessel in full sail, is so effectively foreshortened, it seems almost to be moving towards the spectators. The vessel stands out with greater force through contrast with the stormy sky in the background. His *St. Malo* is over 7 feet in height. The view was taken in the old days before the construction of the costly harbour. The fortifications are built of a reddish sandstone, and COTMAN's scheme of colour was adopted from them. He used red in the sails as well as in the boats, and for the shirts and caps of the men. It may be that so much red needs more relief than was afforded by the distant sea, for the tide is supposed to be out, but the effect is remarkably impressive. *The Heath Scene* was evidently a transcript of actuality, for the three windmills would hardly be placed so closely in a composition. The ground is suggestive of Downs thinly covered with grass: the gravel beneath is almost too emphasised in the roadways. The three works suggest how various were COTMAN's capabilities, and thirty pictures no less diverse in treatment could easily be gathered together.

There are two paintings by BONINGTON: one dated 1825 depicts a seashore with in the foreground three little children of the kind the artist was fond of representing; near them he has introduced some ducks which seem almost out of place; in the distance there is the sea with ships. In the *Boulogne Fish Market* we have an animated scene; on the left side are houses and the sea is introduced on the right. The aspect differs much from the Boulogne of the present day. BONINGTON was only twenty-eight when he died of consumption at Pentonville, but as he had the advantage of twelve years' study and practice in France, and was a favourite with GERICAULT, DELACROIX and GROS, his astonishing success may be considered less remarkable. It is curious how well he exemplifies the revolt against academicism. The approved rules for composition which then prevailed had no influence upon his works, and as one of the representatives of the principles of liberty, it is no wonder BONINGTON is so much admired by Frenchmen. There is a tendency to undervalue the works of Sir A. W. CALLCOTT, but the sea-piece which was exhibited in 1826 with the descriptive title "Dutch fishing-boats running foul in the endeavour to board, and missing the painter rope," is a masterpiece of wave-painting. He is mostly known by his Italian landscapes, and his attempts at figure-painting could not be thought successful. But the figures he introduced in his landscapes, and of which the sailors in this painting are good types, certainly did not

justify RUSKIN to say that they sicken the heart of any man who knows what figure-painting should be. JOHN JAMES CHALON has suffered through being confounded with his brother ALFRED, who was the painter of society, opera singers and danseuses. The *Gipsy Encampment* is very bold both in the trees and sky; the painting belongs to the Royal Academy. The *Baggage Wagon*, by WILLIAM J. MÜLLER, was one of the last works produced by him. Like BONINGTON, he was a young man, for he was only thirty-three at the time of his death. He promised to be a second CONSTABLE, and this picture might be compared with the *Opening of Waterloo Bridge*. The title hardly indicates the variety of work which is in the painting. In MÜLLER's time soldiers wore white trousers in addition to red coats, and we see some companies of them marching along a road through a flat country, women and stragglers being found in the waggons. In spite of so much red the scene is dreary, and the rainbow in the sky indicates the character of the weather. MÜLLER's *Eel-Bucks at Goring* is not complete, for he wrote on the back, "Left as a sketch for some fool to finish and ruin;" but few would care to see it touched. Here again he introduces a stormy sky and rainbow. The scene is painted with great vigour, and it has all the characteristics of the topography of the place. CRESWICK's *Haunt of the Kingfisher* is a rocky pool overhung with foliage, and on one of the stones a bird stands; it was painted in 1847, when the artist was in his prime. He succeeded in what he attempted; the spot is confined, for it is one which an amateur photographer would select. Sunlight is only suggested by glints of light on the stones, but the treatment imparts an air of reality to the pool which might be impossible if a larger expanse had been introduced. It is doubtful whether any admirer of the water-colours of DAVID COX would at first sight recognise *The Vale of Clwyd, North Wales*, but in 1849 he may be said to have abandoned his old methods for oil-painting. It is a large canvas measuring 36 by 55 inches, is carefully painted, and the picture is in fine condition. But somehow it does not suggest the boldness of treatment which is associated with the artist's name. The portrait of JOHN GIBSON, the sculptor, by Sir EDWIN LANDSEER, suggests the dreamer and the silent oracle who used to listen so quietly to the disquisitions on art by his young rivals in Rome. Of the two works by DE LOUTHÉBOURG *The Wreck* is the more striking, although the rocks are conventionalities and the waves are foam and fury.

Four masters of the British Schools lately deceased are allowed the water-colour room and the black-and-white room. By JOHN BRETT there are ten paintings. He is not one of those artists whose reputation can be increased by an assemblage of his works. He prided himself on his geological knowledge. A granite islet, with the sun shining on it and a clear blue sea around, when painted by him is a pleasing picture. But to see granite islet after granite islet does not add much to our pleasure. JOHN BRETT rarely cared to paint rocks which were black, although they possessed much interest. When it was arranged to exhibit his works care should have been taken to obtain some of his inland scenery.

By the late HENRY MOORE there are also ten paintings. As an artist he likewise had his limitations. The sea to him must always be of a peculiar blue colour, and it is astonishing how little variation there is to be seen in the character of his waves. It might easily be concluded that he never was at sea in dirty weather, and the Channel passage, although he might select the long route from New-haven to Dieppe, was restrained on his behalf. Those who are familiar with his sea-pieces will find much pleasure in his flower study of chrysanthemums, in his Glenorchy, and especially in his Highland cattle. The artist was likely to have derived enjoyment from the change, although patrons might insist on sea-scapes.

There are five examples of the late VICAT COLE, three of them being subjects derived from the Thames Valley, and the two others cornfields in Surrey. They are typical works, although they are not of the size of the more ambitious productions of his later years.

The most interesting examples are those by the late MATHEW RIDLEY CORBET. He was not adequately appreciated during his lifetime, and the paintings are evidence of the ability of the man to whom compensation is no longer possible. They are mainly Italian scenes. In style they are unlike the majority of the Italian landscapes which during a long course of years have been shown in English galleries. RIDLEY CORBET knew the preconceived ideas which people had about Italian characteristics, but he was indifferent to them. No painter, for instance, before him suggested that in Italy there existed pools surrounded with rushes, or that houses might be little better than boxes in shape. The studies in the black-and-white room will suggest the pains taken by him to insure accuracy in his paintings. His landscapes are so fresh we hope that any which are for disposal will be acquired for English public galleries. They are among the chief attractions of the winter exhibition, and by themselves are sufficient to repay frequent visits.

THE ARCHITECTURE OF GREECE AND ROME.*

EVERY reader of "The Architecture of the Renaissance in Italy," by the late WILLIAM J. ANDERSON, is likely to feel regret on taking up the companion volume on Greece and Rome, which he did not live long enough to complete. Mr. PHENÉ SPIERS is no doubt more than competent to take Mr. ANDERSON'S place, since he possesses a longer acquaintance with Classic architecture than his friend, whom he aided, as many others, as a guide. But it can never be expected that a book which to a large extent is marked by the idiosyncrasy of the writer can retain its original character in the parts which are inspired by a mind of a different class. Mr. ANDERSON could not be accepted as a matured authority on the art of the past. Indeed, one of the charms of his writing for students is to be found in the circumstance that he was essentially a student and made no pretensions to his own infallibility. In the introduction, for instance, to the second edition of his book on Italian Renaissance, he says:—"In the interval that has elapsed since I first wrote on the subject, not only has my point of view changed, but light from the study of kindred subjects has been shed upon it, so changing its aspect to myself that I felt inclined to rewrite the whole book, or, at all events, parts of it." He stayed his hand, however, as he feared that the book would lose its peculiarity as a record of impressions at a particular period of mental growth. So honest an acknowledgment was not without its use. It is well for a student of architecture to learn from the example of his teachers that changes of opinion about the art are inevitable with all who are likely to be competent to make advances, for no men are so little entitled to be considered as its representatives as those who insist on adhering to the routine of their days of apprenticeship and who believe that the notions then acquired are to be taken as universal dogmas.

For men who adopt such narrow views it may be doubted whether there is much advantage in having histories of architecture. During many years in England stereotyped forms were insisted on both by Classicists and Mediævalists because they were supposed to be warranted by historical evidence. Neither side would be willing to accept the theory advanced by DIGBY WYATT when he wrote, "All that human art has ever produced constitutes, as it were, a crude ore which must be submitted to the process of 'cupellation' before the pure and standard metal, the only menstruum for the future, can be satisfactorily evolved." WILLIAM ANDERSON was no less confident that history should not be regarded as a treasury of ready-made formulas which were to be acted upon with scrupulosity, as if to add to them or to take from them was a crime. As he declared, "If things do not happen fortuitously, the larger architectural design is not yet complete. . . . The nature of things that has made of the art manifestations of Greece and Rome and the Middle Ages, which at their moment of inception were apparently matters of caprice, accident, or at the most skilled human judgment, permanent facts moulding the whole course of the art expression of the Western world, continues to operate with cumulative purpose. . . . If there be confidence in human progress, advancement in the quality of the intellectual productions is implied, and whatever be the chaos and ruin in which we yet grope, the arts must one day give evidence of that progression." We find him also taking a sober view of the conditions under which art was pursued at various times. It has been often wished, and is so still, that we could get back such opportunities as existed in Florence for creating many-sided or universal artists, as if to be a specialist was little more than an artifice. Mr. ANDERSON when writing about BRAMANTE offered the following remarks:—

Architectural power seems from his days to have passed into the hands of the painters, who soon outnumbered the sculptor-architects of the Florentine school. This was not without its effect upon the art, and arose in part from the fictitious importance given at the time to the science of perspective, in which the painters were naturally more proficient. Not that it signified much in itself whether the way to the practice of architecture lay past the painter's easel or through the sculptor's "bottega," so long as the man qualified himself as an architect. It would be a mistake to suppose that, because a few of the greatest architects the world has seen found their way through the painters' and sculptors' studios, that therefore such a training must, at any period, best fit one for the work. These particular cases only show that special capacity under favouring circumstances will assert itself and find its true outlet. Many painters and sculptors of the era made poor architects, and hundreds of them never indicated any architectural skill whatever. The best of the architects were those who laid everything aside for their art, and became no longer painters and sculptors, but architects. It was so with Brunelleschi, and Bramante, too, seems to have laid aside his palette to give all his energy to the building art.

As the series of lectures began with those on the Italian Renaissance, we should have expected that the next series would treat of the works which were adopted as models by the Italians of the fifteenth century. They knew little of Greece, except from descriptions in ancient authors or those given by Greek scholars who found their way to some of the cities of Italy. One of WILLIAM ANDERSON'S expressions might be interpreted as meaning that we also had a peculiar interest in Roman work. According to him "we are all Romans, as our language, religion and law, as well as our arts, remind us; and have besides a large community of interest with the country which has been the leader and teacher of civilisation to modern Europe." He was not, however, destined to deal with Roman architecture in the manner he desired. So many remarkable discoveries occurred in Greece, it is not surprising that the Governors of the Glasgow School of Art, in which he lectured, should wish to see precedence given to Greek architecture. There was another reason which would be almost sufficient to cause a change in Mr. ANDERSON'S arrangements. Believing in the power of circumstances or conditions of time and place, he would be desirous of explaining how far adaptability prevailed in Greece. As he said, nothing is more likely to wean the architectural student from the misuse or feeble copyism of characteristics than

* *The Architecture of Greece and Rome.* A sketch of its historic development. By the late W. J. Anderson and R. Phené Spiers. (London: B. T. Batsford.)

a grasp of the relation of their surrounding circumstances. Hence, he added, "buildings in their plan and design, rather than their details or furnishings, will be studied. Architecture is more than pottery or painted decoration—the work of a nation, the symbol of a religion, the house of gods and man, greater than the idols and ornaments therefore." His aim was, however, only partially realised. He was able to treat of the Mycenaean Period in Greece, the Archaic Period in European Hellas and in Asia Minor, with the culmination in Athens. But, says Mr. PHENÉ SPIERS, "for the descriptions of the monuments in the fifth, sixth and seventh chapters on Greek architecture, for the Etruscan, and for the whole of the Roman architecture, I am entirely responsible."

By starting with Mycenaean art the difficulty of dealing with the earlier mythical period is overcome. At the time of writing the importance of Crete had not been demonstrated. The daring restorations of CHIZEZ are adopted. It is stated that the debt to the Mycenæans includes the antæ of the Greek temple and the inclined sides of the doorways, "while the fluting of the columns, the triglyph frieze, the patera, the rosette, the palmette and the spiral all are forms upon which the later Hellene has got to exercise his refining genius and hand down ennobled to later generations."

It is assumed that the megaron of Tiryns was the first type of the cell or shrine of the god, and that next a peristyle was built around it. The massiveness of the early columns is ascribed to timidity as well as ignorance of the strength of stone in supports. It is not suggested that the Ionic order is regarded as subsequent to the Doric on account of age. Both originated in Mycenæ. But one or other was preferred according to the social character of the temple builders. Concerning the Ionic capital we are told:—

One thing seems plain, that the further we go back in our study of the Greek Ionic Order the more probable appears the theory of a wooden origin, the spirals being painted or scratched on to the block which distributed the load, and the archaic spirals recently discovered at Athens, and now in the museum of the Acropolis, would all seem to bear out the theory, being simple masses or blocks, with the spiral traced or painted on. In some of the early Ionic capitals the volute and the echinus moulding are carved out of different blocks, the latter, exemplified in the archaic temple at Samos, being, in fact, the crowning moulding of the shaft, and carved out of the upper drum of same. In later developments the echinus is partially sunk in the cushion of the volute, as is the case with the capital now in the British Museum which belonged to the archaic Temple of Diana at Ephesus. In this case the bead only is carved out of the shaft block. This capital shows the undeveloped nature of the spiral bead of the volute, of the palmette ornament which marks the junction of the volute and the echinus, and of the carved egg-and-tongue. The peculiar design of the latter, however, and the fact that its upper portion recedes, suggests a different origin from that hitherto assumed, viz. that the ornament which in the Doric capital was painted, in the Ionic was carved.

There is a variation in treatment in the parts undertaken by Mr. PHENÉ SPIERS, which relate to Greece, Etruria and Rome. He rarely attempts summary views or conclusions. A large number of buildings are discussed separately, and much information has been gathered in order to enable the reader to realise their character. The restorations by prizemen of the Ecole des Beaux-Arts have been utilised in many instances. Besides serving the particular purpose as attempts to suggest the appearance and arrangement of famous structures, they will also help many people to understand a branch of architectural study which is not attended to in this country. Mr. ANDERSON'S work served as popular lectures in the first instance, and had therefore to be general, or it may be comprehensive, in treatment. Mr. PHENÉ SPIERS, having more experience with professional students, has been able to enter on details which would be out of place in an ordinary School of Art. For the same reason in describing Rome a chronological basis has been avoided. The different kinds of buildings are treated separately, such as forums, temples, basilicas, amphitheatres, baths, gateways, triumphal arches, aqueducts, palaces, &c. The latest discoveries in Rome are described. An extract will suggest Mr. SPIERS'S manner of treatment. On the subject of the Colosseum, he writes:—

The exterior is divided into four storeys, the three lower ones with arcades, the walls between being decorated with the Tuscan, Ionic and Corinthian orders. The upper storey is unpierced except by small windows lighting the corridor underneath the upper range of seats or gallery, and its wall is decorated with Corinthian pilasters on lofty pedestals superimposed on the other orders below. Above the windows are three projecting corbels in each bay to carry the masts of the velarium, which rise through the cornice. The proportion of the lower order is poor and meagre, the column being nine diameters high and seven and a half diameters centre to centre. In consequence of the height of the vault over the ground floor corridor, the pavement of the corridor above is raised considerably above the cornice of the order, and an attic or dado is introduced, the cornice of which ranges with the first floor level; a similar arrangement exists on the upper floor. Under the columns the mouldings of the dado return on each side and constitute pedestals. It may be in consequence of these that the Ionic column is only eight and a half diameters in height, as also the Corinthian columns above. The results are very fine, and compensate for the pooriness of the ground storey. In consequence of the necessity for some protection to the first and second-floor corridors, solid balustrades are carried within the imposts of the arcades. The whole of the masonry is laid without mortar; the architraves are all vousoired and carried back into the solid wall. The complete entablature of each order is carried round without a break, and this and the sturdy nature of the semi-detached columns give a monumental effect to the Colosseum which it would be impossible to rival. The applied decoration of the orders, their superimposition and the jointing of the architraves in principle are all wrong, and should be condemned, but the portions of the external wall which remain, rising to their full height of 157 feet, and the splendid nature of the masonry, disarm all criticism and constitute the Colosseum as one of the most sublime efforts of Roman architecture.

It will be observed that in this description Mr. SPIERS does not hesitate to express unfavourable opinions on the character of the design whenever they are called for. The frieze of the arch of SEPTIMIUS SEVERUS is objected to for its want of depth in the frieze, by which the whole entablature seems to consist only of mouldings. The curious Silversmiths' Gateway is said to be one of the most debased conceptions of the period. On the other hand, features which are often overlooked in descriptions of Roman buildings are carefully noted. Much has been written about the Arch of Janus, because it consists of a double arch recalling the temple of the gods in the Forum. But M. CHOISY was the first to explain how the same centreing must have been used for both the intersecting groins. "These groins were each built in two rings of Roman bricks. As soon as one of them had set the hollow space between the two rings was filled in with concrete, and the centreing having been shifted round, the other double ring was constructed, butting on each side against the first groin." Throughout the chapters on Rome care is taken to give as much information as possible about methods of construction. The subject of planning also receives attention. In RICHARD BURGESS'S volumes on Rome there will be found a finely engraved plan of the Baths of Caracalla; it corresponds with one in Dr. MIDDLETON'S book which is reproduced in the volume before us. But the assignment of the different chambers is altered, and a comparison of the two will suggest various archaeological problems. The elaborate plan of the Palace of the Cæsars, by M. DEGLANE, is also suggestive of another most difficult restoration which still awaits solution. Several archaeologists have attempted to throw light on the subject, but without success. M. DEGLANE has had advantages which were possessed by none of his predecessors, for important excavations have been carried out during the past forty years on the Palatine Hill. But Mr. SPIERS has to say "the ingenious way in which the rooms vary in their form and proportions would be of greater interest if we knew for what purposes they were used, and how they were lighted; and the same applies to those of the northern portion of the palace, the most singular features in which are the narrow passages (fauces) between the chief reception halls." In many accounts of Roman buildings it has been taken for granted that imagination is to be allowed exercise. But in the chapters of the latest volume on them care is taken to point out the true character of the evidence.

There are 179 illustrations, and not a single one can be found fault with as either careless or unworthy of its pur-

pose. As representing the architecture of Greece and Rome they possess incomparable interest, and the consideration of them alone apart from the text is an intellectual treat. That such a work can be produced is a sign of the earnest interest which is now taken in architecture, and that interest must be still further expanded by Messrs. ANDERSON and SPIERS'S volume. It is such a work as many students of architecture and the Classics have vainly yearned for, and lost precious years in supplying its place.

THE ENCYCLOPÆDIA BRITANNICA.*

THE first article in the ninth volume of the new issue of the "Encyclopædia Britannica" which will engage the attention of men who have an interest in construction will be Professor EWING'S on the Strength of Materials. In it he describes some late forms of testing machines, but he adds that "of all recent aids to a knowledge of the structure of metals and their behaviour under stress perhaps the most important is microscopic examination." In declaring this the Professor is adopting the views of Dr. H. C. SORBY, who was often president of the Geological Society, and whose opinions about the structure of rocks were considered as impracticable. Strange revelations have been made in examining metals, one being the formation and growth of crystals. Professor EWING says:—

In many metals, however, a further effect of severe strain is to develop twin crystals, and this implies a rotation of one group of elements through a definite angle with respect to the other elements of the same grain. Excessively severe straining, as, for instance, the squeezing of a block of lead into a thin flat plate, is found to produce a crystalline structure in which the grains have a greatly reduced size; the slips have in that case gone so far as to cause divisions and interpenetrations of the crystals. Microscopic examination further shows that after severe straining the structure of a metal is far from stable, a fact which connects itself with what is observed in respect to mechanical quality. In some metals at least, and notably in lead, severe straining is followed, even at atmospheric temperatures, by a protracted crystalline growth which results in the formation of crystals which are relatively very large. A piece of ordinary sheet lead shows the effect of this growth well; it will be found, when etched, to consist in general of crystals enormously larger than any that could have survived the process of manufacture by rolling. A similar growth may readily be traced from day to day or week to week in a piece of lead which is kept under observation after being severely strained. The process of growth is greatly accelerated by raising the temperature. That some process more or less analogous to this goes on in iron and steel during the change which occurs when elastic recovery takes place after over-straining may be conjectured, though there is as yet no direct evidence on the point.

The microscope has demonstrated that metals used in construction should not be treated as homogeneous. They are made up of granules. The danger of the presence of sulphur in iron and steel by causing brittleness is manifested when it is seen that the sulphur finds its way between the grains, and thus breaks the cohesiveness.

There is a science also which relates to social cohesion which is no less important in construction, for the strongest materials will not serve if workmen are impracticable. In dealing with the subject of Strikes and Lock-outs, the author narrates cases where time and money were wasted, but happily he has to go back for some years to discover instances connected with the building trades which have caused much loss. In 1859-60, 1861-62 and 1872 there were strikes of building operatives in London. But the strike of 1891 among the carpenters, although it lasted twenty-four weeks, was unsuccessful.

It is shown by the article on Wages that increases have been allowed in the building trades in most parts of the world. In January 1886 the average weekly wages of carpenters and joiners in this country was 31s. 8d. and in July it was 31s. 2d. In 1891 the amounts had increased respectively to 33s. 9d. and 35s. 3d. In the United States

statistics have been collected for several years. In 1790 the pay of carpenters was 60 cents a day, in 1800 it was 70 cents, in 1810 1'09 dols., in 1820 1'13 dols. and from 1830 to 1840 1'40 dols. was the average. It was not until 1860 that carpenters received 2'03 dols. In one New York establishment the pay of carpenters was in 1843 1'50 dols. and in 1891 it had reached 3'50 dols., while the hours were reduced from ten to eight. The present pay for carpenters in Chicago and many other cities is said to be 3'40 dols. a day, but the prices for skilled workmen vary. While 4 dols. may be paid to a carpenter in a large city, he will receive not more than 2'50 dols. in a town in the vicinity. French carpenters outside the Department of the Seine in 1853 received 2'20 frs. a day, in 1874 the pay was 3'45 and in 1892 4'32. According to another official publication the wages in Paris of carpenters rose between 1875 and 1887 from 5 frs. to 7'50 frs. In 1806 the pay per hour was '30, in 1899 it was '90 fr. In Berlin the carpenters received 18 marks per week in 1802, and in 1891 the sum had grown to 24 marks. In Austria in 1894 the carpenters were paid 25'50 crowns. It is pointed out that in continental countries employers give gratuities, prizes, supplies, which have a tendency to lower wages.

The article on Surveying is divided into three parts—methods and instruments, geographical, and nautical. Allied to it is tacheometry, in which a large amount of work can be executed without the aid of a chain or tape. Photographic surveying has also been used with success in countries like Canada, where great stretches of land have to be reckoned with. Titan cranes, which are so advantageous in the construction of breakwaters and harbours, are described by Mr. W. PITT, C.E. There are two types, according to the way in which the horizontal arm is supported. Mr. PITT considers that "for loads over 40 tons combined with a radius of over 75 feet the cantilever type would now be more generally adopted." It seems almost incredible that marine works could at one time be constructed without their aid. The Titans enable such enormous blocks of stone or concrete to be used that the action of the waves against them is of little account.

Mr. G. F. DEACON contributes the article on Water Supply. As the engineer of the works for the supply of Liverpool he has had experience on a large scale. In the Vyrnwy Dam clay slate of the Lower Silurian formation with an ultimate crushing strength of from 700 to 1,000 tons per square foot was used, with Portland cement mortar and concrete in the joints. Some of the stones weighed 8 or 10 tons; those near to the water face were laid in finer mortar, and great care was exercised to make the joints impermeable. A few years ago a dam failed near Epinal through slipping, and many lives were lost. We are told "it is probably the only instance in which a masonry dam has slipped upon its foundations, and also the only case in which a masonry dam was actually overturned, while curiously enough there is every probability that the two circumstances had no connection with each other." Some of the blocks of masonry which were carried down the stream weighed several hundred tons. For purification on a large scale and without extravagant cost Mr. DEACON believes there is no material known which will supersede fine sand filtration if properly conducted.

Mr. F. FOX, the author of the article on Ventilation, is an advocate for the employment of mechanical force. In the ventilation of all large buildings three points have to be considered—the area of the floor to be provided for each person; the cubic capacity of the room required for each occupant; and the number of cubic feet of air per minute which must be brought in and then extracted for each individual. The following extract is given from the United States Text-Book on School Architecture:—

The amount of fresh air which is allowed to hospital patients is about 2,500 cubic feet each per hour. Criminals in French prisons have to content themselves with 1,500 cubic feet per hour. Assuming that we care two-thirds as much for the health of our children as we do for that of thieves and murderers, we will make them an allowance of 1,000 cubic feet per hour, or about 16 cubic feet per minute. Forty-eight children will then need an hourly supply of 48,000 cubic feet. Definite provision must therefore be made for withdrawing this quantity of foul air. No matter how many inlets there may be, the fresh air will only enter as fast as the foul escapes, and this can only find an outlet through ducts intended for that

* The new volumes of the *Encyclopædia Britannica*, constituting in combination with the existing volumes of the ninth edition the tenth edition of that work, and also supplying a new, distinctive and independent library of reference dealing with recent events and developments. The ninth of the new volumes, being volume xxxiii. of the complete work. (Published by the *Times*, London.)

purpose, porous walls and crevices serving in cool weather only for inward flow. What then must be the size of the shaft to exhaust 48,000 feet per hour? In a shaft 20 feet high, vertical and smooth inside, with a difference in temperature of 20 degrees, the velocity will be about $2\frac{1}{2}$ feet per second, or 9,000 per hour; that is, it will carry off 9,000 cubic feet of air per hour for every square foot of its sectional area. To convey 48,000 cubic feet, it must have a sectional area of $5\frac{1}{2}$ square feet.

An article on Ancient Troy, by Mr. D. G. HOGARTH, summarises the results of the recent explorations. It is admitted that no site can be brought into complete accordance with the topography suggested by HOMER. No less than nine settlements have been found superposed at Hissarlik. The first was a primitive settlement probably dating from the dawn of the Bronze Age; the second shows structures of various periods. It was supposed by SCHLIEMANN to be the Homeric Troy. In 1893 remains were discovered of structures which appeared to be contemporary with those of Mycenæ, and which are therefore more likely to be PRIAM'S Troy. Then followed a small settlement "which maintained itself all through the Hellenic age, till the Homeric enthusiasm of ALEXANDER THE GREAT called a city again into being on Hissarlik."

As usual, biographies of artists are interspersed with political, social, scientific and other articles. One architect, but an eminent one, is recalled, viz. Mr. ALFRED WATERHOUSE, who was born in Liverpool in 1830. He was a pupil of RICHARD LANE in Manchester. In 1859 he won first place in the competition for the Manchester Assize Courts, and in 1868 he carried off the prize for the Manchester Town Hall competition. In 1876 he was entrusted with the new buildings for Balliol College. In his mid-career, it is said, his style was "Gothic tradition—European rather than British—tempered by individual taste and adaptation to modern needs." The list of his works is remarkable not only for number but diversity. There is a sympathetic notice of Mr. G. F. WATTS, who was born in London in 1817, and was an exhibitor at the Academy as early as 1839. He won one of the prizes for the decoration of the Houses of Parliament in 1842 by his *Caractacus*, and in 1846 a first-class prize of 500*l.* for his "ALFRED inciting his subjects to prevent the landing of the Danes, or the first naval victory of the English." This last picture was described by THACKERAY as having more wind than any other picture in the world, and he good-humouredly wrote, "It is blowing everywhere and from every quarter. It is blowing the sail one way, the royal petticoat another, the cloak another, and it is almost blowing the royal hair off His Majesty's head." Mr. WATTS had to wait until 1867 for election as an Associate of the Academy. But in the course of the year he became an Academician. He has set forth his aims as follows:—"My intention has not been so much to paint pictures that charm the eye, as to suggest great thoughts that will appeal to the imagination and the heart, and kindle all that is best and noblest in humanity." Justice is also done to Mr. WHISTLER'S ability. It is stated that "in the future WHISTLER must be accounted, in oil-painting, a master exquisite, but rare. But the number and the range of his etched subjects, and the extraordinary variety of perception and of skill which he has brought to bear upon the execution of his nearly three hundred coppers, insure, and have, indeed, already compassed, the acceptance of him as a master among masters in that art of etching." Sir JOHN TENNIEL is another of the artists who find a place in the volume. A reproduction is given of one of his most successful designs, *Dropping the Pilot*. The masterly drawing of the numerous cartoons becomes more remarkable when it is known that for the figures the model was never used, and that the "wonderful observation has been conducted and his knowledge accumulated literally through a single eye, the other having been lost during a fencing bout in his youth." Notices are also given of several foreign artists.

The "Encyclopædia Britannica" has to comprise an universality of subjects. It is a severe trial of such a work to select the parts which can have professional interest for readers of the classes represented by this Journal. JOHNSON considered the omission of many terms of art and manufacture from his Dictionary was unavoidable, for, as he

excused himself by saying, "I could not visit caverns to learn the miners' language, nor take a voyage to perfect my skill in the dialect of navigation, nor visit the warehouses of merchants and shops of artificers to gain the names of wares, tools and operations." But those who consult a modern encyclopædia cannot or will not make allowances for the difficulties of acquiring information. The notices we have given may be considered as tests, and demonstrate that classes of subjects more difficult than those referred to by JOHNSON are treated with as much care as if they formed the essential parts of the "Encyclopædia Britannica."

THE EXCAVATIONS AT BURY ST. EDMUNDS*

LAST week we referred to the discovery of human remains beneath the floor level of the chapter-house of the Abbey of St. Edmundsbury. Sir Ernest Clarke, having examined them, gives the following description in the *Times*:—

Jocelin de Brakelond records, in what Carlyle calls his "private Boswellian note-book," a discussion in the Chapter in opposition to one of Abbot Sampson's reforms, in which Benedict the sub-prior thinks he makes an effective point by saying, "Abbot Ording, he who lies here, would not have done such a thing for 500 marks in silver." And the *Rituale* (Harl. MS. 2977), which supplied me with one of my strongest arguments in the letter about the bones of St. Edmund which you published on September 5, 1901, contains directions for the censuring of Sampson's place of burial "in the chapter-house."

But the Douai manuscript gives, what nothing else does, the exact positions in this chapter-house where the remains of Ording, Sampson, and four other abbots reposed. Beginning from the east there were—

1. Ording (abbot 1148-57), "first next the steps of the platform";
2. Sampson (1182-1212);
3. Richard de Insula (1229-34);
4. Henry of Rushbrook (1235-48);
5. Edmund de Walpole (1248-57), "towards the door";
6. Hugo I. (1157-80), "next the door of the chapter-house, in number amongst the other abbots sixth and last."

Thus, with the single exception of Hugo II., who succeeded Sampson as abbot and was made Bishop of Ely in 1229, all the abbots who ruled over this great Benedictine foundation for 100 years were buried in the chapter-house, built on this spot by Helyas the sacrist, Ording's nephew.

The reference made to the seat on which an errant brother had to do penance for minor offences, "between the lectern and the feet of Abbot Richard," comes from another manuscript altogether, relating to the discipline of the monks (Harl. MS. 3977). The phrase by no means implies that the seat and the lectern (of which no trace now remains) made a gap or space between the tombs, and in this view I have the support of Dr. James himself. They may have been at the side; they may even have been over the tombs, the coffins being found some 6 inches below the floor level (shown by some large coloured tiles still *in situ*).

At any rate, what has been found at Bury in the course of the recent excavations is this. The remains of an oblong building in the position assigned in all the documents to the chapter-house—a building, moreover, corresponding very fairly both as to length and breadth with William of Worcester's pascings of the chapter-house in May 1479. At the east end, the boundary of which is well defined, are curved steps; more to the west, indications of a slightly raised and perhaps circular platform; still further to the west and midway between north and south walls, five stone coffins, each containing a complete human skeleton; to the west of the fifth coffin a sixth skeleton (uncoffined) in a straight line with the others, and then the west wall.

The six skeletons lie due east and west; the five coffins are quite close to one another, no gap existing between them; one (No. 2) is broader in the upper part than the rest. To avoid possible depredations by some of the crowd of curious spectators who have been attracted to the spot by the reporters' versions of the finds published in the local newspapers, the bones have been carefully and scrupulously removed from the coffins and placed temporarily in numbered receptacles, under strict lock and key.

Mr. Henry Donne, who is the agent for the estate on which the excavations have been made, and who has been indefatigable in his exertions in the matter, has the skeletons in his personal charge; but I was permitted by him to inspect them, and he drew my attention to a pronounced green pigmentation of the skull and to other peculiarities of the bones of skeleton No. 3. According to the Douai manuscript, this body should, if our contentions are correct, be that of Richard de Insula.

Now, according to Matthew Paris, this Abbot Richard went to Rome on a mission to the Pope, and on his return journey home was stricken with a mortal illness at Pontigny, in France, where he died in 1234. Obviously, therefore, his body had to be embalmed or preserved in some way whilst it was being brought home to Bury; and hence, no doubt, the colouration of skeleton No. 3.

But, after all, what the general public will chiefly desire to know is whether the veritable bones have been found of that grand old Abbot Sampson immortalised by Thomas Carlyle as the type of a "man who does." In "Past and Present" the sage of Chelsea thus summarises from Jocelin de Brakelond the physical characteristics of Sampson:—

"A personable man of seven-and-forty; stout-made, stands erect as a pillar; with bushy eyebrows, the eyes of him beaming into you in a really strange way; the face massive, grave, with 'a very eminent nose'; his head almost bald, its auburn remnants of hair, and the copious ruddy beard, getting slightly streaked with grey."

This was at the time of his election as abbot. Thirty years after Sampson died, and was followed to his grave in the chapter-house by the unstinted reverence, love and sorrow of the entire community.

As the result of my personal visit to Bury St. Edmunds yesterday, I myself have not the smallest doubt that in tomb No. 2 (broader at the top, as I have said, than the others, and not long enough to contain a "very tall man," as to which there seems to be some unfounded rumour) have reposed for the last 700 years the bones of this great man. I was permitted to handle his skull, which is quite intact, and should be a study for phrenologists. The lower jaw contains a few much worn and discoloured teeth like those of a very old man (Sampson was seventy-seven years of age when he died).

A careful scientific examination of all the skeletons by a very eminent anatomist is being arranged for; and when this has been completed the bones will be reverently restored to the coffins with due care and precautions, and covered up with new and massive stone lids which are being made for the purpose. A full statement of the excavations, with a description of the tombs and skeletons found, is also to be prepared and issued under the authority of the local committee who have the matter in hand; and this statement when issued will, as I venture to think, completely resolve any doubts which may be felt as to the authenticity of the discoveries. There are other excavations of high and perhaps even higher importance to be made in the abbey precincts; and perhaps I may be permitted to end this letter by saying that any contributions towards the expenses which may be sent to the honorary treasurer, Mr. Algernon Bevan, Capital and Counties Bank, Bury St. Edmunds, will be gratefully received by the committee.

SOCIETY OF ANTIQUARIES OF SCOTLAND.

THE usual monthly meeting of the Society of Antiquaries of Scotland was held in their library at the Museum, Queen Street, on Monday evening. Dr. Robert Munro, vice-president, in the chair.

The first paper was an account by Professor Sir William Turner, KCB, D.C.L., LL.D., of a chambered cairn, with cremation cists, at Taversoe Tuick, near Trumland House, in the island of Rousay, Orkney, excavated by Lieutenant-General Traill Burroughs, of Rousay and Veira. The mound was circular, with a diameter of about 30 feet, and covered with grass and heather. The excavation, which was begun on the south side, disclosed three cists of small size, containing burnt bones, and placed in close proximity to each other. Under them was a layer of earth about a foot in thickness, and when this was removed the stone roof of the underground chamber was exposed, upwards of 4 feet under the original surface. The roof was formed of massive flags, resting on the side walls and ends of the chamber, which consisted of a central part facing the opening into the entrance passage, and four recesses, two on the north side and one at either end on the east and west. The entire chamber (including the recesses) was 12 feet long, nearly 5½ feet broad and 4 feet 8 inches in height, and the recesses were separated from each other by flags projecting from the north wall. The passage which opened on the south side of the chamber diminished gradually in height and width towards the interior of the mound, and had a small recess on one side near the chamber, and a flag projecting from the floor, like a sill, at about 13 feet from the chamber. Towards the interior entrance the passage curved slightly to the east. Three heaps of bones, representing probably as many skeletons, lay in the passage between the chamber and the sill-like stone, and immediately to the south of the sill there was found the half of a finely-made hammer of grey granite, a triangular flake of flint, and numerous fragments of urns of a hard black paste, ornamented on the part near the rim by groups of parallel lines arranged in triangles. In the chamber itself several unburnt human

skeletons were found placed in the usual contracted posture on the floor, but from the fragmentary condition of the bones no definite conclusions could be formulated. The incinerated bones in the cists were mixed with a slag, indicating cremation at a very high temperature.

In the second paper, Mr. F. R. Coles, assistant keeper of the museum, gave a report in continuation of previous surveys of stone circles in the north-east of Scotland. The present survey included the districts between Ellon and Rothiemay the circles and remains of circles described being chiefly in the parishes of Rayne, Fyvie, Auchterless, Forgue and Inverkeithny, all which were illustrated by measured plans and drawings obtained under the Gunning Fellowship. The report included a total number of forty-two sites, eleven of which are those of standing stones merely, seven are sites of circles, now represented by one or two stones only, ten are sites of circles which are distinguished by having a recumbent stone, and seven are circles of upright pillar stones, without the special feature of a recumbent stone. The circle at Rappla Wood, Burreldales, is interesting from its peculiar features and from the fact that when excavated by Mr. J. H. Chalmers in 1861 several different modes of burial were found within its area, with fragments of urns, both of the cinerary and food-vessel types, and portions of a thin bronze dagger-blade. The Carlin stone at Backhill of Drachlan, with a few smaller stones, is now all that remains of a large circle described long ago by Rev. J. Pratt, and in which, as stated by the present tenant, there were found at different times a small perforated axe-hammer, portions of bronze penannular armlets, chips of flint and a button of jet, which latter object has been presented to the National Museum by the present tenant, Mr. Peter Anderson. The remains of the circle at Yonder Bognie show it to have been one of the most imposing in the district, the recumbent stone being over 9 feet in length, 4½ feet in breadth and 5½ in height, computed to weigh nearly 11 tons. A specially interesting circle of small size is that of Whitehill Wood, Forglan, which consists of seven stones with a diameter of 29 feet and stands conspicuously on the summit of a hill over 700 feet above sea-level. The third paper, by Rev. J. C. Carrick, gave an account of the churchyard monuments at Newbattle. The parish has no fewer than five separate places of burial, the principal of which is of course the parish burying-ground, of the most important and interesting old monuments in which a detailed account was given. Some have peculiar heraldic and emblematic figures, and others quaint and interesting epitaphs. Among the relics connected with the ecclesiastical establishment of Newbattle are also a funeral bell, the heavy irons used to protect the graves from desecration by the resurrectionists, and till a few years ago the watch-house stood in a corner of the churchyard.

EDINBURGH ARCHITECTURAL ASSOCIATION.

A LARGELY attended meeting of the Edinburgh Architectural Association was held on the 7th inst. at 117 George Street. The president (Mr. A. Hunter Crawford) delivered the first of a series of papers on the "Building of a House." The papers deal with an actual building, and are intended to bring the methods of construction definitely and clearly before the members of the Association. Mr. Hunter traced the erection of the house from the time an application was made to the local authorities until the foundations were laid and the building brought up to the asphalted level. At the close of the paper, Mr. Hunter answered several questions by members dealing with the technical points of his subject.

OLD GLASGOW.

AT a meeting of the Architectural Section of the Royal Philosophical Society of Glasgow, on Monday night at 207 Bath Street, Dr. David Murray read a paper entitled "The Architecture of Old Glasgow." Mr. James Chalmers, president of the Society, presided. In the course of his remarks he said all the mansions, great lodgings and stately tenements, so affectionately catalogued by M'Ure in his old history of Glasgow, had disappeared. All the picturesque streets and long interlacing closes had been mercilessly swept away by the Corporation, and a spick and span new town substituted, more commonplace than any American city. It might be well questioned whether all that was necessary for the sanitation of the city could not have been effected without the wanton destruction of whole streets of picturesque and characteristic buildings. In his early days it was a constant pleasure to wander down the High Street and the Salt Market, and the Bridgegate and Stockwell, and through the endless closes which fringed them. Now all had gone, and it was impossible to recognise the streets or distinguish the localities. Dr. Murray submitted for the inspection of his audience a number of interesting drawings of Glasgow as it appeared in former days.

NOTES AND COMMENTS.

ORIGINALLY, we believe, a Scottish Dean of Guild was the head of the Guildry or Company of Merchants, but in course of time he has come to be the chairman or judge in applications to erect buildings, and it is his duty, with the aid of the officials, to see that local regulations are respected. For such an office some acquaintance with construction is desirable, but, on the other hand, if an architect, surveyor or builder should undertake the office he becomes handicapped in respect of other transactions. This has just been demonstrated in the Scottish Courts. In 1897 Mr. JOHN LOWNIE, of Edinburgh, entered into a contract with the Edinburgh Corporation for the masonry of a fever hospital. It was arranged that all disputes between the parties should be referred to Mr. ROBERTSON, of the Office of Works, or, failing him, to Mr. ORMISTON, a surveyor. In May 1898 a question of the kind arose. Mr. ROBERTSON declined to act; his place was taken by Mr. ORMISTON, and decided by him. In November 1898 Mr. ORMISTON was elected Dean of Guild, and held that office until November 1902. In July 1902 a claim was made by the contractor on account of extra work, and he invoked the aid of Mr. ORMISTON as arbitrator, who made the necessary arrangements for hearing it. The Town Council objected on the ground that Mr. ORMISTON was disqualified, as he was Dean of Guild, and consequently a member of the Town Council. They applied for an interdict against his acting as arbitrator. The contractor opposed the application, maintaining that although the objection might be raised by him, it was not one for the Town Council to raise. Lord Low, before whom the case came, granted the interdict. It appeared that the Corporation had consulted with Mr. ORMISTON while he was Dean of Guild on matters relating to the contract and the condition of the works. A counter-claim was made against the contractor for delay amounting to 3,000*l.*, and it was considered that as Mr. ORMISTON had already expressed an opinion on the subject, he was not in a position to act as arbitrator. His Lordship said he did not think there would be any likelihood of Mr. ORMISTON consciously and intentionally favouring one side or the other. The true ground of objection seemed to be that he would not approach the question with an entirely open mind, and that his judgment might unconsciously be affected by what occurred when he was Dean of Guild. For that reason the Corporation were not bound to accept him as arbitrator. The decision will be likely to prevent architects or surveyors from seeking to become Deans of Guild, for as litigation easily arises in Scotland, they might be placed in an embarrassing position if they had acted any time in a professional capacity for any of the litigants.

AN interesting form of memorial is a scholarship for architectural students. The Americans appear to recognise its value. One, which is a memorial of the late JOHN STEWARDSON, is to be competed for in the University of Pennsylvania in next April and May. The value of the scholarship is 1,000 *dols.*, and the holder is to spend one year in travel and in the study of architecture in Europe. Candidates for the scholarship must be under thirty years of age, and must have studied or practised architecture in the State of Pennsylvania for the period of at least one year immediately preceding May 23, 1903. Preliminary examinations will be required in freehand drawing, history of architecture, construction and language. Graduates of schools of architecture will be exempt from the preliminary examinations. The final examination consists of a design for an official building for a county. It would be well if a similar practice were adopted by wealthy people in this country.

THE Society for the Encouragement of the Fine Arts, which was founded in December 1858, has removed from Conduit Street to the galleries of the Royal British Artists in Suffolk Street. Although in financial condition the Society cannot be considered prosperous, it has been worse. Twenty-five members were elected last year. During the coming session, which begins on February 5, lectures will be given on "The Music of Oriental Nations," by Mr. G. F. JACQUES; "The Spirit of Ancient Egypt," by Mrs. LINCHAM; "The Bogey in the Studio," by Sir WYKE

BAYLISS; "Ruskin's Bible of Amiens," by Mr. H. BEAUMONT; "Pictorial Imagination Expressed by Snapshot Drawing," by Mr. T. R. ABLETT; "Our Allies in the Far East," by Mr. ARTHUR DIOSY; "A Forgotten People, the Hittites," by Mr. JOSEPH OFFORD. There will also be two conversazioni.

THE following resolution has been adopted by the Society of Antiquaries:—"The Society of Antiquaries of London hears with regret that there is a proposal on foot to destroy the Church of All Hallows, Lombard Street, in the City of London, a building of interest in itself as being the work of Sir CHRISTOPHER WREN, and containing much fine woodwork of his time. The Society ventures to appeal to the parishioners to withhold their assent to any scheme that will involve the destruction of their church." A similar resolution was agreed to on Tuesday by the London and Middlesex Archæological Society. The present church, as is well known, was erected by WREN at a cost of 8,058*l.* It was completed in 1694. Its predecessor is referred to in JOHN STOWE'S "Survey of London," and the passage is worth reprinting:—"In Lombard street is one fair parish called Allhallows Grasse church in Lombard street; I do so read it in evidences of record, for that the great market went down that way, when that street was far broader than now it is, being straitened by encroachments. This church was lately new built. JOHN WARNER, armourer, and then grocer, sheriff 1494, built the south aisle; his son, ROBERT WARNER, esquire, finished it in the year 1516. The pewterers were benefactors towards the north aisle, &c. The steeple, or bell tower, thereof was finished in the year 1544, about the 36th of HENRY VIII. The fine stone porch of this church was brought from the late dissolved priory of St. John of Jerusalem by Smithfield, so was the frame for their bells, but the bells being bought were never brought thither, by reason that one old WARNER, draper, of that parish deceasing, his son, MARK WARNER, would not perform what his father had begun and appointed, so that fair steeple hath but one bell, as friars were wont to use. The monuments of this church be these. The said WARNERS and JOHN WALDEN, draper." The church was not entirely destroyed in the Fire, although it suffered grievously. For a time the parishioners continued to use it, but eventually it had to be taken down, and the existing building was then erected by WREN. The woodwork referred to in the resolution of the Society of Antiquaries comprises an altar-piece, on which a pelican and seven candlesticks are introduced as symbols. An illustration of it will appear next week.

ILLUSTRATIONS.

CATHEDRAL SERIES: WORCESTER.—SOUTH TRANSEPT AND TOWER

TOWN HALL, COLCHESTER: COUNCIL CHAMBER.

DESIGN FOR POLICE AND FIRE BUILDINGS, SUNDER LAND.

THE GRANGER MEMORIAL PULPIT, GLASGOW CATHEDRAL.

THE first step has been taken towards furnishing the nave of Glasgow Cathedral. The pulpit has just been erected by Mrs. GRANGER, in memory of her late husband, the Rev. WILLIAM GRANGER. It is situated in the nave, close to the second pillar on the north side, west of the rood-screen. It is entirely of oak and is octagonal in form. The cope is richly carved, and immediately beneath it are traceried panels which at the base are also adorned with shields. The lower portion of the pulpit is pierced and ornamented with traceried panels of varying designs. The stair, which winds round one of the pillars of the nave, is in keeping with the design of the pulpit, and is enriched with a pierced traceried handrail. The newel post has a carved termination in the form of a burning bush—the emblem of the church—with the addition of the bell, bird and fish of the city arms. The manuscript desk is also of oak, richly carved.

The style is Late Gothic—Flamboyant in feeling—showing the influence of France on the Late Gothic of this country. The architect is Mr. P. MACGREGOR CHALMERS, I.A.F.S.A., and the oakwork has been executed by Messrs. HUTCHESON & GRANT, Pitt Street, Glasgow.

QUEEN'S HOTEL, LEELS: THE LOUNGE.

THE TOWER, LANESFIELD, GREAT MARLOW.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER III. (*continued.*)

IT may be advisable at this stage to dispose of a possible criticism that might be urged, namely, that so far the treatment as regards the elevations towards the streets has merely been considered, and it might be asked if the flank and rear elevations should not be equally under the sway of the various principles? This is a question which at first sight is not easily answered. If it were possible to regard obedience to, or infraction of, principles from a moral standpoint—and *merely* from such a standpoint—the answer would be in the affirmative. But the fact is that it is *not* a question of morality in the usual acceptance of the term, but rather of the effect to be produced on the general public; and as the latter is not concerned with concealed elevations, the application of any of the principles to such elevations will proceed on a different and modified basis. Expediency cannot of course be deemed a principle; but it is a factor that has to be taken into account to a considerable extent, more particularly as regards difference of treatment between concealed and revealed elevations. It may be supposed that disciples of the late JOHN RUSKIN would assert that each elevation should be a perfect work of art in itself and for itself; but art has its limitations as well as its claims, though Mr. RUSKIN at times failed to recognise this; and the disciple who would uphold his master's dictum (in one such instance), that a recumbent effigy designed for inspection from a restricted standpoint, should be treated in all respects as the human form with its unlimited freedom of locomotion, would be helping to perpetuate a very false idea of the legitimate claims of art.

The relation of a building to its immediate neighbours is a factor to be taken into account in designing both plans and elevations, the plans only so far as comfort or convenience is affected, but the elevations should be considered in relation to their *Scale* and general suitability compared with the neighbouring buildings. Contrast is a very valuable factor in connection with design, but its use should principally have reference to the special building, and not bear relation to any other. Regarding scale, it must be remembered that if the neighbouring buildings just referred to are likely to have but a short span of existence, then they may be disregarded; but even in that case any violent contrasts, whether of a bijou or of a heroic tendency, are better avoided in such positions. Where these neighbouring buildings may be supposed to have a long unexpired lease of life, then discretion in respect to Scale effects assumes its utmost importance. On the other hand, where a building is entirely isolated (not merely detached) the greatest freedom is assured.

There is a notable trio of buildings in Liverpool forming a good object lesson in the observance of Scale effects, namely, the Walker Art Gallery, the Picton Lecture Hall and the Museum, together with the Free Library. *Scale is, in fact, the reciprocal consideration of neighbouring buildings for the benefit of one or all.*

A contention might be raised at this stage, that a building, in regulating its scale out of consideration for its right-hand neighbour, might woefully fail in respect to the building on its left; but adaptation and compromise can work marvels, and though from an æsthetic standpoint perfection may be missed, yet the earnest endeavour to succeed will leave its mark.

This consideration of scale is an important principle too often neglected in practice; indeed, frequently its neglect is necessitated from financial, commercial or other considerations. None the less should it be an architect's aim to give it due effect whenever opportunity occurs. If he is to act on the basis of considering his art from a selfish, in preference to an art-loving, standpoint, there will be but little use for this principle; but it was not thus that the ancients and mediævals were wont to act. Very hackneyed at the present day is the saying, "Art is long and life is fleeting," but in other days action, to a great extent, took the place of fine phrases.

At times the requirements of scale demand that one building shall, in appearance, either overshadow, or be

overshadowed by another; for instance, in dealing with the entrance lodge to a large mansion, the latter should be allowed a similar ratio of importance to the former as exists between the proprietor and the porter; and this would apply, whether the two buildings were in the same purview, or whether separated by a tortuous drive of two or more miles. Crewe Hall, Cheshire, and its lodges may be instanced in this connection.

Economy is apt to have a most dispiriting effect on architects, whom it fetters at times most uncomfortably; *carte blanche* is their *beau idéal*, though seldom a "realised ideal." It is customary for a client to ask for 1,000% worth of work at a cost not exceeding 750%, and he expects to have his wishes realised. To cut the coat according to the cloth is a good business principle which architects should not despise; but to be asked to cut a coat out of material that will only provide a good waistcoat is very trying.

However, accepting the standard, the manner in which economies can be effected may well be described.

It is not always that local materials and labour are the most economical, but inquiries should be instituted to establish the facts. As regards labour, the way in which this affects design must be apparent. With respect to materials the effect is still more notable. Compare a stone-producing district or neighbourhood, such as Cardiff, with



Elevation showing
Economy with Effect.

FIG. 19.

the clayfields-crowded metropolitan environs. The New-bridge, Abercarne, Pennant and other stones within easy distance of the Welsh capital, blue and reddish-brown in tones, and lending themselves either to ashlar or rough-worked labours, admit of the humblest cottages having a picturesque appearance, to which the purlieus of East

London, with their dingy brickwork, are perfect strangers. Consequently, less attention to design (as the word is here understood) will be necessary for the stone than for the brick dwellings, in order to procure an equality of effect. And just as relief is obtained in London and other such houses by using stone dressings (to a greater or less extent) with brick facings, so is the brick used as a relief in the shape of quoins and lacing courses to a stone dwelling.

But it is of even greater importance to bear in mind the following axiom, namely, *adapt the design to the materials*. It is bound to have an economical effect on the scheme. This portion of the subject will not be further dealt with at this place, as the use of materials is considered later in the series. Should neither stone nor suitable facing bricks be obtainable at a reasonable or an economical price, then a stucco face might be used as a finish, though it is not to be commended for general acceptance.

Another point to remember is to avoid florid design, whether for the sake of economy or art; but in proportion as the former is of greater or less import must ornament be more or less avoided. In fig. 19 is given in elevation a design used for some groups of terrace houses in a London thoroughfare. The architect—if one was employed—is unknown to the writer, but the façade allows much to be said in its favour. There were evidently two important factors, namely, economy and attractiveness, and these have been successfully obtained. Though in some minor points further economy could have been introduced without detriment to the façade, it is not of special import to discuss it here.

The preceding remarks lead up to another memorable axiom for the exercise of economy, and that is to *practise the Art of Leaving Out*. One of the best known contemporary black and white illustrators is said to work up his drawings very fully in the first stage, and the succeeding stages are said to witness the gradual and successive deletion of line after line, until the result is a vigorous sketch consisting of *apparently* about half a dozen strokes. This may or may not be his *modus operandi*, and certainly there is not any such mode of execution suggested in the sketches. But still, if any architect care to experiment in this method, he is likely to prove his own monitor, and forbid to himself a second trial. With the architect, as with the art illustrator, the object should be to emphasise form throughout, and decoration can then be applied in proportion to means. An old proverb tells us that "Beauty unadorned is the most adorned," and, like many of these antique phrases, holds less of truth than of its semblance. The writer is not concerned to prove his contention, as the object of referring to the old saying is merely to remark that, for the exercise of economy, unadorned beauty may be necessary; and architects may, if they please, try and console their clients for a bare design (resulting from parsimonious means) by skilful reference to the proverb.

Economy is often obtained by the exercise of the architect's up-to-date knowledge of market goods. It may be a useful hint to advocate personal interviews with all travellers, and the careful perusal (not necessarily an intimate knowledge) of all the trade catalogues forwarded. Many architects are wont to peruse one or more of the professional papers week by week, and this may be advisedly supplemented as suggested. If the daily delivery of catalogues is more or less promptly disposed of in this fashion (varying with the daily pressure of business), their accumulation will neither be burdensome nor will it involve a mass of paper, whose contents are unknown to their possessor. As a result of such general acquaintanceship many possibilities of practical economy arise for the benefit of cautious clients, and to the credit of the architect employed.

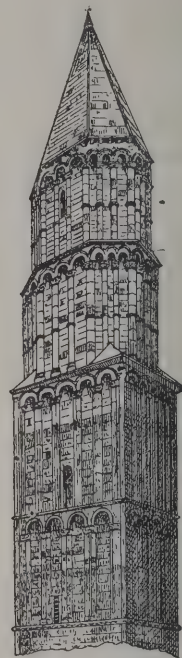
It may be contended that this is more concerned with economy of construction than of design; but, to the extent that construction affects (or should affect) design, its inclusion here is justified.

A note of warning must, however, be sounded; this is, that the statements of traveller and catalogue should be accepted with caution. In business affairs, Faith should follow a different course to what it pursues in religion, and should be the companion of knowledge, not of ignorance.

Repetition of design will prove more economical than the individual treatment of features; this is of equal

application in respect to mere ornament, or surface decoration, and to a series of detached speculative buildings.

In the case of mere ornament, it may be very effective, though simple. The accompanying sketch, showing a portion of the south-west tower of Rochester Cathedral, is an instance of this effectiveness of repetition (fig. 20).



S.W. Tower, Rochester Cathedral
(from a photograph)

FIG. 20.

In concluding these remarks, emphasis may be laid on the fact that economy is not necessarily productive of paucity of design. Simplicity is indeed a requisite; in other respects, it is merely a matter of adapting your design to the means at disposal.

(To be continued.)

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. H. T. Hare, president, in the chair.

The following were elected as members:—Messrs E. E. Lofting, W. Kerr, C. Woodward, C. S. Peach and R. S. Ayling. Mr. W. F. Cave was reinstated a member.

New Premises Fund.

The PRESIDENT announced the following donations:—Mr. E. Prioleau Warren, 21/-; Mr. W. H. Lever (second contribution of proceeds from the sale of Port Sunlight pamphlets, per B. T. Batsford), 5/-; Mr. G. Horsley, 5/- 5s.; Mr. A. B. Botterill, 2/- 2s.; Mr. M. B. Adams, 2/- 2s.; Mr. W. J. N. Millard (further donation), 2/- 2s.; Mr. A. A. Carder, 1/- 1s.; Mr. T. F. Green (further donation), 1/- 1s., and Mr. L. Judge, 1/- 1s. The total amount previously acknowledged was 4395/- 3s.

Mr. ANDREW OLIVER read a paper on "Old London," being

Notes on Whitehall and the Strand.

The subject which we have to consider this evening by its nature will prove that it will be almost, if not quite, impossible to mention but in a brief manner the various items of interest which attach to it. We have to bear in mind that we are dealing with the ages of the past and with the buildings which in their time took rank as being part of the period to which they belonged, and which now belong to the realm of history, and, like all things which belong to the ages of long ago, there has become woven about them in the course of time, as might be supposed, details of interest which are part of them, and which by their very nature belong to them. It is difficult to believe now that, as the poet Gay expresses it, on the river Thames—

There Essex's stately pile adorned the shore,
There Cecil's, Bedford's, Villiers's now no more.

Of all the palaces but two small fragments are left, viz. the chapel of the Savoy and the banqueting house at Whitehall. We have to gather from various sources, in the names of

the streets, out of books, manuscripts, maps and views what we wish to learn about them, and it is by these means that we shall endeavour to pierce the surrounding veil and learn something of the buildings which are now little more than traditions. It is proposed to take the subject in the following order:—Whitehall, the palaces which were formerly along the side of the river, the north side of the Strand to Charing Cross.

Whitehall in the sixteenth and seventeenth centuries consisted solely of the palace. In the eighteenth century were erected the Horse Guards and Dover House on the site of the tilt-yard, the Treasury on that of the cockpit. In the nineteenth century the Privy Council and Education Offices were erected on the old tennis court, and various other streets and private houses were erected during that time.

The history of Whitehall may be briefly described. Hubert de Burg devised his house here to the Black Friars in 1242, who sold it to Walter de Grey, Archbishop of York. It continued as the London house of that see until, by a deed dated February 11, 1530, Wolsey conveyed York House to Sir Thomas More and others on the king's behalf. In the year 1536 an Act of Parliament was passed which said that the old palace of Westminster was then, and had been a long time before, in utter ruin and decay, and that the king had lately obtained one great mansion-place and house, and that upon the soil and ground thereof he had "most sumptuously and curiously builded and edified many and distinct beautiful, costly and pleasant lodgings, buildings and mansions and adjoining streets;" had made a park,* and walled and environed it round with brick and stone, and there devised and ordained many and singular commodious things, pleasures and other necessities, apt and convenient to appertain to so noble a prince for his pastimes and solace. In the year 1606 the "old, rotten, slight builded banqueting house," built by Queen Elizabeth, was removed and a new one built in the following year, but of this we read as follows:—"About ten o'clock in the morning, upon Tuesday, January 12, 1619, the fair banqueting house was upon the sudden all flaming, a fire from end to end and side to side . . . at sight whereof the Court, being sore amazed, sent speedy news to the great Lords of the Council, who were then but newly sat in the Guildhall in London, but they all rose and returned to Whitehall and gave directions to the multitude of people to suppress the flames and by hook to pull down some other adjoining buildings." Upon the site of this destroyed edifice was erected the present one. The last of the old buildings disappeared on April 10, 1691, when the whole of the building, with the exception of the banqueting house, was burnt. In Evelyn's "Diary" it is thus described—"Whitehall burnt, nothing but walls and ruins left." Six years later, in 1697, a second fire broke out. After this nothing was done to rebuild it. William III. died and Queen Anne lived at St. James's, and with this came the end of Whitehall as a royal palace.

The banqueting house is the only portion that was erected of the building designed by Inigo Jones. As already stated, it took the place of a former building which was destroyed by fire. It was commenced on June 1, 1619, and completed March 31, 1622, the total cost being 14,940*l.*, an additional 713*l.* being expended on a pier at Oatland. The original account is to be seen at the Record Office, from which it would appear that the excess of cost over the original estimate was 5*l.* The account was not settled in full until 1633. The architect received 400*l.* The great painted ceiling by Rubens consists of three central compartments, and the same number, but smaller, on either side. It represents King James I. welcoming the beauties of Peace. The panels at the sides show the contrast between Peace and War. The inscription at the foot of the engraving is as follows:—"Graved by Sim Gribelin from the painting of Sir P. P. Rubens on the ceiling in the Banqueting House at Whitehall, in the year 1720, *Cum Privilegio Defuncte Annae Reginae*" This ceiling presents in proper and curious emblems the prosperous state of Great Britain in the reign of King James I. His concern for religion, his love of arts and sciences, the birth of a prince, the union of the two kingdoms and His Majesty's most eminent virtues crowned with glory and immortality." The painter received the sum of 4,000*l.*—about 10*l.* a square yard. Before being turned into the United Service Museum it became "The Chapel Royal, Whitehall." It was here that the "Maundy" alms were distributed until the ceremony was removed to Westminster Abbey on the chapel being abolished as a place of worship.

The five large engravings of Whitehall Palace consist of three of the fronts, viz the Westminster, the Park, the River front, a bird's-eye view taken from the Charing Cross side, and a ground plan showing the arrangement of the old palace. The fronts show an elevation divided into four divisions. In the central portion two towers are carried up above the roofs of the adjoining building, with entrance gateway. The main central building is in three storeys, on either side a wing in two storeys, and on the outside of the whole square towers in three storeys. In the bird's-eye view may be seen three great courts to the

left, the line of the roofs separating them being in a line with the square towers of the centre portion of the fronts. The court to the right side is also divided into three, the central one being circular, with an open gallery on each storey, the arches of which are carried on figures. The two other courts are oblong, with a pediment in the centre, the corresponding court on the other side being similar. The central court runs right through the building, the central portion on each face having pediments as the others.

The plan of the palace as it was in the reign of Charles II. shows a large rambling building occupying a area. It extended from what is now Richmond Terrace along the river to Great Scotland Yard, close to where the National Liberal Club now stands. It included on the north the Horse Guards, the Treasury and Downing Street. A gateway was placed at the south end of the banqueting house and another at the corner of Downing Street. The south side of the palace began with the bowling-green, next to this was the privy garden. The front consisted of the banqueting hall, the gate and gate terrace and a long row of mean buildings. The gate opened upon a series of three courts or quadrangles. In the first, called the Court, was situated the banqueting house, opposite to this on the east side was the great hall or presence chamber, the chapel and the private rooms of the king and queen. This part contained all that was left of old York House. Behind the privy garden was the stone gallery, which contained the art gallery and library. Between the river and the stone gallery were the apartments of those connected with the Court. The number of apartments amount to fifty-eight. In the second court we find the kitchen, pantry, cellars and several others, each with its own superintendent with his own quarters—in fact, everything that could be wanted to carry on so large an establishment as we find here, that occupied the site of what is now Old Scotland Yard and Whitehall Place. In Scotland Yard were placed storeshops, with a wharf on the river; in front of the palace were the tilt-yard and the Horse Guards yard, and in front of the privy garden the cock pit and tennis court and various apartments, chiefly of great officers.

The river front of Whitehall consisted of a red-brick wall with six small turrets. In the Crace collection at the British Museum there is a water-colour sketch showing a portion of the river wall and the palace. There is shown on Vertue's plan a landing stair leading to the bowling-green, which was close to the wall. The privy garden stairs consisted of a long bridge or gangway about 70 feet in length, with the stairs at the river end, and a little further on were the palace stairs, about 150 feet in length and similar to the other. At the easternmost corner of the wall was Scotland Dock, where the stores were landed on to "the wharf," to which the dock gave access.

The earliest map of the Strand is Ralph Aggas's, 1560. In the rear of Charing Cross is the royal mews, surrounded by a wall at the northern end, buildings being situated at the west and south. To the west is Hedge Lane, now Whitcomb Street, which joins the southern wall of the mews and Cockspur Street. St Martin's Lane on the eastern side ends opposite to Northumberland House. Opposite to the eastern wall of the mews is St. Martin's Church, and above St. Martin's is the convent or Covent Garden, bounded by a wall, now Long Acre, which joins Drury Lane and which is continued into Wych Street, the old name being "Via de Aldwyche," corrupted into "Wyche Street." At the end of this is St. Clement Danes, which is hemmed in by houses on all sides. A single row of houses is between St. Clement Danes and Charing Cross. On the south side of the Strand the houses of the nobility which faced the river are to be seen.

It is to the period of the seventeenth century that we owe nearly all of the streets that are at present to be found in the Strand and Covent Garden, and the church of St. Clement Danes. The churches of St. Martin and St. Mary-le-Strand belong to the eighteenth century, as well as Southampton Street, which was made in 1704 on the site of Bedford House; the Adelphi, by the Brothers Adam; and Bow Street was prolonged to Long Acre, continuing the portion between Hart Street and Great Russell Street.

Although there have been but few new streets formed in the nineteenth century, at the same time great improvements have been made at the eastern and western ends of the Strand. In the year 1863 Garrick Street was made to connect Long Acre with Henrietta Street. Wellington Street was made to connect Bow Street, which originally ended at Great Russell Street, with Waterloo Bridge. The improvements at Trafalgar Square and those near St. Martin's Church took place in the years 1830-32. Northumberland Avenue in 1874. And the new street to Holborn was commenced in 1901. The Victoria Embankment commenced in 1863 and completed in 1870.

A plan of the royal mews, taken at the close of the eighteenth century, shows that they occupied the centre of a space which extended from the site of the National Portrait Gallery to within 75 feet of the statue of King Charles. The

* St. James's Park.

great mews was about 370 feet in depth by about 240 feet in width. At the further end were the royal stables with a depth of 50 feet, and in rear the green mews, which had a depth of 130 feet. The front elevation of the royal mews, erected 1732, shows a building in two storeys. The centre consisted of an arch with a range of windows over, and above them the royal arms under a pediment, carried upon two pairs of rusticated columns. At the further end there is a cupola which is in two storeys, and the line is carried down into the main building, where the cornice is broken by a pediment.

Beyond is St. Martin's Church, the portico being nearly concealed by the houses which are in front of it. The present church was erected in the year 1721, when that which previously occupied the site was taken down. It was built by Gibbs. A sarcastic allusion to the worshippers and the new church occurs in the *London Spy*, 1725:—"The inhabitants are now supplied with a decent tabernacle which can produce as handsome a show of white hands, diamond rings, pretty snuff-boxes and gilt prayer books as any cathedral whatever. There the fair penitents pray in their patches, seek for pardon in their paint and see their heaven in man."

The first great change was made when the new street was cut in prolongation of Pall Mall to St. Martin's Church, about the time when the National Gallery was commenced. Sir Charles Barry's idea for Trafalgar Square was different to what we see it now. He intended a low flight of steps to lead up from the Square to the National Gallery. In place of the present fountains, which he wished to have much larger, his intention was to have had monuments to Wellington and Nelson.

The story of the erection of Charing Cross and the others of a similar character is too well-known to touch upon here. The original structure was of wood, but later on it was built in stone by Richard, and after his death by a son or a brother of Roger de Crundale: the material was of Caen stone. The Cross itself was ordered to be taken down in 1643, but it was not destroyed until four years later; the site is now occupied by the statue of Charles I. In the dialogue between the Cross in Cheap and Charing Cross, 1641, we find the following humorous description:—"In King Henry's days I was begged. . . . Then in Edward the VI., when Somciset House was in building, I was in danger. After that in the reign of Queen Elizabeth, one of the footmen had like to have run away with me; but the greatest danger of all I was in was in the time of King James, when I was eight times begged. Part of me was bespoken to make a kitchen chimney. . . . An innkeeper in Holborn had bargained for as much of me as would make two troughs. . . . The rest of my poor carcase should have been carried, I know not whither, to the repair of a decayed stone lodge, as I was told, on the top of Francis Hill."

Northumberland House has been known by the name of Northampton House and Suffolk House. The Strand front consisted of a long wide-spreading building; in the centre a gateway with a low window which was continued up above the top storey, where it terminated in an arch, over which there was placed the Percy Lion. As seen here the lion faces the west, but in the time when George IV. was king it was turned round the other way. The lion was, when the house was taken down in 1874 placed on the top of Sion House, opposite to Kew Gardens. At the four corners were square towers with small figures at the angles. A view of the garden front of Suffolk House will be found in Wilkinson's "Londina Illustrata."

From the palace of Whitehall to Arundel House there stretched a line of river palaces the whole distance, the sites of which can even now be traced in the names of the streets. The two earliest maps which show where they were situated are Ralph Aggas's map, 1560, and Hofnagel's, 1572. In those times the greater number belonged to the bishops. The great nobles it would appear appropriated them, and in later times they have been disposed of as eligible building sites. They were destroyed in the seventeenth and eighteenth centuries. The principal fronts faced the river, the Strand apparently possessing a long unlovely line of high brick walls to hide the great personages from the eyes of meaner mortals. On the northern side of the Strand we find, also, a row of houses with gardens in the rear, as Bedford House, Burleigh House and others.

The way of access both from and to the river was by what were termed stairs, and these were situated either at the end of a street or else only belonged to the house which they adjoined. In the latter case they were private and in the former public. Of the first division there is but one now left, viz. York Stairs, and the archway at the end of Essex Street marks the old entrance to the house from the river. Stairs were also at Hungerford House, Salisbury House, Worcester House and Somerset House. Public stairs were at Ivy Bridge Lane, the end of Arundel Street and other places. In addition to being used as a roadway to the river, the streets also formed the boundaries of the various properties. For instance,

Exchange Lane separated York House from Durham House, Ivy Bridge Lane Durham House from Salisbury House, &c. Nearly if not all of these old lanes are still in existence at the present time. The stairs for the most part, with the exception of York, Essex and Somerset Stairs, possessed no architectural beauty, being merely an arch in the river wall.

Old Hungerford Market, which was destroyed in 1862 to make room for the Charing Cross railway station, was erected at the close of the seventeenth century on the site of Hungerford House. The history of the family will be found in Sir Bernard Burke's "Vicissitudes of Great Families." Sir Edward Hungerford, it would appear, had here a magnificent mansion, which on the break-up of Durham House was cut up into small tenements, which together formed a market. Over the market was a room called the French Church; afterwards it became a charity school, and lastly a tavern and music-hall. The town house of the family was destroyed in 1669, and is thus described by Pepys:—"April 26, 1669. A great fire happened here last night, burning the house of one Lady Hungerford, by carelessness of the girl sent to take off a candle from a bunch of candles, which she did by burning it off." Sir Edward obtained permission to hold a market three days a week on the site of his former mansion, and this was the origin of Hungerford Market.

York House acquired the name from its having been the residence of the archbishops of York. Before then it was the inn of the bishops of Norwich. The next owner, Charles Brandon, Duke of Suffolk, exchanged Southwark Palace for it. In the reign of Queen Mary it was bought by Dr. Heath, Archbishop of York, and reverted to its original name. Archbishop Matthew exchanged it for several manors with James I. Lord Chancellors Gertin and Bacon lived in it, and it was then granted to George Villiers, Duke of Buckingham, who rebuilt it. The Parliament gave it to General Fairfax, whose daughter married the son of the first Duke of Buckingham, who sold it. The names of the streets are George, Villiers, Duke, Buckingham, and "of Court." Readers of Sir Walter Scott's novel "The Fortunes of Nigel" will recollect this. The only portion now left is that known as the York Stairs Watergate. The following account is taken from Britton and Pugin's "Public Buildings of London":—"This fabric is of Portland stone. On the northern or street side it consists of three arches flanked by pilasters supporting an entablature, upon which are four balls. Ornamental shields rise above the keystones of the arches, those at the sides being sculptured with anchors, and that in the centre with the arms of Villiers impaling those of the Manners family. The Villiers motto, "Fidei coticula crux"—"The Cross is the touchstone of faith"—is inscribed upon the frieze. The southern or river front displays a large archway opening upon the steps leading to the water. These conjointly with four rusticated columns support an entablature ornamented with scallops and crowned with an arched pediment and two couchant lions bearing shields sculptured with anchors. In the middle of the pediment, within a scroll, are the arms of Villiers, viz. on a cross five escallops, encircled by a garter and surmounted by a ducal coronet. At the sides are pendant festoons. The apertures flanking the steps are each divided by a small column, and partly closed by balustrades.

The site of Durham House is now occupied by the Adelphi Terrace. It would appear to have been a castellated building, with a square tower at the east end. The main building shows a row of pointed arches. There was also a low, square tower at the west end, together with a round tower, which was carried up above the parapet of the principal building. In 1638 a building called the New Exchange was erected on the site of the stables in the Strand.

Hollar's drawings show Salisbury House to have been of considerable importance. It is designed in two styles, the western building consisting of four gables and a smaller one; the eastern portion looks as if it was like the western when first erected, as a gable end is at the furthest end. In place of the gables we have a battlement or parapet, and turreted angles, showing that the building had been raised at this portion of it. In the river wall there are two sets of stairs and two small structures adjoining. The site is now occupied by the Hotel Cecil.

Worcester House occupied the space known as Beaufort Buildings, but which is now covered by the Savoy Hotel. It originally belonged to the Bishops of Carlisle, then to the Earls of Bedford, and called Bedford and Russell House; then the Earl of Worcester became possessor, and his son, the first Duke of Beaufort, came into possession, and consequently it changed its name. Pennant informs us that the Earl of Clarendon lived here and paid the extravagant rent of 500*l.* a year. Strype tells a curious story that the Earl of Salisbury offered the gardener of the Earl of Worcester 100*l.* if he would cut down a tree which obstructed his view. On this being done my Lord of Worcester built a large brick house which took away the whole of the Earl of Salisbury's east prospect. From Hollar's view this house is not of much importance architecturally speaking. It is similar to the western side of

Salisbury House, with six gables. A battlemented parapet forms the garden wall.

The Savoy Palace, or rather what is left of it, was built by Simon de Montfort in 1245. It was granted by king Henry III. to Peter of Savoy in the thirtieth year of his reign. It was given by Peter to the Brethren of the Great St. Bernard, who had a priory at Hornchurch, Essex; from them it was purchased by Queen Eleanor, and presented by her to Edmund, Earl of Lancaster, and it has since that time always belonged to the Royal Duchy of Lancaster. Henry VII. restored it, and dedicated it to St. John in 1509 for use as a hospital for 100 poor people. We find a different state of things in 1755. Strype gives the following account:—"This Savoy House is very great, and at present a very ruinous building; the large hall is now divided into several large apartments, a cooper hath part of it, other parts serve as two marshalseas for keeping prisoners—as deserters, &c."

The chapel of the Savoy was the last place where the so-called Fleet marriages were carried out. Long after the right of sanctuary was abolished it was a place of refuge for debtors. In the *Postman*, 1696, is the following:—"On Tuesday a person going into Savoy to demand a debt from a person which had taken sanctuary there, the inhabitants seized him and agreed after the usual custom to dip him in tar and roll him in feathers; after which they carried him in a wheelbarrow into the Strand and bound him fast to the Maypole."

In order to obtain a site for erecting Somerset House the Lord Protector cleared away, according to Stowe, several buildings. The following is his account:—"Next beyond Arundel House was some time a fair cemetery, and in the same* a parish church called the Nativity, Our Lady and the Innocents of the Strand, and of some by means of a brotherhood kept there, called St. Ursula of the Strand, and near adjoining to the said church there was an inn of Chancery, commonly called Chester's Inn because it belonged to the Bishop of Chester." There is some doubt whether the Protector ever resided there. The building was commenced in 1547. He was committed to the Tower in 1548 and remained there for two years. In 1549 he was again arrested and beheaded in 1552. A short account of its later history may be of interest. At the death of the duke it was forfeited to the Crown, who made it over to the Princess Elizabeth on her coming to the throne. It was returned to the Dowager Duchess of Somerset. The queen of James I. lived here. It was then called Denmark House. The palace was much improved by the queen, and Inigo Jones was employed to carry out the work as architect. The architect is given in Pennant as being the celebrated John of Padua. The architect of Longleat, Wilts, he is said to have held the post of deviser of His Majesty's buildings. The Strand front of Somerset House consisted of a central gateway, with a bay over in two storeys. On either side of the gateway were two windows with pedimental heads and double-bay windows with similar features. The courtyard front was in two storeys, and consisted of an arcade of nine arches, a bell-cot being placed on the roof.

The gardens faced the Thames. These were laid out in the monotonous style of the period, so well described by Pope:—

Grove nods to grove, each alley has its brother,
And half the gardens just reflects the other.

As regards the architecture, quaint old Stowe has the following:—"I am extremely pleased with the front of Somerset House, as it affords us a view of the first dawning of taste in England, this being the only fabric which deviates from the Gothic or imitates the manner of the ancients. Here are columns, arches and cornices that appear to have some meaning. If proportions are neglected, if beauty is not understood, if there is in it a sharp mixture of barbarism and splendour, the mistakes admit of great alleviation." The old building was demolished in 1776, and Sir William Chambers appointed the architect of the new edifice. The accounts of the building are in the library of the Royal Institute of British Architects.

Arundel House was formerly the Bishop of Bath's inn. Hollar's plates show a large courtyard with buildings. To the left what appears to be either the hall, or possibly a chapel, with four windows in the Perpendicular style, a half-timbered structure next to it, and beyond that an open shed, and to the left another building with a sundial. The lower view of the building last mentioned is on the right of the picture, then next to that a row of outbuildings. Facing us there is to be seen a building with a high-pitched roof, with an open staircase which projects over the courtyard, and the windows are under the steep pitched gable. Just to the right of this is the top of a church tower, possibly St. Clement Danes. In the view looking towards London we are supposed to be on the battlements. Middle Temple Hall is directly in front, and St.

Paul's and other churches in the background. The streets which now occupy the site rejoice in the aristocratic names of Norfolk, Howard, Arundel and Surrey. The site was bought on the death of Lord Seymour, brother of the Protector, by Henry Fitzalan for the "incredibly small sum of little more than 40*l*," we are informed by Strype.

Essex House stood next to Arundel House. A plan of both is given in Walford's "Old and New London," vol. iii. page 72. Of the old house nothing now remains but the water gate at the bottom of Essex Street. It takes its name from the Earl of Essex, the unfortunate favourite of Queen Elizabeth. His son was the great Parliamentary general. About the year 1640 the house was divided. In 1682 Essex Street was built on one-half of the site. The present houses, however, date from the middle of the reign of George III.

Temple Bar, the last of the old City gates, was taken down in the year 1879. For some years after it lay in fragments on a waste piece of land close to Farringdon Market. It was then given to Sir Henry Meux, who has rebuilt it at "Theobalds," in the county of Herts. It must be said that it was a great pity that it could not have been re-erected by the Corporation of the City of London in some locality in the City, instead of its being taken to a place with which it never had any connection. Its place, as is well known, is occupied by the Griffin monument.

On the north side of the Strand there used to be a row of houses which went by the name of "Butcher Row." It took its name from its being the place where "foreign" butchers were allowed to sell meat, granted under a charter of Edward I. to Walter de Barbier. They were termed "foreign" because they did not belong to the City Guild. Stowe thus describes it:—"On the north side, some distance from Temple Bar, from a pair of stocks there standing, stretched one large middle row partly opening to the north, partly to the south, and up west to a stone cross over against the Strand. This stone cross was the old Strand Cross. On the south side of the Strand there was a similar block. The passage between the north and the south sides was so narrow that it was called in Addison's time "The Pass or the Straits of St. Clement."

For the clearing away of this obstruction one man was responsible, viz Alderman Pickett, who afterwards gave his name to Pickett Street. The whole of the north side was cleared away when the Law Courts were built. The money was raised by means of a lottery started in the year 1807, and called the Great City Lottery. This gave rise to great loss and inconvenience, and the Corporation had to obtain no less than six Acts of Parliament to deal with the matter. Alderman Pickett also projected a plan whereby a new street was to be made from Lincoln's Inn Fields to the Strand. This last improvement has taken no less than the space of 113 years to carry out.

In Wych Street, Clement's Inn, which is now being demolished, is situated. It is said to date from the reign of Edward II.

Holywell Street takes its name from the well there. Lyons Inn, upon the site of which was built the Opéra Comique Theatre, stood here.

The Angel inn, shown on the Ordnance map, was one of the oldest in London. It had the characteristic galleries. It was pulled down in 1853. A view will be found in the "Parish of St. Clement Danes," by John Diprose, page 195.

In the *Public Advertiser*, March 28, 1769, is the following:—"To be sold, a black girl, the property of J. B., eleven years of age, who is extremely handy. . . . Inquire of Mr. Owen, at the Angel inn, behind St. Clement's Church in the Strand."

At the Strand end of Wych Street stood Drury House, which gave its name to Drury Lane.

Craven House afterwards occupied the site and later the Olympic Theatre. Pepys tells us how he saw fair Nelly "standing in her smock sleeves and bodice, a mighty pretty creature," at her door in Drury Lane.

The present church of St. Mary-le-Strand is the second, the first one being pulled down to build Somerset House, as we have seen. It was the first church designed by Gibbs, or, as he puts it, "upon which I was employed after my return from Italy." There was no steeple designed for this church, only a small campanile or turret. A bell was to have been at the west end, but at the distance of 80 feet from the west front there was to be a column 250 feet high, intended to be erected in honour of Queen Anne, on the top of which her statue was to be placed, but the thought of erecting that monument being laid aside at the Queen's death it was ordered to erect a steeple instead of the campanile as first proposed. The site was occupied by a windmill in the time of James I. The site of the old Strand Cross is marked on the Ordnance map as being just within the porch of the present building, and this was afterwards the place where the Strand Maypole was erected, which was pulled down in 1644, and a new one put up after the Restoration in 1661.

* This is marked on the Ordnance map as being at the east side of Somerset House as well as Chester's Inn.

Pasquil's "Palmodia and Progress to the Tavern," 1619, has the following :—

Fairly we marched on. Till our approach
Within the spacious passage of the Strand,
Objected to our sight a summer broach
Uclept a Maypole, which in all our land
No city, town nor street can parallel.

In 1798 James Brainton, in the "Art of Politicks," wrote as follows :—

What's not devoured by Time's destroying hand?
Where's Troy? and where's the Maypole in the Strand?

Burleigh House was "a noble pile built in brick and adorned with four square turrets" facing the Strand. Its gardens extended from the west side of Wimbledon House, close to where Wellington Street now is, to the green lane westward, now Southampton Street. On Lord Burleigh's death in 1598, it came to his son, afterwards the Earl of Exeter. Exeter Change, a curious mixture of shops and menagerie, occupied the site later, and was taken down in 1863.

In 1552 "John Russell, Earl of Bedford, was granted the Convent or Covent Garden, lying in the parish of St. Martin-in-the-Fields, with seven acres, called Long Acre, of the yearly value of 6*l.* 6*s.* 8*d.*, parcel of the possession of the late Duke of Somerset." The first market was erected in 1632 by the Earl of Bedford, the charter dating from 1671. The church of St. Paul, designed by Inigo Jones, erected between 1631 and 1638, was then, as now, the western side of the Garden, the southern side being formed by the blank wall of Bedford House. In an old print the market is shown as being fenced in. In the centre there was a Corinthian column with a sundial on the top (from an inscription it would appear to have been erected in 1686). The column stood upon a pedestal raised upon six steps. The capital supported a square stone, three sides of which served as sundials. A similar dial used to be at Seven Dials. This was removed with its column to Weybridge Common, where it was re-erected as a memorial to the Duchess of Kent in 1822. Since that time the quaint old dial stone which showed six, viz. one on each of the sides and another on the top, has been lying by the roadside. Now that the London County Council is taking steps to preserve relics of Old London, could not an effort be made to rescue this interesting relic from its present ignominious position?

The paper was illustrated by numerous lantern slides. Plans and old engravings were exposed on screens round the meeting-room.

Mr. R. PHENÈ SPIERS, in proposing a vote of thanks for the paper, briefly alluded to various places in London which he had known as a boy but which had now disappeared.

Mr. W. SPIERS seconded the motion.

Mr. W. A. PITE said the paper had been so graphic and interesting that the old houses and streets were recalled imaginatively into existence. Although for the most part London had been altered and changed, yet with the old names in use the past history could not be forgotten.

The PRESIDENT, in conclusion, said the illustrations to the paper showed how much more picturesque the district round the Strand was in former days, compared to later times, and it was regrettable that so many historical buildings should have been demolished. He thought a study of such districts must help the student to understand the city and the meaning of its names.

ARCHITECT'S FEES.

THE following discussion, according to the *Lincolnshire Chronicle*, took place at the annual meeting of the Governors of the Lincoln County Hospital :—

Mr. Ward said he noticed about 1,346*l.* had yet to be paid for works in progress, or completed and not paid for, but he should like to know if that embodied the whole of the liabilities of the hospital, or whether there would also be what were commonly known as "extras."

To this Mr. Watkins, architect, replied that any extras were provided for. Of the twenty contracts fourteen had been definitely settled, and in the estimate of 1,346*l.* still to be paid he had allowed 150*l.* for any extras that might arise.

Mr. Ward: Then the Governors may reasonably expect 1,350*l.* to cover everything?

Mr. Watkins: Yes, with the exception of some things which have been ordered by the Board, and have not gone through my hands. There are my charges, too.

Mr. Brook thought it would be satisfactory to the meeting if they could have some idea of what the architect was being paid, and if the chairman would give the original estimate of the cost of erecting the laundry and installing the electric light. The figures the Governors had had before them were so enormously greater than their conception was when they commenced the scheme that there must be some explanation

of the extraordinary rise, and he thought it would be satisfactory to the Governors in the county if that explanation could be put clearly before them, and it would be more satisfactory still if they could have a full explanation of what was going to be paid to the architect of a charitable institution for carrying out that work.

The Chairman: Mr. Watkins says he cannot say definitely what his costs will amount to. Still, he might give an approximate estimate.

Mr. Watkins: Before the works were commenced a definite arrangement was arrived at that we were to be paid the usual professional commission of 5 per cent.—that is the scale of the Royal Institute of British Architects—and whatever amount that works out at we shall charge. There is nothing unreasonable about that. When the bill comes in I shall be pleased to answer any question relating to it.

Mr. Ward asked what was the scale of the Royal Institute of British Architects, and Mr. Watkins replied it was 5 per cent. upon the cost of the works and money out of pocket.

Mr. Brook: And 2½ per cent on work not carried out.

Mr. Watkins: There could not have been a clearer arrangement made than was arrived at. I asked for it to be quite understood what we were to be paid, and there was an hour's discussion before it was settled.

Mr. Rainforth remarked he remembered Mr. Clarke estimated the work would cost about 5,000*l.*, and he said at the time the figures would be doubled.

The Chairman: You have proved, then, not very far wrong.

Mr. Clarke retorted he was not going to be held responsible. His was a fair estimate of the work then proposed, but the work had since been about doubled.

The Chairman agreed a great amount of work had been agreed to since Mr. Clarke's original estimate.

Mr. Rainforth said there was an impression that the weekly board had been very extravagant, and that had had a very bad effect on the income. People stated they would not subscribe because the money was being "chucked away."

The Chairman failed to see how such an impression had got abroad.

Mr. Rainforth said people seemed to think it had all been spent on the laundry; he thought it would be well if there were some explanation of exactly what had been done.

The Chairman assured Mr. Rainforth that course would be adopted as quickly as possible, but for some reason the architect had delayed in giving them the final figures. He was quite sure, however, the money had not been spent foolishly, nor extravagantly, and the result to everyone who knew the hospital was extremely satisfactory.

Mr. Rainforth said personally he was quite satisfied; he was simply mentioning the fact that there was an impression that the weekly board had been extravagant, and for the own sakes he thought a statement should be made.

Mr. Brook remarked that was really what he desired; the public required some explicit declaration that the money had been spent wisely for the benefit of the Institution.

The Chairman: And that I think we shall be able to prove.

Mr. Brook added he still thought the Governors would be better satisfied if they obtained, what they had not obtained yet, a statement from the architect as to what he would have taken from the Institution when the whole of the payments were completed. They were no nearer now than they were before, because an architect was entitled to charge 2½ per cent. for work not carried out.

Mr. Watkins replied, supposing plans were made, and the plans were not carried out, and the whole scheme abandoned, of course an architect felt entitled to the charge of 2½ per cent.

Mr. Brook asked if Mr. Watkins received anything for tradesmen's commission, and Mr. Watkins at once rose indignantly, and heatedly denied it most positively. "If Mr. Brook suggests that," he remarked, "I shall require him to prove. It is a thing I have set my face against from the moment I entered the profession, and I challenge anyone to prove I have ever received 6*d.* commission from any tradesman or anyone else except through my legitimate plans. Mr. Brook has no right whatever to come into this room and make suggestions of that kind unless he is prepared to establish them."

Mr. Brook remarked Mr. Watkins's statement that he received nothing in the way of commission on any work would give great satisfaction to the Governors generally.

Mr. Watkins: I never have.

Mr. Brook: I did not say you had, but if you can assure the Governors you have never received any commission on work done at this hospital you will satisfy the Governors.

Mr. Watkins: I say positively I have not.

Mr. Brook: Very well, then, I withdraw it.

Mr. Watkins: And if you can bring any one to speak the contrary I am prepared to meet him.

The Chairman said Mr. Watkins might legitimately be entitled to commission on work done; but he denied he ever received anything.

Mr. Brook: I did not say Mr. Watkins had. I said there was an impression he did, and I also said my impression was that there was certain commission he was legitimately entitled to; I simply asked the total amount he was charging.

The Chairman: He absolutely declares he has not received commission.

Mr. Brook: And that will give general satisfaction to the public of this Institution.

Mr. Watkins: It would be an unprofessional thing to do. I am a member of the Royal Institute of British Architects, and if Dr. Brook could prove his suggestion I should be struck off the roll of that Institution to-morrow. I say it is a most outrageous thing for Dr. Brook to come here and make suggestions and not have evidence to substantiate them.

Mr. Ward remarked he thought there was some misconception and misunderstanding on the whole question. Mr. Watkins seemed to have interpreted Mr. Brook's question wrongly. He (Mr. Ward) understood Mr. Brook to mean, "Was any percentage charged on goods supplied by the tradesmen?" No one suggested for a moment Mr. Watkins received commission from tradesmen; the question was whether he would charge architect's commission on goods supplied by tradesmen. Messrs. Ruston, Proctor & Co., for instance, had supplied boilers, &c., at a cost of about 500*l*. He understood Mr. Brook to mean, "Would commission be charged on that?"

Mr. Watkins: If he means that—

Mr. Brook: That is what I did say.

Mr. Watkins: Well, that was settled at the very beginning. We were to charge 5 per cent. on all work done, whether by Messrs. Ruston, Proctor & Co., or anyone else.

Mr. Watkins added that was quite right too, because they had quite as much trouble with that matter as with anything else. They had to write the specifications of the boiler and prepare the scheme for the whole of the heating of the establishment, showing the pipes and their sizes. Then they had to calculate the cubical contents of every room, and proportion the radiating surface to warm the rooms, in addition to fixing the position of every tank and radiator throughout the building, calculating the size of boiler required, &c., and deciding what kind it should be. They had selected the laundry fittings and shown them on the plans in position; in fact, there was not an article about the place not designed and planned by them, and he contended, therefore, they were quite entitled to receive their commission upon such work. They would find the architect at the county asylum would charge commission on everything which was done there, the same as had been done at Raucoby and everywhere else. Otherwise nearly three parts of the work could be deducted, and that, after the architect had done the work, would be most unfair.

Mr. Brook remarked that it seemed, notwithstanding the explosion, that there was commission after all. When he asked his question he said the architect, so far as he was aware, was entitled to the commission, and it appeared that was so. He was entitled to charge it, and he did. They had the explanation, and there was an end to it. But to compare a charitable institution and the asylum was scarcely right, for the rates bore the cost of the asylum alterations, and in this case the rates could not be called upon. The mistake was in not paying the architect a yearly salary. Had the architect received, say, 100*l*. per annum from the time of his first appointment, it would have been a cheap thing for the Institution. Personally, he did not deem it right the money of a charitable institution should be drawn in the way it was drawn professionally, although he knew it was drawn perfectly legitimately. He suggested strongly that the architect should be given a fixed salary.

Mr. Watkins: I should have been paid well if I had had 100*l*. a year up to now without any commission at all.

The Chairman thought the matter might now drop. Mr. Watkins had clearly shown he had not charged any commission and was not entitled to; he thought Mr. Ward would allow that.

Mr. Ward: Certainly; there was an obvious misunderstanding.

Canon Harvey supported Mr. Brook's version of the question, and Mr. Rainforth, having thanked him for bringing the matter forward, the incident was allowed to be closed.

MANCHESTER SOCIETY OF ARCHITECTS.

A LECTURE on "Architectural Competitions" was delivered to the members of the Manchester Society of Architects on the 8th inst. at the Chamber of Commerce by Mr. Alfred W. S. Cross, F.R.I.B.A., of London. Mr. Cross is the chairman of a newly-formed Architectural Competition Reforms Society. He began his paper by considering whether or not competitions assist the work which architects have at heart, namely, the advancement of architecture. With certain reservations, he contended that they did serve this end, and in spite of the fact that many men of repute condemned the

system on the ground that no man would put forth his best work on the remote chance of gaining a prize in what was virtually a lottery. This argument would no doubt be convincing in the case of a man who conducted his practice on strictly commercial principles, equally with the man who was content to work only for private clients. But when it was considered how popular competitions were with public bodies, and how largely they have increased in late years, and how immeasurably public buildings have improved both in arrangements and architectural character, through competitions, there was no question that the popular feeling in favour of them had done much to foster latent talent in the mind of the architectural student who endeavoured to attain success through their instrumentality. Although the method of conducting competitions might be inefficient, yet competitions themselves could not fail to do good, and it was in consequence of the abuse of the system, not the system itself, that so many architects regarded it with disfavour. Competitions were acceptable alike to the promoters and to the competitors, and the average competing architect put forth his greatest effort in competitive work. The non-competing architects who were opposed to the system based their objections on the fact that there were so many recriminations and charges of improper conduct on the part of the assessor and the promoters after the award had been given. Assuming that competitions were necessary, he thought the time was ripe for them seriously to consider how the frequent abuse of the system could be remedied. They had to contend here with the apathy or half-heartedness of the Council of the Royal Institute of British Architects. In his opinion, at the initial stage of competition for a building of public character the Institute should approach the promoters with an offer to appoint a jury of not less than three assessors. A similar arrangement was at work in France and America, where it was found to work well. The new Society had come into existence to promote reform on these lines.

Mr. Alfred Darbyshire, the president of the Manchester Society was in the chair.

TESSERÆ.

The Sculpture of Wells Cathedral.

IT is very remarkable that Wells Cathedral was finished in 1242, two years after the birth of Cimabue, the restorer of painting in Italy; and the work was going on at the same time that Nicolo Pisano, the Italian restorer of sculpture, exercised the art in his own country; it was also finished forty-six years before the cathedral of Amiens, and thirty-six years before the cathedral of Orvieto was begun, and it seems to be the first specimen of such magnificent and varied sculpture united in a series of sacred history that is to be found in Western Europe. It is therefore probable that the general ideas of the work might be brought from the East by some of the Crusaders. But there are two arguments strongly in favour of the execution being English. The family name of the bishop is English, "Joceline Trotman," and the style, both of sculpture and architecture, is wholly different from the tombs of Edward the Confessor and Henry III which are by Italian artists. There are many compositions of the Almighty creating Eve, by Giotto, Florence; Buonamico (Buffalmacco), Pisa; Ghiberti and Michel Angelo. That of Wells is certainly the oldest, and not inferior to any one of them.

Timber Churches in Britain.

Until lately it was the fashion to believe that there were no stone churches in England until the eleventh or twelfth century. Grose, in the preface to his "Antiquities," says that "the Saxon churches were mostly built with timber, and the few they had of stone consisted only of upright walls without pillars or arches." Sir James Ware, on the authority of a passage in St. Bernard's "Life of St. Malachy," expresses a decided judgment that no stone or mortar building in Ireland is older than A.D. 1148; while for Scotland Pinkerton follows the same line, and affirms that all Celtic buildings, houses and churches up to the twelfth century were only constructed of wattles. The chief authorities usually cited in behalf of this notion of the universality of wooden churches are the Venerable Bede, who tells us that St. Finian, on becoming Bishop of Lindisfarne, A.D. 652, "built a church fit for his episcopal see, not of stone, but of sawn oak covered with reeds, after the Scottish (that is, the Irish) manner." Two manuscript authorities—one quoted by Ussher from a life of St. Patrick, the other from a MS. life of St. Monenna, go to the same extent, viz. that the Scots, that is the Irish and Scotch—for it is known that the same nation is meant—were accustomed to erect buildings only of smoothed timber. Another passage of Venerable Bede has been produced for the same purpose, speaking of the baptism of St. Edwin by St. Paulinus at York, on Easter Day A.D. 627, in the church of St. Peter the Apostle, which while a

catechumen he had built of wood. But surely the least reference to the original would have shown that this was rather an extraordinary case: this wooden church was run up extemporaneously expressly for this baptism—"quam de ligno cum catechizaretur atque ad percipiendum baptismum instrueretur citato opere construxit." And then the historian goes on to say that St. Edwin immediately prepared to build a noble basilica of stone. On the other hand, in well-known passages the same Bede speaks of a British church built at Verulam, A.D. 305, fitting to the dignity of St. Alban's martyrdom, and of the church built at Whithorne, Candida Casa, in Galloway, A.D. 412. But it seems we are not left to the uncertainties of literary evidence on the occasion. We are in possession of what is more decisive than a few passages from MSS or from authors whose testimony is, whichever way tending, only incidental, and who certainly never had the question itself placed before them. Petrie, in his well-known work, has indisputably connected the erection of the round towers as Christian edifices with the times of St. Patrick himself and of his immediate successors. These edifices we all know are of stone; and in England we have a complete series of actual stone buildings, extending from the Roman foundations of Dover and Brixworth in an unbroken series through both British and Saxon times. Roman Britain was by no means a barbarous country, and though the Saxon invasion destroyed most British churches of the basilican plan, yet it would be contrary to all likelihood and experience that the old rules and types of ecclesiastical buildings were so obliterated that at or before the period of the Heptarchy an indigenous style, without reference to a classical origin, grew up spontaneously in Saxon England, which first covered the land with some 50,000 wooden churches, and that gradually this style developed into stone.

Architectural Qualities.

There are four principles, grace, expression, proportion and harmony, which are absolutely necessary to the perfection of architecture, and an infringement of them will invariably produce a harsh and revolting effect. But as beauty in nature is infinite in variety of character, so in architecture it would be absurd in the highest degree to attempt to establish rules or standards which should limit, to certain prescribed principles, the power of producing all that can be called beautiful in it. Yet, as far as the beautiful comes within the cognisance of our reason, we may affix rules which can never be departed from without destroying it. The attributes of grace and expression can hardly be said to come within these rules, but must be principally judged of as to their analogy with the forms of nature. Grace and expression relate to those indefinable principles by which we form and arrange the various members of architecture so as to charm the eye, in addition to the pleasure produced by proportion and harmony of parts, and without which all that would be produced by the latter would be dullness or monotony. These are what may be said to give to any style of architecture its peculiar character and expression accordingly as they are applied, and they are more particularly analogous to grace and expression in the human form and countenance. The principles of proportion and harmony come more immediately within the cognisance of our reason, and may easily be decided upon. Proportion is that by which we regulate the size of the various members with regard to each other, so as to produce symmetry in the whole. To illustrate the importance of this to the production of beauty in a whole, let us suppose a large column to be raised to support something very light and mean in comparison. How revolting this would be to our common sense; and let the grace and proportion of the column itself be ever so beautiful, yet all its effect would be lost in the ludicrous idea presented by its disproportion to the thing which it supported. Harmony in architecture is the agreement of the character of its various parts, and a unity of expression and purpose in the whole. To illustrate this we have only to suppose a structure in which lightness and heaviness of expression, simplicity and intricacy of style, contend together in grotesque confusion, and we shall see at once what is meant by harmony, and how the want of it annuls all beauty.



Surbiton Clock Tower Competition.

SIR,—I am requested by Dr. Coleman to inform you that in reply to the advertisement appearing in your paper of November 21 last 116 designs were sent in, and after several inspections by the committee a selection of five was made, and ultimately the choice fell upon that submitted by Mr. John Johnson, architect, of Queen Victoria Street, London. All the

designs received will be placed on view at the Council offices on Friday and Saturday next between 11 A.M. and 6 P.M.—Yours faithfully,

R. J. LAMB.

Surbiton: January 13, 1903.

GENERAL.

The Council of the Royal Society of Painter-Etchers and Engravers have elected Messrs. W. L. Wyllie, A.R.A., and John A. Ness as Associates of the Society.

St. Mary's, Buckfast Abbey, a Benedictine monastery in the time of St. Dunstan, has just been canonically restored to its ancient use as a Benedictine abbey by the Abbot-General of the Cassinese Congregation. Dom Boniface Natter has been elected the first abbot of the monastery since its dissolution in 1538. In 1882 it was repurchased by a French community of the Benedictine Order, and a large portion of the old abbey was rebuilt on its original foundations by the munificence of Lord Clifford.

The Commission appointed by the Russian Government reports that the entire expense of rebuilding the port of St. Petersburg, with harbours 28 feet deep, and with quays and warehouses, will, according to the plans last drawn up, be about 600,000*l*. It is proposed to call the new port "The Port of Peter the Great."

The Eastern Footway on London Bridge was thrown open to the public on Monday last. The bridge is now closed to pedestrians, as both footways are now available. The work of widening the structure has already been begun, and it will be completed within two years.

A New Room for works of art has been added to the library of Windsor Castle.

The Sum of 900*l*. has been subscribed in order to provide the sedilia for Bristol Cathedral, to carry out the design of the late Mr. Pearson, and the Dean and Chapter have entrusted the work to Mr. N. Hitch, of London, who executed the reredos. It is hoped the work will be completed by Easter.

The Royal Society of British Artists held a special meeting on Monday, when the following water-colour artists were elected members:—E. Birkbeck, Fred. E. Gröne, Allyn Williams, Smallwood Winder, W. T. Hawksworth, L. C. Powles and Romilly Fedden.

The General Purposes Committee of Richmond Town Council have resolved to advise the Council to decline the request of the London County Council that they should become joint plaintiffs in an action against Sir Whittaker Ellis to enforce fulfilment of his alleged promise to restrict building over his land comprised in the view from Richmond Hill. At the same time the committee express the hope that Sir Whittaker Ellis will fulfil his original intentions in the matter.

Mr. Walter Crane has received permission that he may accept and wear the Insignia of the Second Class of the Royal Order of the Crown of Italy conferred upon him by H.M. the King of Italy.

The Specimens of Ordnance Survey maps illustrating different scales and styles, which were shown at the annual meeting of the Geographical Association on Friday last, have been on view during this week in the map-room at the Royal Geographical Society's house, 1 Savile Row, W.

The Harrogate Town Council have decided to postpone the erection of the town hall, owing to the opposition of the ratepayers. Mr. H. T. Hare is to receive the premium of 150*l*., which will be deducted from commission whenever the work is carried out.

Mr. Dunn Gardner, who presented the reredos to Ely Cathedral, died in London on Sunday last at the age of ninety-one. He was a distinguished amateur and collector.

Messrs. S. Pearson & Son, Ltd., have been awarded the contract for the new breakwaters to be constructed at the mouth of the grand harbour in Malta.

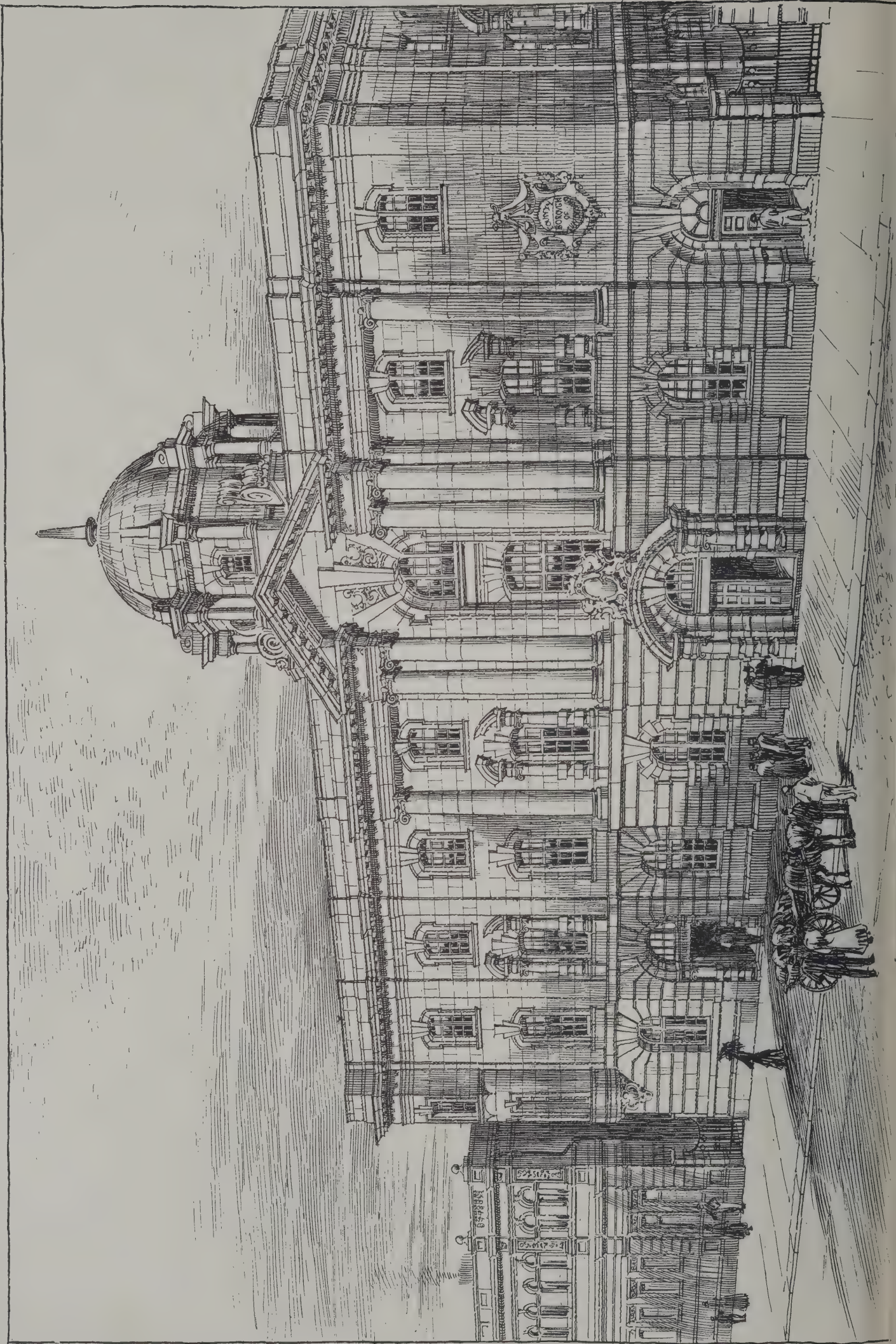
A Brick Manufacturer of Chicago has been awarded 22,000 dols damages against the Chicago Masons and Builders Unions for declining to handle bricks made by him. The trade societies believe there will be a reversal of the verdict on appeal.

The Liverpool Architectural Society will hold its fourteenth members' meeting at 13 Harrington Street on Monday next January 19, when a discussion will be opened by Mr. William Goldstraw, Hon. Assoc., on the "Revised Corporation Building By-laws."

We Regret to announce the death on last Monday of Mr. A. C. Breden, A.R.I.B.A., who has been associated with the firm of Messrs Ernest Rüntz & Co. for the last ten years.

Mr. H. H. Richardson will read a paper on "The Legal Rights and Liabilities of Architects and Surveyors" before the Society of Architects on Thursday next.

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The Architect, Jan 16th 1903.





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Architect.



Glasgow Cathedral - The Granger Memorial. DESIGNED BY P. MACGREGOR CHALMERS.

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Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Parrett. Mr. W. T. Baker, town clerk, King Square, Bridgewater.

BRISTOL.—Feb. 9.—The Bristol School Board invite designs for school premises at Moorfields, St. George, Bristol. The competition will be restricted to Bristol architects. Mr. W. Avery Adams, clerk to the School Board, Guildhall.

CAPE TOWN.—Jan. 31.—The Council of the University of the Cape of Good Hope invite designs for the erection of university buildings. Premiums of 400*l.*, 200*l.* and 100*l.* will be awarded to the authors of the designs placed first, second and third respectively. Particulars of the competition may be obtained on application to the Registrar at Cape Town, or to the Agent-General in London.

CASTLEFORD, YORKS.—Mar. 31.—Designs are invited for a free library. Premiums 15*l.* and 10*l.* respectively. Mr. H. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

HULL.—Mar. 31.—Designs in competition are invited for the extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

SMETHWICK.—Jan. 31.—Competitive designs and tenders are invited for erection of a refuse destructor. Mr. C. J. Fox Allin, borough surveyor, Town Hall, Smethwick.

ST. IVES, CORNWALL.—Jan. 31.—Competitive plans are invited for the erection of municipal buildings, to consist of a guildhall, council-chamber, jury room, public hall, town clerk's office, surveyor's office, treasurer's office, muniment room, parochial office, mayor's parlour and fire-brigade station and offices. Premiums of 70*l.* and 30*l.* respectively will be awarded to the architects whose plans and specifications are considered to be first and second in order of merit. Mr. Edward Boase, town clerk, Town Clerk's Office, St Ives, Cornwall.

SUTTON COLDFIELD.—Feb. 20.—Designs are invited for the erection of a town hall adjoining the council house, the total expenditure to be limited to 7,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* respectively will be awarded for the three best designs in order of merit. Mr. W. A. Clarry, C E, borough surveyor, Council House, Sutton Coldfield.

CONTRACTS OPEN.

AMBLE.—Jan. 19.—For extensions to the butchering department of the Amble Co-operative Society, Amble, North-umberland. Mr. Foreman, secretary to the Society, Amble.

BARNSELY.—Jan. 19.—For erection of two semi-detached villa residences, outbuildings and boundary walls in Blenheim Road. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnsley.

BATLEY.—Jan. 19.—For erection of two houses and alterations and additions to three houses in King Street. Mr. John H. Brearley, architect, Branch Road, Batley.

BEAMISH.—For erection of farmhouse and alterations to farm outbuildings at Pockerley Farm outbuildings, Beamish, near Urpeth. Mr. T. Ernest Crossling, architect, Front Street, Stanley.

BEXLEY HEATH.—Jan. 31.—For the adaptation of the buildings known as Oak House, Broadway, Bexley Heath, Kent, for council offices, and the erection of council chamber, waiting and cloak-rooms, &c. Mr. Thos. G. Baynes, clerk, Public Hall, Bexley Heath, Kent.

BIRMINGHAM.—Jan. 24.—For supply of certain materials and goods for one year, ending March 31, 1904, viz. Haslingden and granite kerbs, granite sets, granite crossing stones, granite chippings, Rowley setts, flags, paving bricks, wood paving blocks, ragstone, gravel, sand and slag. Mr. John Price, city engineer and surveyor, the Council House, Birmingham.

BIRMINGHAM.—Jan. 30.—For erection of ten cottages for the use of the walksmen stationed along the line of aqueduct from Wales to Birmingham, for the Birmingham Corporation. Mr. Edward Orford Smith, town clerk, Council House, Birmingham.

BLESSINGTON.—Jan. 28.—For erection of a medical officer's residence, dispensary and out-offices in the town of Blessington, including the formation of yard, the construction of drains, the erection of yard wall, entrance and side gates, closets, baths, lavatory, basins, &c., and providing a hot and cold-water supply for the premises. Mr. D. J. Purcell, clerk of the Naas Union, Blessington.

BOLTON-LE-SANDS.—Jan. 20.—For alterations and additions at Hawkshead, Bolton-le-Sands. Mr. J. Parkinson, architect, 67 Church Street, Lancaster.

BOW.—Jan. 20.—For the reconstruction and widening of Bow Bridge, carrying Bow Road over the River Lee, and situate partly in the County of London, and partly in the County of Essex. Particulars at the Engineer's department, L.C.C. County Hall, Spring Gardens, S.W.

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BRADFORD.—Jan. 19.—For erection of combing works, boiler-house, chimney, dam, &c., in Thornton Road, Bradford. Messrs Fairbank & Wall, architects, Craven Bank Chambers, Bradford.

BRADFORD.—Jan. 20.—For erection of a detached house at Horton Bank Top. Mr. Abm. Sharp, architect, Pearl Assurance Buildings, Market Street.

BROMLEY.—Feb. 2.—For erection of two shops, High Street. Messrs. F. & W. Stocker, architects, 90 and 91 Queen Street, E.C.

BURGH.—Jan. 24.—For restoration of nave, rebuilding north porch, &c., at St. Mary's Church, Burgh, Aylsham, Norfolk. Mr. John B. Pearce, architect, 15 Upper King Street, Norwich.

CAMBORNE.—Jan. 22.—For erection of Council offices and fire station at the Camborne Cross, Camborne, Cornwall. Mr. Sampson Hill, architect, Redruth.

CASTLEFORD.—Jan. 22.—For relaying of causeway in Carlton Street, Castleford. Mr. W. Green, surveyor, the Urban Council, Carlton Street, Castleford.

DERBY.—Feb. 3.—For erection of boys, girls and infants' schools, teachers' residences, fence, walls and conveniences at New Heath, in the county of Derby. Messrs. Rollinson & Son, architects, 13 Corporation Street, Chesterfield.

DEVIZES.—Jan. 20.—For erection of a female ward at the Wilts County pauper and lunatic asylum, Devizes. Mr. Charles S. Adye, county surveyor, County Offices, Trowbridge.

DONINGTON.—Jan. 21.—For erection of new chapel and classroom at Donington, Lincs. Mr. Leonard Harvey, solicitor, Market Place, Spalding.

DURHAM.—Jan. 19.—For construction and erection of a road bridge over the river Wear, near Harelaw, about one mile west of Wolsingham. Mr. George W. Egglestone, highway surveyor, Stanhope.

DURHAM.—Jan. 22.—For erection of two houses, shop, stables and outbuildings at Stanley. Mr. John Calvert, High Street, Stanley.

EAST DULWICH.—Feb. 4.—For erection of eighty-five houses upon the Grove Vale Estate. Mr. William Oxtoby, borough engineer.

HACKNEY.—Jan. 20.—For erection of a block of balcony dwellings for the working classes on a site situated at London Fields. Particulars at the Housing Section of the Architect's

Department, London County Council, 19 Charing Cross Road, S.W.

HALIFAX.—Jan. 20.—For erection of public conveniences on the north side of Trooper Lane. Mr. James Lord, C.E., borough engineer, Town Hall, Halifax.

HALIFAX.—Jan. 26.—For erection of five houses on the Manor Royd Estate, fronting into Manor Heath Road. Messrs. Richard Horsfall & Son, architects, 22A Commercial Street, Halifax.

HAMPTON.—Jan. 31.—For erection of a detached house in the Acacia Road, Hampton, Middlesex. Mr. Fredk. G. Hughes, architect, Marling Park, Hampton-on-Thames.

HARELAW.—Jan. 19.—For erection of a road bridge over the river Wear, near Harelaw, about one mile west of Wolsingham, Durham. Mr. George W. Egglestone, highway surveyor, Stanhope.

HARLYN BAY.—Jan. 23.—For erection of a residence at Harlyn Bay, Cornwall. Mr. Ernest Wise, architect, Launceston.

HENDON.—Jan. 19.—For street works in First Avenue, Cowley Place, Wilberforce Road and The Burroughs. Mr. S. Slater Grimley, engineer to the Council, Hendon.

IRELAND.—Jan. 19.—For erection of a public library in Lower Kevin Street, Dublin. Particulars may be obtained at the office of the City Architect.

IRELAND.—Jan. 20.—For erection of branch premises and hall at Spencer Road, Londonderry. The Secretary, Equitable Co-operative Society, Ltd., 59 Strand Road.

IRELAND.—Jan. 21.—For erection of a Methodist manse at the Curragh Camp, county Kildare. Mr. Samuel H. Bolton, surveyor, 2 Hume Street, Dublin.

IRELAND.—Jan. 28.—For erection of a medical officer's residence, dispensary and out-offices in the town of Blessington. Mr. D. J. Purcell, clerk to the Guardians, Naas.

IRELAND.—Jan. 30.—For erection of a new church at Glacknadrummond, county Donegal. Mr. John M. Robinson, architect, 7 East Wall, Londonderry.

ISLE OF WIGHT.—Feb. 6.—For erection of new coastguard buildings at the Needles, Isle of Wight, consisting of houses for four men, watch-room, outbuildings, &c. Specifications, &c., can be seen at the Director of Works Office, at the Alum Bay coastguard station, or at the office of the Superintending Engineer, Portsmouth Dockyard.

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LANCHESTER.—Jan. 20.—For taking-down a small block of outbuildings at the workhouse, Lanchester, and rebuilding it on another part of the site; also for repairs to boiler-house. Messrs. Newcombe & Newcombe, architects, 89 Pilgrim Street, Newcastle-upon-Tyne.

LANGLEY PARK.—Jan. 24.—For erection of a workmen's club at Langley Park, near Durham. Mr. F. H. Livesay, architect, Bishop Auckland.

LEEDS.—Jan. 21.—For repairs at the various schools during the year ending February 28, 1904, for the Leeds School Board. Mr. W. Packer, clerk.

LEEDS.—Jan. 24.—For erection of a retort-house at the New Wortley gasworks. Mr. R. H. Townsley, general manager, Gas Offices, Municipal Buildings, Leeds.

LONDON, S.E.—Jan. 20.—For erection of a steel and galvanised iron car shed at Easing Road, Rye Lane, Peckham, for the London County Council. Particulars at the Architect's (Highways) Department, L.C.C., 19 Charing Cross Road, W.C.

MAPPERLEY.—For erection of new Wesleyan church, Mapperley, Derby. Mr. A. E. Lambert, architect, 22 Park Row, Nottingham.

MEDOMSLEY.—Jan. 20.—For additions to the National school, Medomsley. Mr. G. T. Wilson, architect, 22 Durham Road, Blackhill, co. Durham.

MIDDLETON.—Jan. 22.—For erection of the new Post Office and tenement offices in Long Street and Sadler Street. Messrs. Stones & Stones, architects, 10 Richmond Terrace, Blackburn.

MONKWEARMOUTH.—Jan. 24.—For erection of a Congregational church and schools, Roker Baths Road. Messrs. J. Potts & Son, architects, 57 John Street, Sunderland.

NEW HEATH.—Feb. 3.—For erection of boys, girls and infants' schools, teachers' residences, fence walls and conveniences. Messrs. Rollinson & Son, architects, 13 Corporation Street, Chesterfield.

RAINHILL.—Jan. 22.—For erection of a w.c. block at the main asylum building. Mr. Jas. Pornall, clerk's office, Rainhill Asylum.

ROCHDALE.—Jan. 19.—For supply and fixing of new pitch-pine dressing-boxes, concrete flooring, &c., in the first-class swimming-baths at the Public Baths, Smith Street. Mr. James Leach, town clerk, Town Hall, Rochdale.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

ST. ALBANS.—Jan. 26.—For erection of a stable and coach-house on the Hill End asylum estate, near St. Albans. Mr. George T. Hine, architect, 35 Parliament Street, Westminster.

SCOTLAND.—Jan. 19.—For erection of branch free library at Arthurs Terrace, Dundee. Mr. William Alexander, city architect, Dundee.

SCOTLAND.—Jan. 19.—For erection of two houses at Ivy Bank, Grantown. Mr. William Grant, The Dell, Rothiemurchus, Aviemore.

SCOTLAND.—Jan. 19.—For erection of new station buildings at Wemyss Bay and Inverkip. Mr. J. Blackburn, secretary, Caledonian Railway Company, 302 Buchanan Street, Glasgow.

SCOTLAND.—Jan. 24.—For erection of Broughton higher grade school. Mr. Carfrae, architect, 3 Queen Street, Edinburgh.

SHEFFIELD.—Jan. 21.—For erection of offices, warehouses, workshops, &c., to proposed glass bottle works at Darnall Road, Attercliffe, Sheffield. Mr. Arthur Fawcett, architect, King Street, Wakefield.

SHREWSBURY.—Jan. 20.—For removing, excavation and construction of abutments, &c., in connection with a new access to the Shropshire Union goods yard at Shrewsbury station, for the joint committee of the London and North-Western and Great Western Railway Companies. Mr. A. E. Bolter secretary to the joint committee Paddington Station.

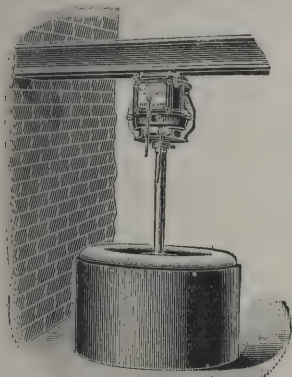
SUNDERLAND.—Jan. 24.—For erection of a Congregational church and school in Roker Baths Road, Monkwearmouth. Messrs. Joseph Potts & Son, architects, 57 John St., Sunderland.

TOTTENHAM, N.—Jan. 20.—For erection of stables, cartsheds, workshops, three cottages and general dépôt buildings on land facing The Green. Mr. W. H. Prescott, engineer, Coombes Croft House, 712 High Road, Tottenham.

WALES.—Jan. 19.—For erection of sixty cottages on the Gellifaelog estate, Merthyr Tydfil. Mr. Isaac Edwards (Edwards Bros.), Cambria Chambers, North Street, Dowlais.

WALES.—Jan. 19.—For supply and delivery of from 12,000 to 14,000 square yards of rock-faced blocking facing for the main dam of the Cray Reservoir and Tunnel Works, Breconshire. Mr. H. A. Dix, manager, Cray Reservoir Works, Breconshire.

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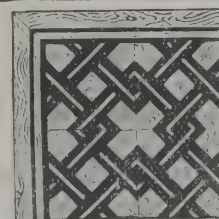
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WALES—Jan. 19.—For erection of houses for the working classes, fire-engine station, and the foundation of roads at Bangor. Mr. John Gill, borough surveyor, Bangor.

WALES—Jan. 24.—For erection of a steam laundry at Mountain Ash. Messrs. Morgan & Elford, architects, Mountain Ash.

WALES—Jan. 25.—For alterations and extensions to the infants' school, Onllwyn, near Neath, and for the erection of boundary walls at the Seven Sisters school, Dylais. Mr. J. Cook Rees, architect, St. Thomas's Chambers, Neath.

WALES—Jan. 26.—For erection of a stone lifeboat house, with timber slip, &c., upon or near the foreshore in the harbour of Newquay, Cardigan. Mr. W. T. Douglas, architect, 15 Victoria Street, Westminster, S.W.

WALES—Jan. 26.—For extension to the King's Arms hotel, Caerphilly. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES—Jan. 31.—For erection of a drill hall in Aberystwyth, 1st Cardigan Royal Artillery Volunteer Corps. Mr. G. T. Bassett, architect, Aberystwyth.

WALSALL—Feb. 9.—For erection of a school to accommodate 1,000 children, and a cookery centre and caretaker's house at the Chuckery, Walsall. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WALTHAMSTOW—Jan. 26.—For erection of a school to accommodate 520 at Selwyn Avenue, Hale End, and alterations and additions, including nine new classrooms, to the Maynard Road schools. Mr. H. Prosser, architect, School Board Offices, Walthamstow.

WANDSWORTH—Jan. 26.—For construction of underground sanitary conveniences at Tooting Broadway. Particulars may be obtained at the Surveyor's Office, 215 High Road, S.W.

WEST HAM—Jan. 27.—For street works in Queen's Road (part), Fife Road, Watford Road, Exeter Road, Brent Road, South Molton Road and Wellington Place. Mr. John G. Morley, borough engineer, Town Hall, West Ham, E.

WINCHESTER—For erection of a dwelling-house at St. Cross, Winchester. Messrs. Colson, Farrow & Nisbett, architects, 45 Jewry Street, Winchester.

THE demolition of the Three Bridges at Sonning has been commenced. The iron bridge to be placed instead is according to the plans of Mr. Tollet.

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For repair of two brick bridges at Boscomoor, near Penkridge, Staffs. Mr. H. M. WHITEHEAD, surveyor, Penkridge.

F. SPRENGER, Penkridge (accepted) £68 10 0

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For street works in Eaton Road, off Vicarage Lane, Bowdon, Cheshire.

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W. Laurence & Sons	11,984	0	0
Foster Bros.	11,972	0	0
Appleby & Sons	11,627	0	0
W. Smith & Sons	11,289	0	0
H. Wall & Co.	11,275	0	0
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WATTS JOHNSON (accepted)	10,297	0	0

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Bennett Bros. 1,270 0 0
Clark 1,205 0 0
Free 1,203 0 0
Priest & Son 1,196 0 0
Roe 1,168 0 0
Chase 1,161 9 10
J. BROWNING, Fishponds (accepted) 1,160 0 0

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For construction of North and Mid Holmwood drainage works. Mr. WILLIAM RAPLEY, jun., surveyor, Clovelly, Tower Hill, Dorking.

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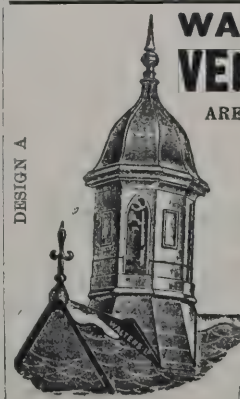
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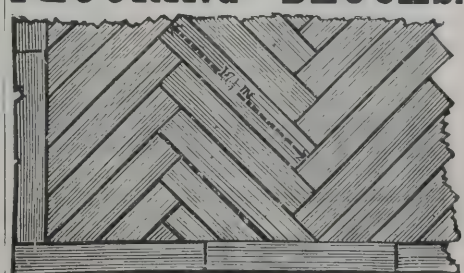


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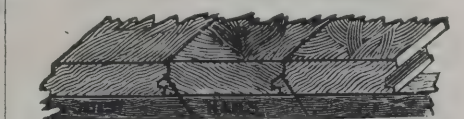
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LOWER BEBINGTON.

For laying-out New Ferry recreation grounds, Lower Bebington, Cheshire.

Yates & Stanfield	£1,460	0	0
J. Hearn	1,110	10	0
G. Jones	825	3	2
W. Barron & Son	760	0	0
G SMITH & SON, Rock Ferry, Birkenhead (accepted)	755	10	0
E. Thomas	460	0	0

PINXTON.

For construction of sewerage and sewage purification works for the parish of Pinxtion, for the Blackwell Rural District Council. Messrs. HERBERT WALKER & SON, engineers, Nottingham.

Thomas Barlow	£7,844	0	0
Johnson & Langley	7,492	0	0
J. H. Williamson & Co.	7,480	0	0
G. G. Rayner	7,437	16	4
Robert Wood	7,373	0	0
J. H. Vickers, Ltd.	7,195	0	0
Cox & Son	7,136	0	0
Fred Evans	6,930	0	0
Cope & Raynor	6,917	16	6
H. Ashley	6,900	0	0
J. F. Price	6,876	0	0
Thos. Smart	6,842	0	0
J. Holme	6,831	0	0
A. J. Cottle	6,768	0	0
Lock & Andrews	6,757	0	0
A. Jewell	6,728	11	0
H. Barry	6,700	0	0
J. & J. Warner	6,639	15	3
A. F. Houston	6,600	0	0
Ward & Tetley	6,511	10	0
Bower Bros.	6,494	0	0
J. Bradley	6,259	10	0
J. Tomlinson	6,250	0	0
J. LANE, Skegby, Mansfield (accepted)	6,081	10	0

SHENFIELD.

For providing and laying about 369 feet of 9-inch glazed pipes in the parish of Shenfield, near Brentwood, Essex.

J. JACKSON, Clova Road, Forest Gate (accepted)	£55	0	0
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NANTWICH.

For erection of a residence, with stabling, cottage, &c., at Willaston, near Nantwich. Mr. HENRY BUSHELL, architect, 33 New Bridge Street, E.C. Quantities by the architect.

S. Redhouse, sen.	£4,469	0	0
J. Harding	4,455	13	7
J. Morrey	4,285	4	6
J. T. GRESTY, Willaston (accepted)	4,088	15	0

RADSTOCK.

For supply of furniture, &c, to the Radstock Urban District Council.

Laverton & Co.	£211	14	3
J. Bird	210	0	6
Bartlett & Sons	200	10	6
T. P. Gane	198	0	9
W. Tovey	167	15	9
F. S. CASSWELL, Mid Norton (accepted)	145	4	0

ST. MARGARET'S.

For erection of four houses at St. Margaret's, near Dover. Mr. VERNON SHONE, architect, Market Square, Dover.

Jell	£1,270	0	0
Roffey	1,217	0	0
R. & G. Brisley	1,147	0	0
G. Munroe	1,076	5	0
J. Morgan	1,083	12	0
Warren & Son	1,082	11	0
Tapley	1,075	0	0
J. Parsons	1,050	0	0
Caspall	1,000	5	0
E. Stokes	960	15	0
C. E. BEAUFOY, Dover (accepted)	890	8	0

SCOTLAND.

For additions and repairs to Tyrie parish church. Mr. WILLIAM REID, architect.

Accepted tenders.

Geo. Corbett, builder.

Joseph Blake, joiner.

William Watt, slater.

Alex. Craig, plasterer.

Francis Watt, painter.

Robert Tindall, heating engineer.

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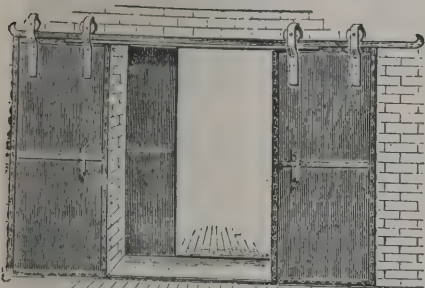
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SCOTLAND.

For erection of houses for Messrs. J. & G. Wallace in Fraserburgh. Mr. WILLIAM REID, architect, Saltoun Square, Fraserburgh.

Accepted tenders.

W. Yule, Maud, builder.
Morrison Bros., Maud, joiner.
S. S. Stephen, Castle Street, slater.
A. Wiseman, Manse Street, plasterer.
A. Russell, Mid Street, plumber.
T. Strachan, jun., Manse Street, painter.

For construction of a pipe sewer in Dudley Terrace, Leith.

W. Morris	£83	12	6
R. C. Brebner & Co.	79	5	1
W. Watt	79	0	0
J. A. Dobbie & Co.	73	15	0
R. Wallace	66	16	9
T. Davidson	66	11	10
A. Cameron	63	13	6
HENDERSON & DUNCAN, Harmony Villas, Morningside, Edinburgh (<i>accepted</i>)	57	11	3
Leedham Bros.	57	9	7

TEIGNMOUTH.

For alterations and additions at the gasworks.

J. & H. Robins	£4,500	0	0
Drakes, Ltd.	3,200	0	0
Cockey & Sons	3,142	0	0
Willey & Co.	2,999	0	0
Sugden & Co.	2,975	0	0
Timmis & Co.	2,806	18	0
W. Edgar	2,800	0	0
R. DEMPSTER & SON, Elland (<i>accepted</i>)	2,800	0	0

TORQUAY.

For alterations at Yewberry. Messrs. E. APPLETON & SON, architects.

T. Leaman	£175	0	0
S. Hawkins	161	0	0
T. VANSTONE, Torquay (<i>accepted</i>)	150	0	0

TOOTING.

For erection of a receiving home for children and stabling at the Tooting Bec Asylum, for the Metropolitan Asylums Board. Messrs. A. & C. HARSTON, architects, 15 Leadenhall Street, E.C. Quantities by Messrs. FOWLER & HUGMAN.

Foster & Sons	£17,265	0	0
Leslie & Co, Ltd.	16,961	0	0
Wm. Downs	15,463	0	0
J. Appleby & Sons	14,120	0	0
C. Miskin & Sons	13,958	0	0
W. Johnson & Co., Ltd.	13,790	0	0
J. & M. Patrick	12,799	0	0
CROPLEY BROS., LTD, Epsom (<i>accepted</i>)	12,599	0	0
P. Banyard, Cambridge*	12,545	10	8

* Errors discovered in calculations.

WALES.

For erection of business premises in Alexandra Road and new stables to Commercial hotel. Mr. T. E. MORGAN, architect, Aberystwyth.

Humphreys & Williams	£1,399	0	0
Rowlands & Jones	1,382	10	0
Owen Bros.	1,337	0	0
Edward Bros.	1,281	0	0
E. E. Jenkins	1,275	0	0
W. Jones & Son	1,180	0	0
JONES & LEWIS, Aberystwyth (<i>accepted</i>)	1,117	0	0

For new out-patients' department, Swansea general and eye hospital. Mr. GLENDINNING MOXHAM, architect, Swansea.

Lloyd Bros.	£1,340	4	6
Walters & John	1,307	0	0
Thomas Richards	1,304	0	0
David Jenkins	1,297	0	0
J. Marles & Son	1,277	10	0
J. & F. Weaver	1,255	0	0
Bennett Bros.	1,252	0	0
John Davies	1,250	0	0
Griffith Davies	1,243	10	0
HENRY BILLINGS (<i>accepted</i>)	1,220	10	0

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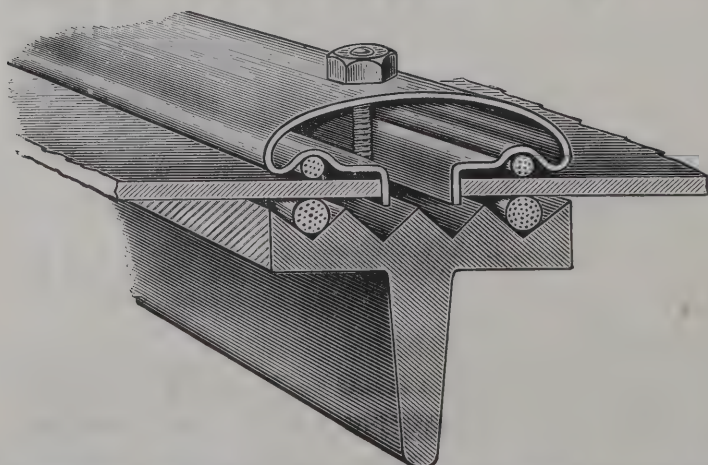
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For Index of Advertisers, see page x.



WALES—continued.

For erection of new house, Richmond Road, Swansea. Mr. GLENDINNING MOXHAM, architect, Swansea.	
David Jenkins	£1,820 0 0
Henry Billings	1,790 0 0
Bennett Bros.	1,780 0 0
J. & F. Weaver	1,765 0 0
JOHN DAVIES (accepted)	1,745 10 0

WATERLOO.

For street works in various streets and passages, Waterloo, Lancs. Mr F. SPENCER YATES, surveyor	
T. HORROCKS, 113 Greenwich Road, Walton, Liverpool (accepted).	

WEST BRIGHTON.

For steel constructional work in extension of pavilion on West Brighton Pier Mr M. NOEL RIDLEY, engineer, Dartmouth Street, Westminster.	
LOCKERBIE & WILKINSON, LTD., Birmingham (accepted)	£593 12 6

WEYBRIDGE.

For repairs painting, &c., at the fire brigade station, Balfour Road, Weybridge. Mr. JOHN CRAWSHAW, surveyor.	
H. J. Nicholson	£127 5 6
S. A. Greenfield	113 6 0
Spinner & Cyser	108 4 6
S. Brown	103 0 0
Willis & Dickinson	95 0 0
C. HORSELL, Weybridge (accepted)	89 0 0

WHICKHAM.

For street works in Park Terrace, East Back Park Terrace, Napier Road, East Back Napier Road. Crowley Road, Back Market Lane and West Back Napier Road, Swallow, Whickham Durham. Mr J. B. RENTON, surveyor.	
J. BEWLEY, Dunston (accepted).	

WILTS.

For erection of a cloakroom at the girls' school, Stratton St., Margaret. Messrs. WILLIAM DREW & SONS, architects, Swindon.	
H. LOOKER, Stratton St. Margaret (accepted)	£158 10 0

A NEW FIRE ESCAPE.

It will be with feelings of satisfaction and a sense of relief many of our readers will learn of the advent of a new fire escape, which reduces to infinitesimal proportions the difficulty of effecting a safe escape from burning buildings in which the ordinary means of exit are cut off. To women of all ranks of life the new escape will be especially welcome, for there is no difficulty in entering it, and once in one cannot possibly fall out of this ingenious contrivance, which is the invention of Mr. W. H. Riley, chief fireman in the employ of Messrs. Bradbury, Agnew & Co., proprietors of *Punch*, formerly a member of the Metropolitan Fire Brigade. On buildings of great height in narrow thoroughfares the new escape must prove of indescribable value. It is already attracting much notice, and will be shown at the forthcoming Fire Appliances Exhibition at Earl's Court. The idea reduced to practical utility consists of a not unsightly addition to the architecture of the building it is intended to serve. It comprises an iron conduit carried round the erection, immediately below the roof, from which is suspended a combination wire ladder and fireproof canvas shoot, apertures for entering which correspond with the number and location of the windows in the establishment. When not in use the escape is stored inside or outside the top storey, and can be released by means of simple mechanism, access to which is obtainable from many points inside and one outside the building. It then falls to the ground ready for instant use, and is pulled by the aid of ball bearings in the conduit in a moment to any desired point, a fact which is making it very popular in the equipment of country mansions. While firemen are passing up the ladder women, children, invalids and even insensible and injured persons may slide or be slid with the greatest safety to the ground by their rescuers. The invention, which marks a new era in the bravery and ingenuity which has ever been a tradition of firemen in particular and Englishmen in general, cannot be used by burglars, is practically imperishable, and can be safely used from any height, while in the process of rescue persons may pass through the flames without seeing them.

THE Wigan and District Mining and Technical College, which has recently been completed at a cost of about 50,000l., was formally opened on the 12th inst

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ELECTRIC NOTES.

THE inauguration took place on the 8th inst. of the electric lighting installation which has just been completed at Oban. The station is capable of easy extension so soon as required, is able now to light 31 arc lamps and 4,000 incandescent lamps.

WITH the object of providing better ventilation in the Court corridors electrical fans have now been fitted over the entrances to the four lavatories on the Court floor at the Law Courts, while improved means of ventilation have been effected at the various windows of the corridors.

THE new bridge being erected at Barking by A. Fasey & Sons for the U.D.C. of Barking town is of a novel description, being of the roller bascule type. It is to be worked electrically, and the electrical equipment has been entrusted to Messrs. Mather & Platt, Ltd. This comprises two motors of 50 horse-power each, either of which is sufficiently powerful to roll the bridge open, and a controlling switch of special design, by which all the movements are controlled through one lever actuating a barrel contact. The actual power required, as is seen, is not great, since the cables attached to the rolling portion of the bridge, after passing round the hoisting drums, are attached to heavy counterweights which slide down a specially curved path.

ERITH, Kent, is the pioneer in this country of a new system of electric current supply known as the "three high-pressure alternating electric current supply system," now rapidly coming to the fore in America and on the Continent, and from the adoption of which we are led to expect great things. Although the 25,000 inhabitants of the town suffered so great inconvenience by lack of proper lighting facilities, the application to the Local Government Board for consent to a loan of 23,000*l* was opposed tooth and nail by a small section of the community known as the Ratepayers' Association, but a vote showed the majority to be in favour of the proposal. The inauguration ceremony took place on Monday in the presence of a very large gathering, which included Sir William Hart-Dyke, M.P. for the division. The buildings have cost about 20,000*l*. Ample space is available for extensions, and the site can also accommodate a refuse destructor should the Council decide to erect one, and car-sheds for proposed new tramways.

LORD KELVIN and a number of distinguished scientists and prominent men in the railway and commercial world last

week inspected a remarkable new illuminant at the offices of the British Westinghouse Electric and Manufacturing Company in Norfolk Street, London. The new light, which has electricity as its basis, is called the Cooper Hewitt mercury vapour-lamp, and is the invention of Mr. Peter Cooper Hewitt, of New York. The lamp, which is made in a variety of forms, consists of a vacuum tube of any length up to about 6 feet, in which mercury vapour is raised to a high state of incandescence. A curious but quite unusual light of a vivid violet hue almost entirely lacking in red rays is the result, and though for domestic purposes this light would be impracticable owing to the weird effect it produces, it is claimed that for many commercial purposes it has great advantages over the ordinary glow-lamp or the arc light. The chief is the economy effected, the consumption of electricity being only a half watt per candle-power, as against 3½ watts per candle-power in the ordinary glow-lamp. The Cooper Hewitt lamp, moreover, has a very long life, and it has run continuously two hundred days of ten hours each without renewal.

THE swing-bridges over the river Weaver at Northwich have for some time been worked electrically by means of plant supplied by Messrs. Mather & Platt, Ltd., and with such success that the Weaver Navigation authorities have entrusted to the same firm the work of equipping the Anderton lift, where the Shropshire Union Canal joins the Weaver, with electrical plant. By this conversion one man in the switch-house will be able to control all the necessary movements, whereas hitherto eight men have been necessary to work the lifts. The electrical plant to be supplied comprises two motors for working directly the lock gates at the end of the Shropshire Union Canal, which is 70 feet above the level of the Weaver, one motor on each of the pontoons controlling by means of ropes the lock gates at either end, and one motor in the engine-house directly connected to a variable stroke pump to supply water under pressure of 700 lbs. per square inch to the rams. The two vertical cylinders of the hydraulic lifts are connected, so that as one pontoon sinks it forces up the other. An additional supply of water under pressure is, however, necessary to overcome friction and any difference in weight between the two pontoons.

A MEETING of the Glasgow section of the Institution of Electrical Engineers was held on Tuesday evening in the Philosophical Society's Hall, Bath Street, Glasgow, Mr. H. A. Mavor, the president, in the chair. Mr. M'Whirter read a

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paper descriptive of a group of faults on a wire in the neighbourhood. He said the problem was worthy of the most serious consideration, but so far he had been unable to arrive at a solution. Mr. Wm. A. Chamen, electrical engineer to the Glasgow Corporation, opened a discussion on wiring. He said electric lighting was not dangerous, but there were risks owing to the carelessness of workmen. If they did not watch it the fire offices would want to increase the insurance premiums. He suggested that gasfitting, electric lighting and water-pipe work should be done by the same men. The most absolute freedom from fire was where the old-fashioned wood-casing was used. That was a terrible confession to make. Wood casing was dangerous if not carefully dealt with. The risk of damage by fire, even though caused electrically, really arose entirely from gas. They must be careful not to put their metal sheathing in contact with metal girders. Discussion followed upon both communications.

VARIETIES.

THE new Court House at Helmsley, Yorks, was formally opened on the 6th inst.

IT is estimated that the additions and alterations which are being or about to be made in the London hospitals will represent during the present year an outlay of at least 1,000,000/.

THE new police buildings erected by the Warwickshire County Council at Atherstone are to be used for the first time on February 3, when the annual licensing sessions take place. The new buildings are somewhat hidden from view in a side street, but they are commodious and well appointed.

AT the Croydon County Council on Wednesday evening Mr. F. C. Lloyd, town clerk of Huddersfield, was elected town clerk of Croydon, in place of the late Mr. Ernest Mawdesley. Mr. Lloyd studied law with Messrs. Watkins & Co., Pontypool, Monmouthshire, and in 1885 was appointed assistant town clerk of Cardiff. In 1895 he was unanimously elected town clerk of Huddersfield, which position he has held until now.

NO definite arrangement has yet been come to with the London County Council regarding the much-needed widening of High Street, Islington. At this week's meeting of the borough council the works committee recommended that the

members of the London County Council representing Islington should be informed that the borough council are not prepared to contribute towards the improvement, as in their opinion it is essentially a metropolitan one.

THIS week's *Jewish Chronicle* states that, after an important and animated debate, the Municipal Council of Modena has unanimously decided on the demolition of the Ghetto in that town. The Ghetto consists chiefly of two streets, Blasia and Coltellini, which are very old, and have been in existence from the time of the Roman settlement. In a map of Modena by Boccabadati, dated 1684, the Jewish quarter is there described as "Recinto degli Ebrei" (Enclosure of the Jews). The origin of the Ghetto, which dates from 1638, is due to Duke Francesco, but already at the beginning of the fourteenth century Modena contained a large number of Jews, who were highly respected and were recognised as being necessary to the place, owing to their great business capacities and to the remarkable ingenuity which they displayed in the promotion of industry and the arts.

BUILDING AND BUILDERS.

THE new schools about to be built at Leytonstone, for which Mr. Wm. Jacques is the architect, will cost 25,000/.

MR. SHINER, of 6 Crutched Friars, London, E.C., is the architect for the new infants' school for the Stifford School Board. The cost is about 5,800/.

THE ceremony was performed on Friday last of the cutting of the first sod for the erection of a new English Wesleyan church at Llangollen. The structure will be built of Cefn freestone, with a well-proportioned spire, and will be of the Gothic style of architecture. It will cost 3,600/.

BUILDING operations are going on at Wood Green in every direction. The largest scheme is that of the Artisans', Labourers' and General Dwellings Company to build as many as 1,400 or 1,500 houses at the Noel Park end of Wood Green at an estimated cost of 500,000/. The houses will consist of six classes and rents will vary from 7s. to 12s. 6d. per week. Close by this estate the London County Council has purchased some 180 acres of land, upon which it is intended to build some thousands of workmen's dwellings.

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147 STRAND, LONDON, W.C. (FIRST FLOOR)

A PROPOSAL is afoot for the extension of the Renfrew and Clydebank Joint Hospital at Blawart Hill, near Clydebank. At Monday's meeting of the Board in Clydebank, the clerk (Mr. Hepburn) submitted plans and estimates for the extension, showing the total amount to be 12,809*l.*, made up of 2,900*l.* for the administrative block, 1,460*l.* for six beds in the isolation block, 2,480*l.* for twenty-four beds in the scarlet-fever block, 1,050*l.* for four beds in the acute ward, a total of thirty-four new beds, which, with the thirty existing beds, will make a grand total of sixty-four beds. The remainder of the amount mentioned is made up of items for stables, &c., laundry and fittings, boundary walls, heating, tracks for heating, new boiler, furnishings, &c., and fees. It was further explained that an extension of the ground southward and eastward was necessary, and that the superior had agreed to a renunciation of the present lease, and to grant a new contract for 5½ acres or thereby at the former rate of 25*l.* per acre. The plans and estimates were unanimously agreed to on the motion of Councillor Cornock, seconded by Councillor M'Ghee, with an instruction to the burgh representatives on the hospital board to exercise their best efforts in hastening on the completion of the necessary arrangements. It was also reported that the district committee of the County Council of Renfrew had approved of the extension, but that the burgh of Renfrew had declined to be a party thereto. It was resolved to ask the district committee to join in a representation to the Local Government Board in terms of the minute of agreement constituting the hospital board.

TRADE NOTES.

MESSRS. G. & T. EARLE, the well-known cement manufacturers of Wilmington, Hull, have just issued in attractive form a useful book on "Standard Methods of Testing Cement," with illustrated descriptions, and instructions for the accurate use of the various machines employed. The book, which is carefully and comprehensively written, should be of great utility to cement users, especially as the methods employed have been endorsed by specialists.

CAWOOD, which is on the boundary of East and West Yorkshire, and formerly the residence of the Archbishops, also of Cardinal Wolsey, has had a valuable improvement in the shape of a new chime clock presented to the parish church by

Mrs. Smith, Goole Bank House, Cawood, to the memory of her late husband, who was churchwarden sixty years ago, when the old clock just taken out of the tower was brought from Selby Abbey about five miles away.

NEW FIRE STATION AT SALFORD.

THE new fire station at Salford, which is now rapidly approaching completion, is situated in Albion Place, The Crescent, in the centre of the borough as far as the population, public institutions and manufacturing establishments are concerned. The new buildings cover 5,550 square yards of land, facing Peel Park. The main centre block contains the rooms for the fire engines, each of which can be drawn out at once, as they stand side by side with a doorway for each. Behind the engine-rooms are the stables, and as the horses are brought into position at the engines, the harness, which is suspended above each engine, will drop into position. The stalls of the stables are so arranged that the horses have a direct run to the engines. Close to the engine-room is the call office and duty-room, and behind that is the parade and instruction room. The wing projecting towards the Crescent, to the right of the main block, is set apart as the chief officer's house, and the corresponding wing on the left contains the workshops. There are houses at the back of the station surrounding the drill-ground for seventeen married men and their families, and land has been reserved on which, if necessary, other houses may be built. The equipment of the new station will be most up to date, all the latest appliances having been introduced. There will be facilities for the turning out simultaneously of four pair-horse machines, fully manned, within fifteen seconds from the time a call is received.

The situation of the new fire station is an ideal one, for the roadway immediately in front of the station is 70 feet wide, and leads to the Crescent, one of the widest thoroughfares in the borough. Any part of the borough can be reached in a few minutes, and when the station is in use Salford people will not be loth to admit that the expenditure of 26,000*l.* has not been excessive when the greater security of their lives and property is considered. The Salford Corporation are under agreement with Eccles, Pendlebury, Swinton and other outlying places to attend fires in those districts, and the brigade will be able to reach any such fires much more quickly and in greater force than they can do under the existing circumstances.



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QUEEN'S HOTEL, LEEDS: THE LOUNGE.

THE TOWER, DANESFIELD, GREAT MARLOW.

NEW CATALOGUES.

MESSRS. MATHER & PLATT, LTD., Salford Ironworks, Manchester, send us a pamphlet descriptive of their automatic sewage appliances and the different systems employed. The photographic views of installations actually at work help very materially to the understanding of the valuable information given.

THE General Electric Co (1900), Ltd., are sending out new price lists of the Robertson incandescent electric lamp, for which they claim the advantages of long life and economy of current; and another dealing with portable accumulators, hand lamps, and electrical accessories for motor cars.

FROM The Willesden Paper Company we have received, in addition to a useful "tear-off" calendar, some specimens of their "Willessden waterproof and rotproof press copying sheets, for which it is claimed, apparently with justification, that it is clean to handle, free from smell, does not crack on the edges, very durable and economical, and the most effective damping sheet in the market," while its price is low.

FIRE APPLIANCES IN THE CITY.

THE county purposes committee of the Corporation have recently presented to the Common Council a report of their proceedings in reference to the fire in Queen Victoria Street in the summer, when ten lives were lost. Having referred to the inquest and the jury's verdict and rider, they stated that they had learned with satisfaction that the London County

Council had procured four 70-foot ladders, and had also decided to try experimentally Pompier ladders, and to make certain alterations which would increase the efficiency of the Watling Street station. The Council had further arranged that every fire alarm which was connected with that station should also be connected with the other City stations. The committee considered that a ready and easy means of escape should be provided from the upper part of every building in the City, that fire-prevention legislation required revision, and that to be effective its application should be made retrospective. They noted with gratification that the London County Council were about to introduce a Bill in Parliament to amend the provisions of the London Building Act, 1894, relating to safety from fire, and they suggested that provision should be made for egress from the upper floors or roofs of all buildings other than the ordinary staircase. They further considered that it was desirable that the Factory and Workshop Act should be amended so as to give increased powers of inspection to the Government inspectors. They were informed that the Fire Brigade committee of the County Council were trying experimentally the keeping of engines at full steam. The suggestion of the jury as to distinguishing street fire alarms by distinctive lamps was being carried out in several parts of London by the local authorities. As to the use of matchboardings for walls and ceilings, the Council were seeking powers to amend the Building Act in that respect. The Corporation committee have received authority carefully to watch and report upon all legislation in connection with fire prevention initiated by the London County Council or any other authority.

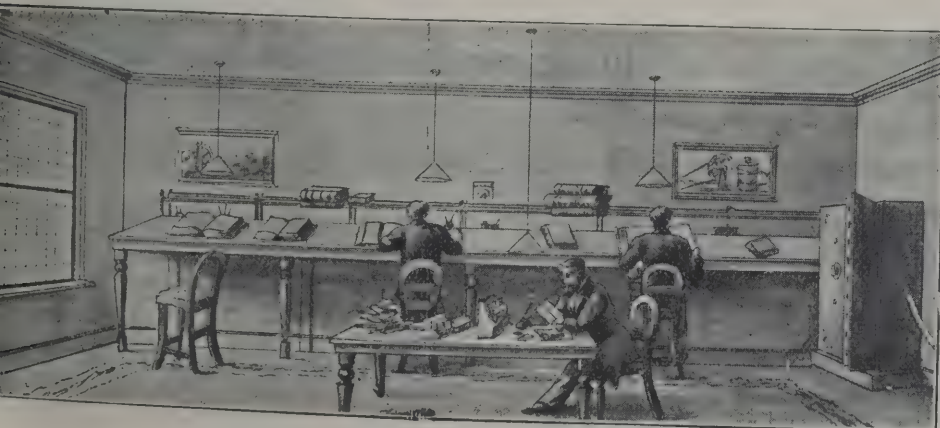
AN AMERICAN BUILDER ON FOREIGN LABOUR.

AT the last convention in Washington of the National Association of Builders, Mr. Armstrong delivered an address, in which he said:—

It was my good fortune to spend practically the year of '98 abroad, and the more I saw of the conditions of the labouring men and mechanics there the more pleased I became with ours here, the more proud of this country of ours. Off in Palestine, at Jezrell, on the traditional site of the palace of Ahab and his wicked wife, Jezebel, I saw a building being erected, not one of our "skyscrapers," however, nor yet a replica of the ivory palace of the king, but simply a one-storey hut, such as the

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The above illustrates an office where the light coming from the sky falls on to the floor and is absorbed, thus leaving the back part of the room dark. The illustration below shows the same room with WILSON'S PATENT MULTILUX WINDOW fixed. This refracts the rays of light and throws them horizontally, thus preventing them falling on to the floor, and lighting up the whole room.

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natives have. There was one mason working, and for hod-carriers and mortar-mixers there were two girls. The mortar was made of offal, mud and straw, formed into balls about the size of a croquet ball, and thrown up, one at a time, to a man on the wall, who caught it as we would a ball, spread it, and set the stones. For this these girls got a penny a day, and the man approximately 5 cents. These conditions surely would not suit us, either in the price of labour or the amount of work accomplished.

At the Bergen (Norway) International Fisheries Exposition the United States had the largest and most complete exhibit, yet when I asked the representative of our Government there what part of our exhibit commanded the most attention, he took me to the photographs, exteriors and interiors of the homes of the Cape Cod fishermen, and said "those unquestionably," for the fact that in these little houses there were carpets, pianos and pictures complete, impressed the natives more than all else; one of them only that day said to him, "That is as good as our king has." This is as it should be; a man who is honest, capable and willing to give a full day's work is entitled to enough wage to raise his family, educate them, have his own little home, his bath, his piano and all reasonable comforts, for these enumerated are not luxuries, but are necessities, if man is to be anything above animal.

But for this high wage must come the greatest possible effort. Limitation of labour must never be conceded. Unionism must be taught that the way for them to have work is not to limit the output nor to subdivide what is at hand, but that each should do the greatest day's work possible, that work makes work, otherwise every labour-saving device would be a public calamity. This, gentlemen, should be a principle from which we should never deviate a hair, for our own interests; yes, but higher still, as a patriotic duty, for if the limitation of labour should get the foothold here that it has in England our industrial supremacy will soon be a thing of the past, and we shall share the fate of England.

It is beyond question that the primary cause in the decadence of England's industries has been the arbitrary exactions of the trade unions.

The London papers continue to call attention to the crisis of the British industry, and practically agree that British workmen, through their trade unions, are ruining not only themselves, but the industry of the country.

In travelling through England I found that many towns had practically been killed by trade unions, and could never

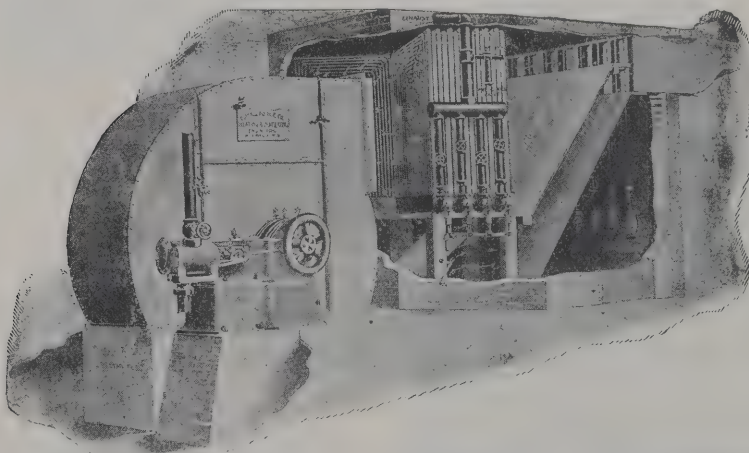
quite understand why the evil fruits of their exactions and the consequent loss to themselves did not teach them some valuable lessons, but apparently they did not.

In conversation with our consul at Liverpool relative to this very matter he told me of an incident happening but a day or two previously, which illustrates well the limitation idea. He, in going through a large steamship lying at Liverpool wharves, happened across a carpenter whom he knew, and though it was but early in the afternoon, he there, apparently to work, was seated, doing nothing. Addressing him by name, he said, "Well, John, you seem to be taking it easy." "Oh, yes," was the reply, "I have done my shift for the day," and there he was waiting around for quitting time. Wrong, surely, is this in principle and fatal in practice to both industry and labour.

Again, while staying in London, there was a strike on a near-by building. Upon inquiry I found that someone had been caught "rushing it," as my informant styled it, and they had therefore struck, had him brought before the local union and fined. I then asked him who set the pace. He said "the slow man." If the "slow man" is ever in position to set the pace in America it will be but the beginning of the end of our industrial pre-eminence.

INTERNATIONAL FIRE PREVENTION CONGRESS.

AN International Fire Prevention Congress will be held in London on July 7, 8, 9 and 10, in connection with the International Fire Exhibition at Earl's Court which has already been announced. The primary objects of the congress are:—To discuss the practice of building construction and the application of building materials from a fire preventive point of view; to compare the practice in different countries; and to inquire into the latest materials and systems of construction available, as also the latest inventions for the general equipment of buildings. The equipment of buildings is also to be considered, particularly in relation to the application of electric power and electric light. The views of electrical engineers and fire-brigade officers as to the origin and prevention of electrical fires, including fires caused by lightning, will be received. The legislative enactments in force in cities and districts, particularly in respect of the limitation of area or cubical contents for warehouse buildings and workshops, and the means of separating and uniting such buildings, also



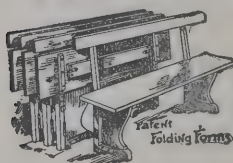
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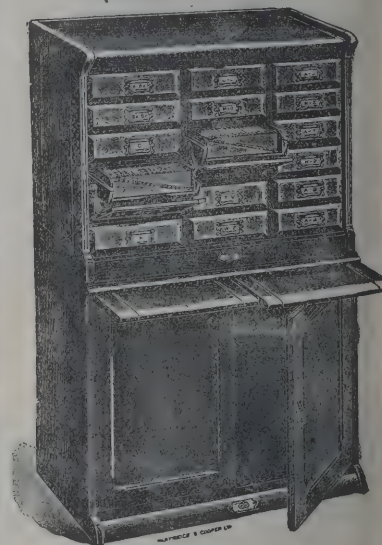
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the means of escape in case of fire, will come under review, particularly the regulations governing the construction and control of theatres and places of public resort and the provision of staircases and means of escape for the audience and employées; and those governing the construction of dwelling-houses and houses let in tenements, and the amount of fire resistance to be provided and the means of escape in case of fire. Other points are the best means of watching or inspecting buildings and plant exposed to fire risks without undue inconvenience to owners and occupiers, the practice of fire brigades in this direction, and the experience of the various fire patrol systems; the practice in respect of insurance against fire, and the systems adopted in various countries. The languages to be used in the discussions are English, French and German.

GLASS-MAKING IN GERMANY AND AUSTRIA.

A REPORT has been made from the diary of Mr. Frederick Carder, of the Wordsley School of Art and glass instructor to the Staffordshire technical instruction committee, who was sent by that committee last August to Germany and Austria, with a view of his visiting the glass-making districts and reporting the results of his observations to the sub-committee for the trades of South Staffordshire. In the course of three weeks he visited Berlin, Tschernitz, Dresden, Leipzig, Haida, Reichenberg, Neuwelt, Vienna, Nürnberg and Cologne. The results of his very careful observations are concisely summed up. The workmen of all grades have had a better education than the corresponding workmen in England. This is especially true of the managers, who have either passed through a University or attended for two or three years a course of instruction at one of the various technological schools. Promotion does not go by rotation as in England, but youths who show aptitude and skill are pushed forward. Thus it is that men of ability rise to the top and obtain payment according to their skill. Obsolete and old machinery is at once discarded, and the most up-to-date adopted in its place; and all the machinery is designed to save labour as much as possible. For example, at Ehrenfeld, near Cologne, a machine was in use for melting the tops of wine glasses, tumblers, &c., at the rate of 3,000 an hour. What English factory could work at one-third the rate? Every improvement that comes out in any way affecting the manufacture is immediately adopted, and in any difficulty, specialists,

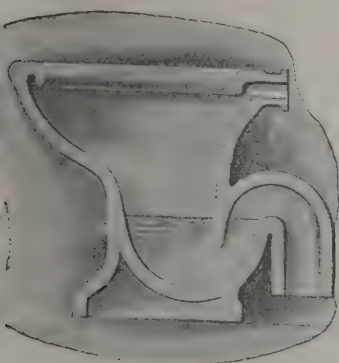
such as chemists and engineers, are at once called in. In England it is usual to stop work on Friday night; on Saturday the pots are filled with fresh material, and it takes usually from Saturday until Tuesday morning before the men can start work, or say sixty-four hours to melt and fire the glass. In Germany and Austria, on the contrary, many factories melt the glass at night and work it out during the working day of ten hours, while others with a greater number of furnaces are melting and working all the time, both day and night. The loss in dead charges to the English manufacturer in running his furnaces, as compared with the German, must be obvious. In Austria, out of 176 firms manufacturing all kinds of glass, there are 157 furnaces worked by gas systems, and only sixty-five furnaces with the direct firing of either coal or wood, which is invariably used in England. In Germany, out of 341 firms, there are 603 furnaces working by gas, and only ninety-four furnaces with direct firing. These figures show how alive the foreigners are to catch hold of a new discovery. In all the English houses making table-glass to-day not one of them is using gas furnaces, they are working with the same old style of furnace that has been in use for the past 100 years. To go into a German glass-house with its one or even six furnaces under one roof is very different from going into one of our English houses. There the atmosphere is quite bearable and free from the vile smoke, the insufferable temperature and the still worse effects of sulphur which are always in evidence in English glass-houses. The Germans can have their windows and doors in the glass-house wide-open owing to the furnace not being dependent on its own draught, as this is obtained from a tall stack placed in the yard. One cannot wonder that the German maker can work ten hours, whereas the English maker finds it quite enough to work six hours a day. One is also struck with the universal use of moulds, either of wood or iron, which enable the workpeople to produce their goods better, more quickly, and consequently at a lower cost. Better arrangements are adopted for conducting their factories, particularly in their warehouses, where everything appears to go by machinery. Thus, they have a small tramway running round the warehouse, with turntables here and there to facilitate the removal of the goods when packed in cases ready for the markets. The pushfulness of the German commercial traveller is well known, and also his ability to see and seize upon anything on the market, whether it be English, French or American. For example, he will purchase

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a piece of glass, and send it to his own factory, where it is immediately investigated by the firm with their staff, who at once start producing similar goods which are very often put on the market at half the original price. From Germany and Austria the best English cut glass has nothing to fear; it is only in the common cutting, where the goods are first blown in moulds with the pattern on, and then finally gone over with wheels by girls and women to give them a finished appearance. One or two Belgian houses are doing some very good cutting, some of whose productions are offered at prices for which they could not be cut in England. It is with these houses that we have to reckon, as well as with the French and Americans. In engraving and etching, better work is done in England in the best works than elsewhere. In enamelling, the Germans and Austrians have an advantage in making a harder glass, which stands a higher temperature, and consequently they can do better work. The English manufacturer, on the contrary, contents himself with making only one class of glass, and that with plenty of lead in it. It is thus unable to stand high temperatures without sinking in the muffle. The conditions under which the industries are carried out are more favourable to German and Austrian than to English manufacturers. Fuel is cheaper and the average wages lower.

DUBLIN NEW ELECTRIC-LIGHTING STATION.

THE members of the electric-lighting committee of Dublin Corporation made an official inspection of the Electric-Lighting Station, Pigeon House, on the 7th inst. These works are now in a very advanced state, and it is possible to appreciate the scale on which the enterprise has been approached by the civic fathers, and also the success with which the work has been accomplished. The buildings are situated at almost the extreme end of the Pigeon House. They consist of two large red-brick main structures, one set apart for the engine and generating plant, and the other for the boilers, with their various complicated appurtenances—automatic stoking plant, furnaces, &c. The engine and generating plant room is a very lofty apartment. In it two engines capable of indicating 800 horse-power have already been practically completed. These, however, are the smaller of the two sets with which the room will be equipped, the other two engines being capable of indicating 2,000 horse-power each. The fly wheels of

the smaller engines are 14 feet in diameter and weigh nearly 27 tons, whereas in the case of the larger pair of engines the diameter of the fly wheels will be 17 feet and the weight nearly 40 tons. The larger engines are at present only being laid down. For this work an overhead travelling crane is used, capable of lifting and carrying 25 tons, and itself weighing 17 tons. By its instrumentality the nicest possible adjustments are made. The alternators, which are also rapidly nearly completion, are four in number, two being capable of developing 1,000 kilowatts each and two 500 kilowatts each. As already announced the system adopted for the Corporation scheme is that known as the three-phase system, which will insure great convenience and economy in working. The switchboard will be of the most approved modern type, all its vital parts being placed on the one side in full view of the operator, and thus, owing to the wise determination of the committee to adopt the chairman's views on this matter, the work of superintending and tending the machinery will be rendered incalculably less dangerous. In the engine plant, too, economies of an important order are observed. By the most up-to-date system of steam condensation an economy in fuel and in water supply is insured, the water being supplied practically hot to the boilers. In the boiler-house—which is also in an advanced state of preparedness—ten boilers are in course of erection. Four of these, of the water-tube variety, are practically complete, and are now ready to undergo a very severe hydraulic-pressure test. The gases from the furnaces of these ten boilers on their way to the chimney pass through two economisers, consisting of a nest of cast-iron tubes, through which the feed-water for the boilers is heated up to boiling-point before being pumped into the boilers. These economisers are now complete and ready for being enclosed by the brickwork of the flues. The automatic stoking arrangements also tend much towards economy, and in this connection the convenience of getting the coal supplied from the vessels direct will be much appreciated. The walls of the boiler-house are, as in the case of the engine-room, of red brick, and there are open arches along the side facing to the north. This arrangement, of course, is made having regard to the great heat that will be developed inside the building when all the plant is in full working order. During the past few months considerable progress has been made in the various sections of the work, and, as far as present appearances go, the Dublin public may expect to see the station in full working order by June next.

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RURAL DRAINAGE.

AT the ordinary general meeting of the Surveyors' Institution held on Monday, the president, Mr. Arthur Vernon, in the chair, Mr. H. T. Scoble, professional associate, read a paper on "Rural Drainage and Sewage Disposal." He said no cut-and-dried system capable of universal application could be recommended. He gave a résumé of several letters on the subject which had appeared in the *Times* in September 1901, and a short description of Dr. Poore's system, with remarks on the value of effluents and reasons for the establishment of watershed authorities. Having reviewed the publications of the Royal Commission, and considered the progress of bacterial treatment, he discussed the progress of pathogenic and other bacteria in effluents, and Mr. Scoble summed up the position as regards rural affairs. He particularly drew attention to the very onerous conditions insisted on by the Local Government Board, conditions which must be altered ere the solution of this most important question could be attained. In the event of an existing method of sewage disposal in a country district being condemned, if recourse were had to a Local Government Board loan it became necessary to deal with no less than six times the normal dry weather flow, three times to be fully treated as ordinary sewage and the other three times on storm filters or special plots of land set apart for this purpose. The Local Government Board still fondly clung to land for final purification, failing to grasp the fundamental principle that bacterial treatment was essentially only an improved form of land treatment, wholly under control and efficient in all states of the weather. Where works could be constructed out of revenue, sufficient purification for all practical purposes could be attained with far less grandiose schemes. Existing methods of disposal in places where the population was not rapidly increasing would generally suffice if the importance of thoroughly attending to their duties were brought home to responsible officials and individuals. It would be well could regulations be framed to prevent the erection of many contiguous dwellings without a really sanitary system of disposal. Each problem must be considered on its merits, utilising or adapting existing arrangements. It might be taken as established that, where sewers were adopted, bacterial treatment possessed so many advantages that it should supersede all other systems. A vote of thanks was passed for the paper, discussion being adjourned for a fortnight.

NEW WASHHOUSES FOR EDINBURGH.

STOCKBRIDGE public washhouses, which the Town Council of Edinburgh have erected as an adjunct to the Bedford Street improvement scheme, were opened formally on the 7th inst. It was originally proposed that such an establishment should form a part of that scheme, but difficulties presented themselves on account of the improvement scheme committee not having powers to use any part of the funds at its disposal for such a purpose, or to restrict the use of the washhouses to persons affected by the improvement scheme. After a good deal of discussion it was resolved ultimately to erect the washhouses for general public use, and to carry this into effect the work was ultimately remitted to the plans and works committee. The building, which is of brick, consists principally of a large hall for washing, wringing and drying clothes, and an office for the ticket clerk on the ground floor, a crèche for children and a room for the attendant upstairs, with pumping and electric machinery in the basement and a boiler-house adjoining. The large hall, which has glazed brick walls with a light iron and glass roof, is well lighted, and accommodates forty washers. In each stall there is a steam boiling trough for the preliminary cleansing of the clothes, and a rustless washing tub. After the clothes are washed they are placed in the hydro-extractors, or wringers, which partially dry by centrifugal motion. Instead of being steam-driven as ordinarily, these are worked on the turbine principle, by water under pressure from a powerful steam pump. Ample hot-water services and steam are laid on to each division. This is generated by means of calorifiers placed in the basement. The clothes are dried in a long chamber placed on one side of the building, which is heated by means of a powerful electrically-driven fan working over an enclosed battery of steam pipes. The principal contractors for the builder's work were Messrs. James Kinnear, Sons & Co. Messrs. Mackenzie Brothers were responsible for the engineer's work, and the whole was carried out several months within the period provided for in the contract. The utmost economy has been observed in the treatment of the building, in which, being of the most plain and substantial character, and lying as it does in a somewhat narrow lane, architectural features have been sternly repressed, the most prominent feature being the chimney-stalk, which rises to a height of 100 feet. The cost approximately, exclusive of the value of the site, is 4,500*l*.

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BELFAST BUILDING TRADE.

THE last few years have not, according to the *Belfast News Letter*, been very flourishing ones for Belfast builders. The boom of five or six years ago was bound to be followed by a reaction, and unfortunately that reaction was intensified by the effects of the struggle in South Africa, which hit hard at almost every department of industry. People were loth to tie up money in house property, street extension showed a marked falling off, and the erection of artisans' dwellings, which had been one of the main branches of the business, was last year far below the average. Then, almost at the worst period of depression, came the prolonged strike in the carpenters' trade, and to some it seemed as if the industry was irrevocably doomed. Undoubtedly the blow was a severe one, but after many months of conflict an arrangement was arrived at satisfactory to both parties, and the settlement is such as to preclude the possibility of a strike of a similar nature occurring for some time to come. It is satisfactory to learn that trade for the past twelve months is much better than for the previous year, and shows a tendency to improve still further. The cost of materials has not undergone any extensive changes during the year, and the most amicable relations have existed between masters and men. The construction of artisans' dwellings still remains a depressing feature, though the want of work in this respect is not so keenly felt, and house property is beginning to go off once more. Intense interest was aroused in this trade by the "Mountpottinger ancient lights" case, and it is stated that if the decision of the Master of the Rolls is upheld on appeal, it will have a very adverse effect on builders in the city. In some quarters it is said that the result will be to hinder the development and reconstruction of the older portions of the town, as property owners will be disinclined to make extensive alterations in their premises lest they should trench on the lights of adjoining proprietors. In spite of these things the outlook for 1903 is not one of unrelieved gloom, and the construction of a better class of buildings, which has been the feature of 1902, augurs hopefully for brighter times in the future. A stranger to our city, however, might well be excused if he declined to accept these rather lukewarm statements regarding the position of the building trade, and declared that nowhere else had he seen such activity manifested in this industry. That is the first impression of the visitor, for in the heart of the city he hears the clink of trowel and hammer

above the din of the traffic, and his vision is arrested by great walls veiled in scaffolding and swarming with hundreds of busy workmen. Trade may not be as prosperous as could be wished, but undoubtedly the exertions of the builders are rapidly transforming Belfast. By a rather strange coincidence all the greater contracts now being carried out are in the centre of the city and at almost a stone-throw from each other. First in order of importance is the new City Hall, whose graceful lines hold and charm the eye of the observer. The outer stonework is now well on the way to completion, and there is little doubt that when finished the edifice as far as artistic design is concerned will stand high in the list of public buildings of a similar kind throughout the kingdom. The Scottish Provident Institution's gigantic building on the west side of Donegall Square has been completed during the year, and its appearance realises all the expectations which were formed regarding it. It is in every way worthy of the position it occupies, and makes a fine contrast with the new City Hall. The splendid premises of the Ocean Accident Company on the east side of the square are notable for their graceful design and novel appearance, and bid fair to become one of the show buildings of the city. The Northern Banking Company have carried on their work with great expedition, and their new bank is one well worthy of the reputation of the firm and a fine example of architectural skill. In College Square building operations are in full swing at the new Municipal Technical Institute, the foundation-stone of which was laid with fitting ceremony by the Lord Lieutenant during his recent visit. When this institution is completed it will prove not only a worthy home of technical education but will also constitute a notable example of what technical knowledge carried into practical effect can achieve. The new Assembly Buildings on the site of Fisherwick Church, which has been pulled down during the year, are going steadily ahead and have now reached the height of one storey. In some respects they are a most ambitious attempt in this direction by the Presbyterians of the city, and judging by the enthusiasm displayed the hopes of those responsible for their erection will be more than realised. The colossal warehouse of Messrs. Fulton & Co. near the Great Northern Railway Company's terminus is now completed, and adds not a little to the appearance of this street. Good work has also been done on the new Royal Victoria Hospital, and Messrs. Wright & Hunter's new warehouse in Arthur Street bids fair to be one of the finest buildings of its kind in the city.

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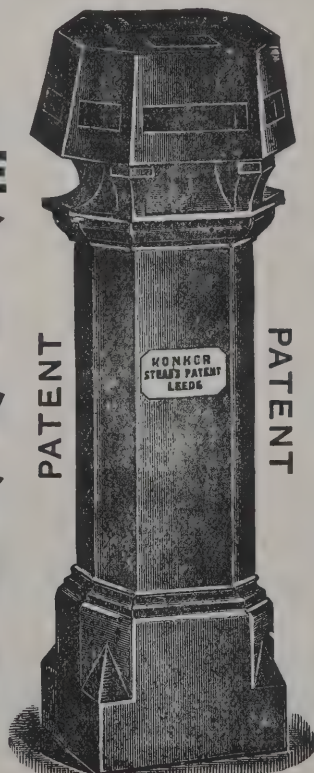
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THE AUCTIONEERS' INSTITUTE.

THE Midland Counties Branch of the Auctioneers' Institute held its annual general meeting at Leicester on the 8th inst., under the presidency of Mr. D. N. Royce, of Oakham. There were also present, as representing the Council of the parent institute, Mr. W. Bennett Rogers (past president, London), Mr. W. Roland Peck (past president, London), Mr. Thomas Grimley (chairman of the Birmingham and District Branch), Mr. Edwin Partridge (Derby) and Mr. Charles Harris (secretary, London). The Chairman was also supported by the following local members:—Messrs F. Tarratt, J. H. Tarratt, V. H. Tarratt (local hon. secretary), H. T. Hincks, J. Shakespeare, J. J. Curtis, T. H. Ford, A. H. Miller, G. Attenborough, V. J. Whittle and G. F. Brown, all of Leicester; E. Wallon, W. Hanson and J. Press, of Nottingham; J. Ashley and G. Loveitt, of Coventry; Jos. Rowland, Burton-on-Trent; T. T. Finney, Derby; S. H. Situs, Melton Mowbray; J. Pickard, Birmingham; and J. Styles, Rugby.

The Chairman, in moving the adoption of the annual report, said the branch now numbered seventy-six members, and that, after providing for the year's expenditure, there remained a balance in the hands of the treasurer of 30s. During the year twenty-two applications for admission to the parent Society had been considered and reported upon to the Council. The question of the subdivision of the branch had now taken definite form, and only just recently a new branch, to be called the "Birmingham and District Branch," had been sanctioned by the Council and formally inaugurated. The area to be embraced by it would include the counties of Warwick, Hereford, Worcester, Shropshire and Stafford, with the exception of the town of Burton-on-Trent.

The report was received and adopted.

The officers for the ensuing year were then elected by ballot, Mr. J. Cumberland, of Derby, being unanimously elected chairman, and Mr. W. H. Tarratt, of Leicester, hon. sec.

The Chairman, in responding to a vote of thanks for his past services, said it was most gratifying to know their Institute now numbered over 1,500 members, and, as an instance of what the Council were doing, he mentioned that he had within the last few days received a letter from the secretary with reference to a proposal to hold the examinations of the Institute in the great provincial centres concurrently with those in London. He thought it was most essential that they should encourage their students to thoroughly qualify for their pro-

fession, and to take the places of the older men as they passed away. The committee had carefully considered the question of fixing a scale of charges, but, seeing that the branch covered such a large area, and that customs were so variable, they felt that at present they could not adopt any scale which would give satisfaction to all. He very much regretted that the strong representation made by the Council to the Inland Revenue Board that they should insist upon all valuations for probate being made by licensed valuers only had not been acted upon, and he hoped the wrong in this matter would soon be put right. The position of the valuer should, he thought, be considered, as they wanted what was right and nothing more. He considered that no one profession should be allowed to poach upon the preserves of another. The valuers of this country were an important body of men—especially when they considered the many millions which they were called upon to value every year. He had great pleasure in moving that the branch should give out of their funds a donation of ten guineas to the benevolent fund of the Institute.

This was seconded and carried unanimously.

The members then lunched together at the Grand Hotel, and, after the loyal toasts had been honoured,

Mr. W. B. Rogers proposed "Success to the Midland Counties Branch." He thought these local branches were the mainstay of the parent stem, and was delighted to see the Midland branch in such a thriving condition. He thought that the honorary secretary especially had performed his duties in a most praiseworthy manner.

The Chairman, in replying, said he hoped they had done something to help forward the good work of the parent society, and that would always be their aim.

Mr. Wallon then gave "The Auctioneers' Institute," to which Mr. W. R. Peck responded. After alluding to the great help received from their ten local branches, he said he deeply regretted that the Council of a kindred institution had seen fit to oppose their recent application for a royal charter. He thought they had taken the course they had from a want of knowledge of the real objects and aims of the Auctioneers' Institute, though he hoped the day of their enlightenment was not far distant. At all events, he could not believe the opposition came from the general body of the members of the opposing institution. The Council of this Institute had firmly resolved to improve the profession of auctioneer and valuer, especially in the matter of education and training. He particularly urged all present never to miss an opportunity of

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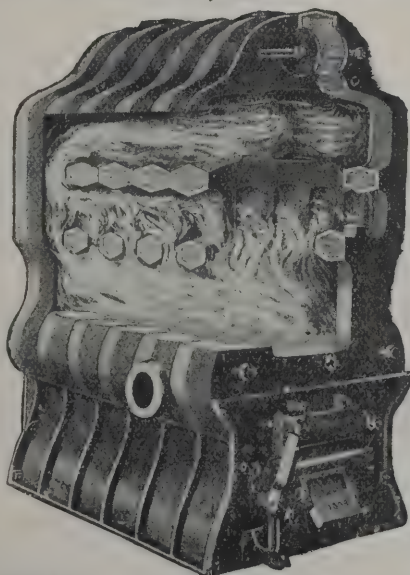
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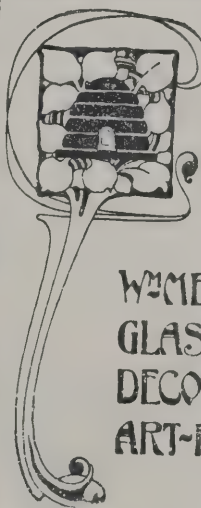
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Mr. Francis Tarratt proposed "Success to the new Birmingham Branch," and Mr. Grimley, in responding, said he was happy to say they in Birmingham had very high aims with regard to the branch and the Institute generally; that being so, he was quite sure of the support of gentlemen in the first rank in Birmingham and district.

Other toasts followed, and the meeting concluded with a vote of thanks to the Chairman.

BIRMINGHAM TENEMENT DWELLINGS.

It is rarely that private enterprise is directed towards the subject of the housing of the working classes on the "flat" system. Experience has shown that it does not offer sufficient inducement by way of interest on capital. Most of the large schemes, such as the Guinness Trust, the Peabody Buildings, and those erected by municipalities, are either philanthropic or are subsidised by the rates. Mr W. B. Cregoe Colmore (who is the owner of considerable estates in Birmingham) and his trustees have had under consideration the desirability of endeavouring to provide dwellings for artisans in the centre of the city, and have decided to build as an experiment a block of tenements on a piece of his own land at the corner of Hospital Street and Henrietta Street, near the bottom of Snow Hill. The scheme is not a large one, but if it should be attended with a fair measure of success it will probably be largely extended. Considerable time and thought have been given to the plans, and it is believed that they will be found to embody all that is best in the existing schemes, and in many ways will be in advance of anything yet attempted. It is not proposed in the present scheme, says the *Birmingham Post*, to accommodate the very poorest class, but rather those whose earnings are small, and who, from desire, and oftener from necessity, live in the centre of the city. The building, which will have a frontage to Hospital Street of 95 feet, will be four storeys in height, and will contain twenty-four tenements, sixteen of which will be two-roomed, and eight three-roomed tenements. The tenements will not be all communicating, as in some flats, by an internal corridor or out-side balconies, but they will be divided into three separate blocks, under one roof, each having one staircase. The staircases will be constructed of stone, having easy steps;

they will be well-lighted and ventilated. Each tenement will be what is known as "self-contained." The living rooms will be of ample size, and will measure in each case 140 superficial feet; the window will be recessed, and the space thus formed will contain a dresser, with a ventilated food cupboard. Leading from each living room is planned a scullery, containing a sink, a copper, a bath, a plate rack and a chopping block. Beyond the scullery and disconnected by a small area is a water-closet, one being provided for each tenement. In the dis- connecting area space is found for a coal bunker, and there will be also arranged a shoot for ashes, which will discharge into a receptacle on the ground floor. The bedrooms will measure 120 superficial feet. In the three-roomed tenement the second bedroom will be smaller, but each will be provided with a fireplace. Ample space will be left at the rear of the building which will be paved and used as a drying-ground. The flat roof often provided for this class of building will be avoided, because experience proves it to be useless as a drying ground or a playground, and a flat roof to a four-storey building tends to give it a factory or barrack-like appearance. The top storey will be partly in the roof, the roof being Mansard shape.

The design of the elevation is considered an important matter, and an attempt has been made to free it from the usual ugly appearance of such buildings and retain a distinctly domestic character. The buildings will be faced on all sides with a good red brick, the slates of the Mansard roof will be green, and the external woodwork will be painted. The sills of the windows will be made to receive flower pots. The roof will be boarded, felted and slated. The floors of the living rooms will be laid with small hard wood quarries, and the bedroom floors will be of wood block. The floors of the building throughout will be fireproof, and special precautions will be taken to make them as far as possible soundproof. An important point in the plan is that every room can be entered separately from the entrance lobby without going through another room, the objection against bedrooms opening directly from living rooms, as is the case in almost every tenement building, is thus overcome. The greatest care will be taken in all matters of detail; the walls will be plastered and "Duresco" coloured; a cement-painted dado will be provided for the living rooms; door frames will be iron; doors will be strongly made; window frames will be solid; wrought-iron opening casements will be provided to each window hinged on pivots top and bottom.

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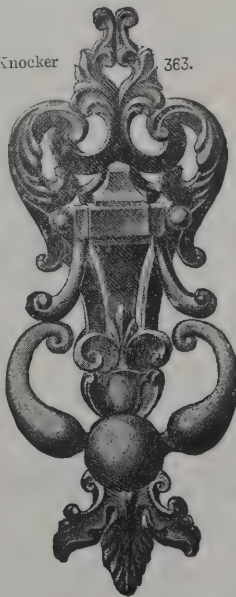
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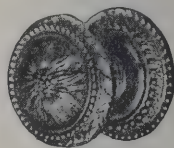
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WORCESTER NEW COUNTY ASYLUM.

MR. M. K. NORTH, M.Inst.C.E., Local Government Board Inspector, last week held an inquiry on behalf of the Board at the Shirehall into the necessity for the loan of 215,887*l.* to be taken up by the County Council for the erection of a new lunatic asylum at Barnsley Hall, North Bromsgrove. There were present Messrs. J. W. Willis Bund (chairman of the County Council), J. Bowen (chairman of the building committee), S. Thornely (clerk to the County Council), R. J. Oliver (committee clerk), W. J. Moody (finance clerk), G. T. Hine (architect), G. Kenrick (quantities surveyor).

Mr. Thornely said the present indebtedness of the county amounted to 103,865*l.* The amount required for the asylum was 215,887*l.*, but in addition to sanction of that loan they wanted a provisional order to borrow 300,000*l.* beyond their present borrowing powers, *i.e.* 483,667*l.* This was made up of 188,787*l.* required for the new asylum, 103,867*l.* present indebtedness, 19,900*l.* loan being negotiated, and a working margin for loans 144,013*l.*, which was inserted, as the Board recently told the Oxfordshire County Council that such a provision for future loans should be included in such applications.

Regarding the necessity for the asylum, Mr. Thornely said present asylum, built in 1851, was situate at Powick. It is a joint asylum, belonging one-ninth to the city of Worcester and eight-ninths to the county. At the present time it was full, patients were being sent to other counties. In 1898, when Lunacy Commissioners first complained of inadequate accommodation, there were 1,137 patients. These had increased in 1900 to 1,145, when attention was again called, and in 1901 to 1,166. A site had accordingly been purchased near Bromsgrove for 1,700*l.*, on which to build a new asylum.

Mr. Hine said the new asylum would accommodate 570 patients. The water supply would be procured mainly from the moles on the estate, which had been certified to yield 100 million gallons of water, and the remainder from the East Worcestershire Company. Nothing had yet been decided as to the method of sewage disposal, but it would probably be the sewerage system, with land treatment. The builder's contract

amounted to 151,475*l.* The building would be of red brick with terra-cotta facings, and the bottom floors and top ceiling would be fireproof. Fireproof staircases would also be provided. The building would be lighted with electricity and heated by the low-pressure steam system. There was a home-stand on the site, and the existing farm buildings would be utilised as much as possible.

Mr. Willis Bund said the new asylum had been forced on the County Council by the Lunacy Commissioners, who had been at them for some years to get it done. The new asylum would be for the county alone, and he explained that the reason why the Powick asylum had filled up so quickly was that besides county patients it took patients from the county boroughs of Worcester and Dudley.

The inquiry was then closed, and Mr. North proceeded to Bromsgrove to view the site.

THE HOUSING PROBLEM IN GLASGOW.

ACCORDING to the *Glasgow Herald*, Mr. Thomas Nisbet, the Master of Works, gave the following evidence before the Glasgow Municipal Commission on the Housing of the Poor, Sir Samuel Chisholm presiding. Mr. Nisbet submitted a statement in which he said he had compared the average number of one and two-apartment houses for the erection of which authority was given by the Dean of Guild Court during the last three years with the average number during the three years from 1872 to 1875 (1872-73 being the first year when the Dean of Guild Court return was prepared in the same manner as at present). He found that of one-apartment houses the average number authorised in the three years from 1889 to 1902 was 496, whereas from 1872 to 1875 the average number was 1,177; and of two-apartment houses the numbers were 1,583 for 1889 to 1902, and 2,332 for 1872 to 1875 respectively, showing that in 1872 to 1875 far more provision was being made for the poorer classes than in 1889 to 1902, and that, too, although in the former year the city was less than one-half the size it was in the latter years, and had much less of a population. For 1872-75 the average number of one and two-apartment houses authorised was 24.83 per cent. and 48.48 per cent., respectively, of the average total number of houses authorised, whereas in 1889-1902 the percentages were 15.52 and 46.24 respectively. If the three years 1866-69 be compared with the three years 1899-1902 it will be found that

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in the former of those periods (1866 being the year of the first City Improvement Act) of the average total number of houses authorised in each year, 25.64 per cent. were houses of one apartment and 48.77 per cent. were houses of two apartments, as compared with 15.52 per cent. and 46.24 per cent. respectively during the latter of those periods. During the past year, in which the value of the linings granted in the Dean of Guild Court exceeded largely that of any previous year, the one and two-apartment houses authorised only amounted to 11.42 and 45.20 per cent. respectively of the total number of houses authorised. He was satisfied that the number of sanitary and healthy houses available for the poorer classes, at rents that they could pay, was quite inadequate to meet the demand. He was also of opinion that as private enterprise was not providing, and was not likely to provide the requisite accommodation, it was the duty of the Corporation to do so. He could not imagine any good reason for supposing that the Corporation could not build as cheaply as any other body or person. The same architects and measurers and the same contractors would do the work for the Corporation at rates certainly not greater than would be charged to others. The number of illegal apartments was being regularly added to by the erection of new buildings for business purposes. In addition there were houses which might be closed under the thirty-second section of the Act of 1890. But action was not taken because of the insufficient number of empty houses and the practical difficulty of the three certifying officers examining simultaneously and personally. Recently that difficulty had been removed. He found that of one-apartment houses the average number authorised by the Dean of Guild Court in the three years from 1899 to 1902 was 496, whereas from 1872 to 1875 the average number was 1,177; and of two-apartment houses the numbers were 1,583 and 2,332 respectively. He could not give any reason for the lack of provision of cheap houses. Possibly the Building Regulations Act might have some effect, but he scarcely thought it could be serious. If a builder was likely to get a fair return he would provide cheap houses, and the Corporation could build as cheaply as any other body or person. If there was any difference the advantage would be with the Corporation, as there would be no risks. As private enterprise was not providing the requisite accommodation, it was the duty of the Corporation to do so, but he had not thought out any scheme as to how that duty was to be fulfilled. The practice of making-down houses had practically ceased.

By Mr. Brand: A large majority of those inhabiting the houses that he thought should be pulled down were rather dissipated. It was for the Corporation to decide whether the Acts should be enforced and these people expelled. Witne had not considered whether the reason that there were few houses for that class provided than formerly was that it was undesirable property.

By Mr. W. F. Anderson: He thought a large number of apartments falling to be closed under section 40 of the Act of 1900 ought to be closed even apart from that provision. He believed it was the mind of the Corporation that, as there were not houses of a sanitary class at a price within the reach of these people sufficient to house them, the section should meantime be enforced. Personally he would act gradually under the section. He had written to the clerk of police regarding his unsatisfactory position, inasmuch as there was no minute that he was to carry out the section, while there was a clear understanding that he was not to carry it out. Witne was not aware of any houses being built at rents of 6s. 6d. under. He knew of a case in which a public-house which had been closed was being converted into four single-apartment houses.

Professor Glaister: Is it within your knowledge between 1866 and 1876 one-fourth of the inhabited houses in Glasgow were built, and that 93 per cent. of these houses were of one, two and three apartments?—I have no knowledge of the proportion of the whole number of houses in the city cannot imagine that it is as you state.

Is it the fact generally that in the period mentioned there was an abnormal building of one and two-roomed houses? There was an abnormal building of all kinds of houses from 1868 to 1876.

Mr. Goldie: Is it within your knowledge that sometimes the supply of houses gets beyond the demand?—No, I say that. There is nothing whatever to prevent houses being made down to meet the demand for cheap houses.

And if the demand takes place it will be supplied before?—I do not know that.

It must occur to you that the private builder can build cheaper than the Corporation, because very often, on account of his skill in his own trade, he is able to do away with measurers and so on, which the Corporation must have?—mason of course would not have his work measured. The number of builders who are in that position are comparatively few.

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Professor Smart: Do you not think that one reason why small houses are not being built is that the Corporation have not enforced the provisions of their Act of 1900, and that if it were enforced it building would again go on by private persons?—I have no doubt that building might go on. It must be remembered that it takes some time to provide houses, and that if the Act were put in force at once people would have to be turned out of their houses without accommodation. Builders knew that the Act came into force two years ago, but they did not know that it would be in abeyance, and consequently they did not make an effort to provide houses.

Do you know if the requirements of the 1900 Act are more stringent than in other towns; are we in advance of other towns?—I don't know.

If wages are not rising we may possibly be asking builders to build houses which the tenants cannot pay for?—I really cannot say; I have not studied the question.

Are you of opinion that there is a class in the city who are unable to pay anything but slum rent?—There are poor people in the city who are not able to pay any but the smallest rent.

Do you know that a good house has a productive value, that is, if you put a poor man into a better house he will become a better worker and earn a better wage?—I have not considered that question at all, and therefore do not feel qualified to give an opinion on it.

I rather gather from your whole precognition that you regard the decrease of the one-room house as a thing to be explored?—Oh, no. I do not think that is so. I merely state facts in my precognition.

Is it not the fact that we have been rather congratulating ourselves of late years on the fact that we have been getting rid of the one-room house?—I do not know what you have been doing; I have not been doing that.

Do I understand that you approve of the one-room house?—There is a class of people who could not pay for anything else. There are a considerable number of old people, for instance, who can live in one-room houses quite comfortably and healthily.

Do you think that if you advised the Corporation to build one-room houses, it would be difficult to prevent better-class people getting into them?—I am not going to advise them. All I have said is that people must get houses to live in. If private enterprise does not provide them, the Corporation must do so.

Mr. Gray: Do you think private builders would supply houses for the class of people who occupy ticketed houses?—I do not think they are doing it in the meantime.

Do you think they will do it?—I do not know.

By Mr. A. Murray: Speaking generally, a larger number of people were now able to live in bigger houses.

By Mr. Brand: It was the duty of the Corporation to enforce sections 32 and 40 of the Acts. He had no power under section 40 except by delegation from the Corporation.

By the Chairman: In addition to the illegal apartments in which 20,000 people were sleeping, there were a great many houses which did not come within the scope of any of the Acts, but which were unsatisfactory for residential occupation.

You believe that there is a serious housing question in the city?—I believe there is.

Additional apartments were being made illegal by the erection of buildings adjoining not of a domestic character, but possibly of a warehouse character, because the builders of the houses had erected their buildings trusting to open space which was not in their own ground?—Yes.

Would you suggest that no builder should be allowed to erect houses for occupation unless he had in his own ground sufficient space for light and air?—That is now provided for, so that it cannot take place in respect of new buildings but only in respect of existing buildings.

In regard to the existing supply of houses for those 20,000 people, we have been told that the number of one and two-apartment houses which are being erected varies each year, and it has been suggested that the variation arises simply from the question of supply and demand. Do you think that is the only question affecting the variation?—No; supply and demand could never cause the variation shown in the returns. Probably the condition of the money and the labour market affects the number of houses that are erected.

Do you think that the supply of houses for the people stands precisely on the same platform as the supply of commodities, manufactured and otherwise? Supposing bread was very dear, would you ever suggest that the Corporation should begin to make a supply of bread?—If the people were starving they certainly would.

That is to say, they would give it away as charity?—Not necessarily.

Is the supply of houses in the position of the supply of commodities?—Yes; I think it is very much on all-fours.

You do not suggest that the Corporation should build



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necessarily, but only that if private builders do not the Corporation should step in?—Yes; people must have houses.

Does the state of matters in Glasgow just now warrant the Corporation considering very seriously the propriety of taking action?—I think it does.

By Professor Glaister: The houses which he described as unsatisfactory could not be touched from the point of view of health or legality. The difficulty was the provision of proper access.

By Dr. Howie: If the Corporation were to provide the houses in question, that would tend to restrict private enterprise.

By Mr. W. F. Anderson: Do you not think it would have the same effect as the lodging-houses had in stimulating private enterprise?—I do not know it has had that effect.

AN INSECURE TARPULIN.

At the Chichester Infirmary on the 10th inst. Mr. J. W. Loader Cooper, coroner, conducted an inquiry into the circumstances attending the death of John Thomas, a stonemason, employed at the Arundel Castle works, who expired at the institution on Thursday from the effects of an accident sustained while at work on the previous Monday.

Mr. W. F. E. Seymour, from the Home Office, one of H.M. Inspectors under the Factories and Workshops Act, was in attendance.

George Hinks, brother-in-law of the deceased, living at Thakeham, Pulborough, gave evidence to the effect that deceased was fifty-nine years of age, and was a very sober, industrious man.

John George Russell, manager of the works being carried on at Arundel Castle by Messrs Rattee & Kett, produced plans and photographs of the works, and explained very explicitly the circumstances under which the regrettable accident, the first during a period of twelve years, occurred. On the day in question workmen were engaged in making alterations at the top of a turret, taking the roof off the turret which covered the turret staircase. The deceased was upon some scaffolding about 37 feet above the roadway. The scaffolding was protected in the ordinary way with a guard-rail, and towards the south-west there was a tarpaulin put up to protect the men from the weather. It was hung between the south-west wall and the

turret. When the accident occurred, a fellow workman of the deceased came to witness with information of it, and he at once made arrangements for medical assistance, after which a conveyance was obtained and in half an hour's time the deceased was on the way to Chichester Infirmary. Deceased had been employed on the works over eleven years, and was a very sober and hard-working man.

Tom Mayo, stonemason, who was engaged at work with the deceased, stated that about ten minutes past two on Monday afternoon a gust of wind caught the tarpaulin sheet, knocking the deceased off the scaffolding down the turret staircase. He was at the time engaged in putting a support, consisting of a piece of wood—commonly called a "straight edge"—10 feet long and 5 inches wide, against the tarpaulin to prevent it blowing out. It was a rather windy day, and when the gust of wind caught the tarpaulin it blew deceased through the open doorway, over the guard wall below, and down the turret staircase as far as the thirteenth step. Witness went down at once and picked him up. Deceased did not speak, and was apparently unconscious. Everything possible was done for the injured man, and witness subsequently accompanied him to Chichester.

Replying to the foreman of the jury, the witness explained that the tarpaulin was tied to its frame, and there was a piece of cord in the middle to keep it in its place, but there was some play, and the wind caused it to suddenly bulge out like a sail. It was a tarpaulin 12 feet square. Deceased was face upward when he picked him up.

George Kiern, labourer, Lyminster, confirmed the evidence of the last witness.

Mr James Sands Elliott, house-surgeon at Chichester Infirmary, gave evidence as to the admission of the deceased to the infirmary. He was suffering from concussion of the brain and was unconscious. At the back of the head there was a scalp wound 4 inches long which exposed the bone. Over the front part of the head and forehead there was extensive bruising. Both eyes were black. There was also slight bruising about the shoulders. Deceased's condition gradually became worse, he never regained consciousness, and died about midday on Thursday. In his opinion the cause of death was fracture of the base of the skull, the result of the fall which had been described by previous witnesses. It was a hopeless case from the first.

The jury, upon this evidence, returned a verdict of "Accidental death."

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The Architect.

THE WEEK.

MR. HENRY TANWORTH WELLS, R.A., who died on Friday, the 16th inst., had for forty years been recognised as a successful portrait-painter. There was no artist during that time who was more capable in suggesting the qualities of English womanhood, and no painter's works should be regarded hereafter as more indicative of the domestic virtues of English ladies in the nineteenth century. From the excellence of his characterisation he may not have been a favourite with those who wished to appear on canvas as if they were extraordinary beings who lived on admiration alone. He was born in London in 1828. At first he practised as a miniature painter, but like others he found his occupation gone through photography. Fortunately for himself he was competent to work in oils. He rarely attempted subject pictures. In 1866 he was elected an Associate of the Academy, and four years afterwards became an Academician. There could hardly have been a more loyal and conservative member. He looked upon the Academy as a perfect institution, and was indisposed towards any alteration in its arrangements. Lord LEIGHTON recognised his qualities by selecting him to be his *locum tenens* during his illness. One of Mr. WELLS'S daughters married Mr. ARTHUR E. STREET.

THE special appeal committee of the Governors of St. Bartholomew's Hospital acted wisely on Monday in coming to the following resolution:—"That having regard to the criticism upon the proposed appeal for the enlargement of St. Bartholomew's Hospital, based on inaccurate information, a committee be appointed to report, first, whether it is desirable in the public interest and on financial grounds to retain St. Bartholomew's Hospital on its present site; secondly, in the event of the retention of the hospital on its present site, whether any better scheme of rebuilding than that suggested by the Governors can be devised; thirdly, upon any other matters affecting the hospital that the committee may think it desirable to inquire into." The agitation about St. Bartholomew's is no more than a repetition—it may be on a larger scale—of that raised by the Manchester Infirmary. An hospital which is established in one place during a great many years is generally looked on by the public, and especially by those who are likely to utilise it, as a fixture which cannot be altered without causing general inconvenience. On the other hand, there is no doubt that the sanitary condition of an old hospital is imperfect. When, as in Manchester and in Smithfield, the surrounding buildings have become larger in size, there is also an advantage in removal to a more open district. All such problems present many complex aspects, and much can be said for and against each of them. In Manchester several years have been occupied in endeavouring to satisfy all parties, but in vain. Not only has much money been spent on plans and inquiries, but still larger sums have been lost because some subscribers were discontented. The final arrangements seem to be as far away from realisation as ever. We hope the Manchester case will be taken as a warning by all interested in St. Bartholomew's. It is possible to have interminable discussions over reconstruction, and unless there is some compromise between extreme views, the hospital is sure to suffer.

WHEN Greek meets Greek, it used to be said, then comes the tug-of-war, and when one contractor starts to criticise another the allegations are likely to be unlimited. The law, however, does not make allowance for the knowledge which is displayed in discovering what are supposed to be weak points, nor will a critic be excused if he should appear as an angry ratepayer. Mr. GEORGE HAYLES, who is a builder and contractor, owns property in Wilton Road, Shanklin, which the Urban District Council resolved to have sewered, levelled, metalled, &c. Mr. DANDRIDGE

obtained the contract, which he carried out under the Council's surveyor and the clerk of works. While the works were in progress Mr. HAYLES informed the Council that the contract was being carried out in a barefaced, scamping manner, and gave particulars of defects. An inquiry followed, which showed there was no ground for the charges. Mr. HAYLES was not to be convinced and declined to pay his proportion of the expenses. The magistrates having ordered the payment, he appealed to the King's Bench Division without success. As the charges were mentioned at the meeting of the Urban Council and thus made public, Mr. DANDRIDGE was compelled to bring an action. The defendant pleaded that he wrote as a ratepayer and frontager, and his letter was privileged. At the trial before Mr. Justice RIDLEY and a special jury, the defendant was desirous to call evidence to show that the work was not carried out in accordance with the specification, but the judge intimated that such testimony would not affect the question raised by the case, which was whether the plaintiff had satisfied the surveyor, as it was said he had done. The case of the defendant, therefore, rested upon the plea of privilege and absence of malice. The jury returned a verdict for the plaintiff with 50% damages.

WHEN the Giffard injector came first into use in this country it was generally regarded as a philosophical puzzle. There was no question of its superiority in forcing water into a boiler, which was more quickly filled than formerly, but why the steam on coming into contact with cold water did not lose its quality was at first a mystery. HENRI GIFFARD was a Frenchman of marvellous inventiveness. In the course of thirty years he took out nearly forty patents to his own considerable profit, and he became a wealthy man. The greater part of his fortune was left to the French Government for the purpose of being employed on works of scientific utility. The Government in return decided to erect a memorial of GIFFARD in the headquarters of the French Society of Civil Engineers in the Rue Blanche, Paris. The commission was left incomplete by the late M. MASSOULLE, and was finished by M. COUTANT. The memorial is of white marble, and has been placed in the Salles des Fêtes of the Society. It consists of a bust of the inventor with allegorical figures. The Society of Civil Engineers in France promises to be as influential as the English Society. Wealthy members have been most generous, and, in consequence, the prizes which are offered give rise to spirited contests.

M. GÉRÔME not only has a long and distinguished history as a painter and sculptor, but he still is as brilliant in execution as he was in 1847. The *Cock-fighting*, which was painted in that year, is yet in the Luxembourg, and we hope it will long remain there. Since that time he has painted Greek, Roman, French and other incidents. He must be a daring man who would venture on the improvement of one of M. GÉRÔME'S pictures. But such an artist must exist, and he will soon have an opportunity of exhibiting himself in the law courts. In 1896 a picture was hung in the Salon in which M. GÉRÔME represented LOUIS XIV. and his Court in the gardens of Versailles. The king was shown near Madame DE MAINTENON. The painter was particular in suggesting that the incident occurred in the evening, when the expiring rays of the sun were visible, and the moon rose above the palace. This picture was lately found with MM. BERNHEIM, the dealers. It had been operated on by an American, who preferred to repaint the whole of the sky, and to omit not only the moon, but its delicate reflections on the basins. M. GÉRÔME was naturally annoyed, and proceedings have been taken by the artist in his own defence. MM. BERNHEIM admit that the picture appears to be altered, but from the successful manner of the execution they imagined the change was due to M. GÉRÔME himself. As is usual under such circumstances in France, this picture has been placed in the custody of an expert until the proceedings come to an end.



"AGRICULTURE."—BY H. S. MARKS, R.A.

THE WELLINGTON MONUMENT AT ST. PAUL'S.

A FOREIGNER who wished to exemplify the tendency towards confusion which is supposed to be inherent in England could not find a more striking instance than is afforded by the history of the Wellington Memorial. That noble work cannot be considered as completed, and as every stage of its existence has hitherto been marked by error, there is no knowing what may happen to it. There is a tragedy also accompanying it, for the life of the sculptor was clouded and, indeed, shortened by the unworthy treatment he received from representatives of the Government who were in power during its creation. A recent event suggests the propriety of a brief narration of the strange history.

WELLINGTON died in 1852, a year after the Great Exhibition in Hyde Park, which was imagined to initiate a new era in which war would be unknown. He was buried in the crypt of St. Paul's. In 1856 it was resolved to make arrangements for the erection of a monument in the cathedral. A competition that might be called international was organised. It excited so much interest that no less than five hundred applications were received for the conditions, which were accompanied by a plan of St. Paul's. The site selected was not that now occupied by STEVENS's work, or that in which it was originally set up, but under the most eastern arch on the north side of the nave, the space allotted measuring 13 feet by 9 feet. The cost of the memorial was estimated to be 20,000*l.*, an inadequate sum for so important an undertaking. The nine premiums offered amounted to 2,200*l.* Eighty-three designs were sent in.

Muddle prevailed as soon as the designs had to be considered. The judges were the Marquis of LANSLOWNE, Lord OVERSTONE, Dean MILMAN, Mr. EDWARD CUST, Mr. GLADSTONE and Professor COCKERELL. The last, as a professional artist, felt he was out of place, especially as his suggestions were not accepted. He therefore resigned. The business was consequently left in the hands of amateurs. One of their first steps was to express, but rather indefinitely, disapproval of the site. They said:—"We have not considered ourselves bound to take into exclusive consideration the peculiar fitness and adaptation to that spot in St. Paul's Cathedral which appears to be in contemplation for the erection of the proposed monument, which consideration might possibly have led to some difference in the selection." The judges assessed designs for the different prizes which varied in amount from 700*l.* to 100*l.*, but suggested that before one was chosen for execution the opinion of some experienced artists should be obtained. After the awards had been made the test was applied of placing the premiated models under a small copy in wood of the arch in the nave, although that position was thought to be unsuited. The design by ALFRED GEORGE STEVENS, to which one of the 100*l.* prizes had been adjudged, appeared to sustain the test most successfully, and Lord JOHN MANNERS, as First Commissioner of Works, gave him the commission.

The name of ALFRED STEVENS was mainly known in connection with industrial designs, and there was much discontent expressed over his appointment. This did not, so far as can be made out, produce any effect in

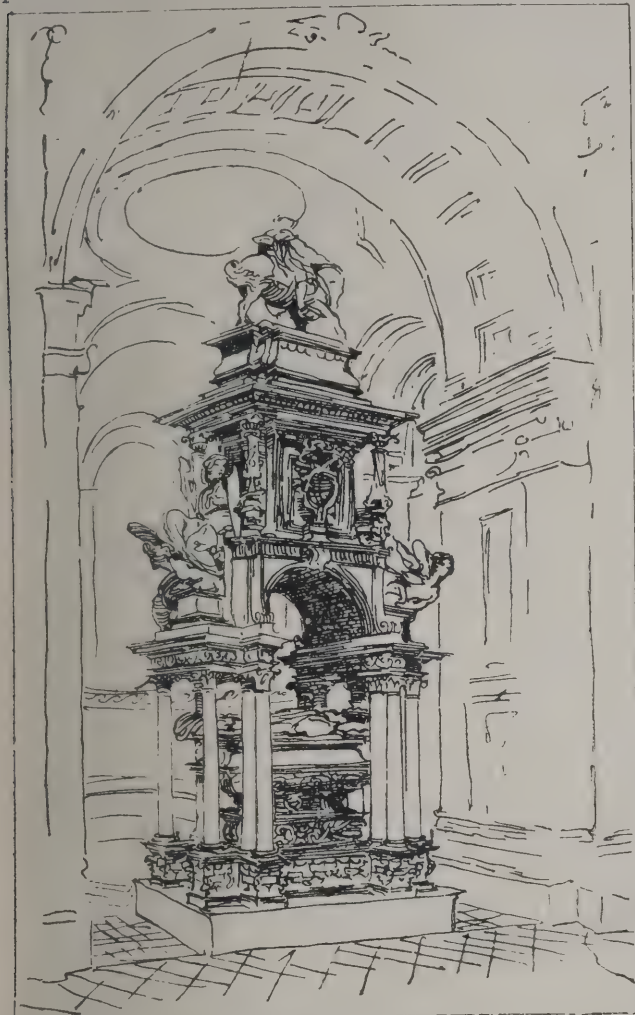
Whitehall. STEVENS was not, however, recognised as one of the grandes of art, and as if with a desire to diminish any pride he might feel at his success, the insufficient sum assigned for the work was further reduced. A pair of bas-reliefs were ordered to adorn the spot set apart for the memorial on the south-west instead of the north-east side of the building, and the 6,000*l.* which they cost, with other expenses, were deducted from the 20,000*l.* which was supposed to be applicable to STEVENS's work alone. STEVENS was allowed the liberty of altering his design to suit the diminished price, but the unprecedented condition was imposed on him that he must deposit with the Office of Works a full-sized model of the memorial as it was to be carried out. Eventually he found that not more than 10,000*l.* was at his disposal.

A work of such extreme importance, which was expected to embody the most advanced art of the time, and to express the national admiration for WELLINGTON, could not be modelled and wrought with expedition. STEVENS wished to brood over his task, and he altered and realtered, regardless of the fact that however much he might elaborate it and come nearer to perfection, there could be no increase of profit to himself. He was, unquestionably, a bad accountant, and, as such, was an undesirable contractor. The different parts of the memorial were not completed in the order which would be believed most satisfactory by ordinary men of business, and eventually it was necessary to make arrangements with another contractor for completing the work to such an extent as would enable the public to realise that the Office of Works was not wasting money on an illusion. The result is to be seen in St. Paul's. The materials used are bronze and marble. It is satisfactory to know that throughout it is an Englishman's design which is before us. It is also gratifying testimony to English skill that the complicated castings, than which none more difficult can be seen in Europe, were carried out in an English foundry by Mr. H. YOUNG.

In the original design, STEVENS intended to have the monument surmounted by an equestrian figure of WELLINGTON. He wished to suggest the victorious warrior who gained a hundred fights and never lost a gun, as well as the honoured chief who had to succumb like the meanest to death. STEVENS had studied Renaissance art too deeply to be unaware of the advantage of the pyramid arrangement. The equestrian figure formed a climax to the composition. That he was slow to realise so important a part of the memorial is easily understood. DA VINCI, we know, went long in quest of the central head for his *Last Supper*. Dean MILMAN had objected in a humorous way to the Duke riding into the cathedral on his own monument, and in consequence STEVENS had prepared a dome-like termination. Any modification of that kind, which, by-the-by, was never realised, did not cause the annihilation of his project of a conquering WELLINGTON. His pupil, Mr. HUGH STANNUS, tells us how STEVENS, "after his affliction by paralysis, and when his mind had become somewhat warped, began to prepare a model for an equestrian statue. This is very rough and incomplete, being a mere full-sized sketch in plaster."

Everyone knows that for the last quarter of a century much has been said and written concerning the statue. It

is a question which bristles with difficulties. STEVENS's rough sketch is less suggestive of the slim "Copenhagen" which was employed at Waterloo than of such a horse as Mr. G. F. WATTS has modelled, and which can portray the dominant power of the rider. Mr. STANNUS put one side of the case when he said:—"A first-rate sculptor accustomed to equestrian groups would doubtless find it (the model) very useful to fix the size and general attitude in making a group, should the Government decide upon going to the expense, and if the cathedral authorities revoke the late Dean's decision and allow of it. This would, however, at once take away from STEVENS the credit of having completed the work. The truest respect to his memory will be



ORIGINAL DESIGN FOR WELLINGTON MEMORIAL.

shown by leaving the monument as he arranged it at the climax of his judgment, instead of calling in another sculptor to divide the credit with the dead." On the other hand, we have the late Lord LEIGHTON advocating the worthily crowning of the magnificent conception of the memorial by an equestrian statue of the Duke. The rough unfinished model, he considered, would "serve as a sufficient guide to the artist who shall be privileged finally to carry out this portion of the cenotaph; that artist should be a man whose genius will carry him worthily through such a task, and whose reverence for the name of ALFRED STEVENS will insure that close adherence to the leading lines and features of the first design which the public voice would justly demand; such a man, both in his gifts and in his reverence, the Dean and Chapter of St. Paul's have seen in Mr. GILBERT, R.A., whose selection for so noble a task will command, I cannot doubt, universal approval."

Lord LEIGHTON endeavoured to collect the funds which would be requisite for the production of the statue. Sir E. J. POYNTER vainly attempted to induce the Government to give 2,000/. Last year the President considered he was justified in believing the Government would be more favourable to the proposal. Meanwhile another effort was being made by a few private donors to raise the money, and with better results. The Dean and Chapter have agreed to the project, and the commission

for the equestrian figure has been entrusted to Mr. JOHN TWEED.

In our days it is almost impossible to make a selection of an artist which will gain general approval. There is so much equality among painters and sculptors, it is assumed that the preference for any individual is a slight on the others, as if it were intended to convey that there is no longer a common average among all. It was inevitable that when a sculptor who was not even an Associate of the Academy was selected for so important an undertaking his capability should be questioned. Mr. TWEED can point to, at least, one trial-piece which is meritorious. We published some panels in June 1900 which were prepared by him for the base of a statue of CECIL RHODES, and anyone who will look at them with impartial eyes must allow that the mounted men and their steeds have been modelled with much vigour. The sculptor made no attempt to imitate, much less to rival, the Panathenaic frieze. He had to represent improvised soldiers without any common uniform, and their horses were not of the heroic type. The figure of CECIL RHODES is also without any idealisation. It is the portrait of a vigorous man who wished to be represented in his everyday attire, which it must be allowed is not suggestive of Bond Street. What must strike everyone is that the sculptor was above all things truthful, and faithfully realised the class of men who were the pioneers of empire in South Africa.

Is it to be taken as a universal axiom that a young sculptor who makes individuality predominant in his works must necessarily fail when he attempts to be imaginative? To say, as one of the Academicians does, that to put TWEED upon STEVENS is to put Salisbury spire upon St. Paul's, and that the result would be lamentable because the incongruity would be lasting, and remain an eternal discredit to the art judgment of this generation may be very vehement; but it is only a new version of the attacks made against STEVENS nearly fifty years ago, when the superior beings of art pointed out the incongruity of employing the work of a modeller of fenders and fireirons for a national memorial. Why should Mr. TWEED be denied the opportunity of producing an heroic figure of WELLINGTON because he has been successful in representing miners on horseback and undrilled infantry? A man who is a devoted admirer of STEVENS's work is not likely to be regardless of the spirit of the memorial.

At the same time, we consider that as the memorial is a national treasure it should not be made the subject of hole-and-corner arrangements. A few men may believe they are entitled to public gratitude because they subscribed among themselves the 2,000/ for the completion of the Wellington Monument, which Lord LEIGHTON with all his influence was unable to raise, and which the Government were afraid to grant. But they would show a more wise and generous spirit if they did not insist on being the dispensers of the money. Many a fine church in England has been ruined because subscribers insisted on the carrying out of pet schemes of restoration. Sculpture can be as easily disfigured as buildings. We do not suppose Mr. TWEED's work would be out of harmony with STEVENS's. As he obtained the commission let him retain it. But for the sake of principle we consider he ought to allow his model of the equestrian statue of WELLINGTON to be subjected to the scrutiny of some artists of standing. If there is any apprehension of jealousy affecting impartiality in England it would not be impossible to obtain a judgment from Frenchmen which could not be impugned. But what artist would equal Mr. WATTS for such a purpose?

We cannot close without remarking on the conduct of the Dean and Chapter of St. Paul's. For years past it was believed that Dean MILMAN's dictum about the unfitness of an equestrian figure was still accepted as law. Now there has been a startling change, and arrangements have been entered into which are enough to disturb the repose of the author of "Fazio." The Bishop of Stepney, although chairman of the committee, was not aware of what was transacted between his own committee and the Dean and Chapter. The President of the Royal Academy was no less ignorant on the subject. All this is very serious. It reveals that the cathedral authorities need supervision, and that to insure protection for the building and its contents Parliamentary interference is urgently demanded.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

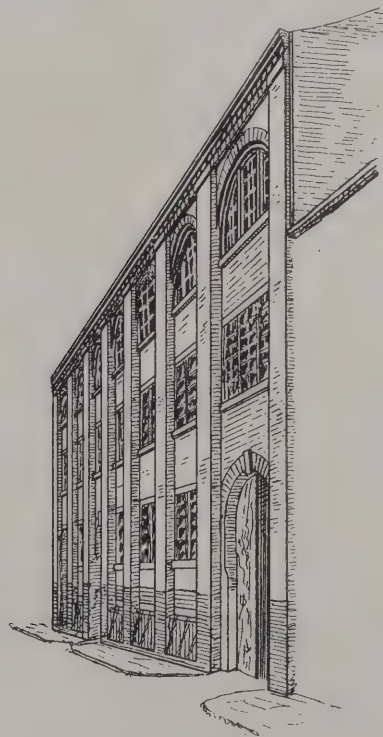
CHAPTER IV.

PERSPECTIVE EFFECTS, CHIAROSCURO, PROJECTIONS.

THE problem of dealing with *perspective effects* is one of varying importance, dependent, of course, not merely on the nature of the building, but, to a still greater extent, on the possibilities existing, or to be created, for obtaining perspective views. And it must be remembered that very little, if any, consideration need be accorded on this score to a *mere* façade, as possessed by many even important buildings in large towns. But when the facility exists for viewing the building *en bloc*, and from various standpoints, the value of perspective effects is in direct ratio to the *importance* of the structure, if it be a public one, and to its *nature*, if private.

It has just been noted that the *mere* façade needs but slight consideration perspectively, and this because it would require extraordinary efforts in such cases to produce unsatisfactory effects. As soon, however, as the roof-line with any excrescent features is in question, perspective merits close consideration. This will be more clearly shown by a couple of examples. One is illustrated here (fig. 21), being a perspective view of the warehouse previously shown in elevation. It will be noted that the effect of its being viewed from one imaginary standpoint (as is the case in geometrical elevations) is on a par with the proper perspective effect. But let anyone take the trouble to view the openwork finial to the Hippodrome in Leicester Square, London; it looks amorphous or, at any rate, misshapen. The effect from the street is displeasing in the extreme, though it is possible that the finial looked passable in geometrical elevation.

It is frequently remarked how this or that building looks so well (or otherwise) from such and such a view; as for example, St. Paul's Cathedral is said to be seen to greatest advantage from Fetter Lane. The writer's opinion is that Watling Street, by Bow Lane, offers one of the happiest views. This leads inevitably to the conclusion that architects should not merely consider the effect of their building from one particular standpoint, but should also take into account the possible positions for obtaining



Warehouse: G.P. Bankhart, Architect.
FIG. 21.

views; the latter requirement is twofold in its nature, not only expansive, but limitative—that is to say, that whilst the

knowledge that, in one instance; there are numerous points for observation will necessitate the consideration of perspective effects on an extended basis, a very limited scope for observance in another instance would render the consideration of such effects unnecessary.

To meet a possible contention that might be urged here—namely, that it evinces a poor artist who would treat thus grudgingly the question of perspective effects—it must be remarked that it is dealt with so as to show possible or permissible modifications of design, and it is by no means recommended that such harsh treatment should be accorded as would be implied by an abrupt dividing line. But after making all allowances, the following maxim will hold good, namely, that a design suitable where there exists an unobstructed view would admit of proportional modified treatment according as the view is more or less impeded. Consider, for example, an elevation such as is shown in fig. 22. This might be suitable for one of the

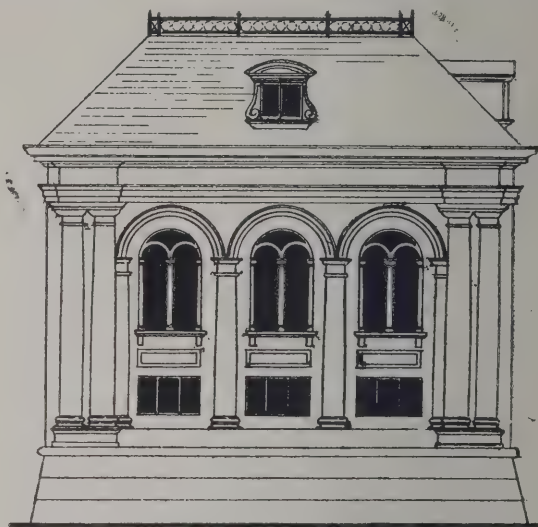


FIG. 22.—SIDE ELEVATION TO HOUSE.

sides of a detached house, with adequate means of viewing same. If, however, another building is brought so close up to it as to conceal the elevation from view, the aesthetic value of the design is destroyed; windows and arches which help to break the surface of a wall so pleasingly, and aid powerfully in perspective effects, lose their value in this respect when the two buildings are so close together as to render it impossible to focus the side elevation. Again, a raking plinth, as shown, which serves to add to the appearance of strength, loses value under like conditions; a heavy projecting cornice that gives effective play to chiaroscuro has a minimum value when the sunshine or daylight does not gain access. An example of such neighbouring blocks of buildings can be seen on Holborn Viaduct, London, and a glance at these would serve to show the uselessness of designing attractive elevations for their flanks. Of course, as previously remarked in reference to scale, if the obstruction is clearly but a temporary one, or of a nature likely to be removed speedily, and not to be replaced by another, then the treatment accorded should be as though an obstruction did not exist. Individual features should likewise be similarly considered, so frequently is a geometrical design stultified when subjected to the practical application of the laws of perspective. A dome requires the utmost care in design. St. Paul's Cathedral is a well-known instance of successful application; and the dome, holding as it does a somewhat central position on the building, and dominating the neighbourhood, is the noblest conceivable treatment under the circumstances. Objection is at times taken to the so-called falsity of the design, in that this dome is not constructional, but the objection is not one that should be seriously urged. WREN well knew the principles that should govern the employment of this feature. A paraboloid would not have been so happy a form externally as the nearly hemispherical section employed; whilst viewed internally the latter form might, through an optical illusion, have seemed to "sag" (bend inwards) at the crown; but, by using the paraboloid for the internal dome, the optical effect would be satisfactory. It is, as a

rule, a mistake to impute to people particular currents of thought when viewing their completed works; but, in the case of WREN, who has left so many successful monuments behind him, there is ample warrant. That St. Paul's has defects, regarded æsthetically, is pretty generally allowed, the most serious being the screen wall in front of the flying buttresses, but when any man can claim with justice to have surpassed WREN as an architect, it will be time for such an individual to cavil at the master's work. However, it would be then found that the desire to indulge in invectives would have passed away. The cathedral has been too often reproduced to warrant its inclusion here, but the construction to which objection has been taken is illustrated later. In passing, it may be noted that neither of the two domes referred to above is (strictly speaking) structural, an intermediate brick hyperboloidal cone doing the useful work, the two domes being more purely decorative.

Pavilion roofs, rectangular on plan, and of curved section, are frequently used on buildings, and, as customarily treated, have a very "lean and hungry look." It is most assuredly requisite that their effect should be tried in perspective from the principal possible standpoints. The finial or lantern, which forms the termination very frequently, requires careful contouring. It may possibly be considered a matter of individual taste; but to the author the finial treatment accorded to the dome on that otherwise fine building, the Carlton Hotel, London, is unworthy of its position. This is only one example of unpleasant effect that might be copiously illustrated. Flèches on roofs are also apt to look clumsy in treatment: it would be well in both cases to erect trial models on the buildings.

Intimately connected with perspective effects is the subject of the correction of optical illusions, and in this there are no better models to be followed than the ancient Greeks. They raised the subject to the level of high art. Entasis (the curvature given to shafts of columns) was introduced to correct the hollowed appearance (greatest near the centre) that a long, unbroken, straight-standing line would assume. The *scamilli impares* was similar treatment accorded to the steps of a flight, to prevent the appearance of "sagging" (or sinking) that would otherwise be noticeable.

Entasis is frequently—indeed, customarily—employed at the present day, but the use of *scamilli impares* is neglected. Many architects are, unfortunately, not satisfied with confining the use of entasis for a negative result, but employ it for the purpose of pulvination or cushioning, a fashion that is greatly to be deprecated. An example of this is shown in fig. 23. The mistake so often made is to follow blindly



Pulvination

FIG. 23.

any matter, instead of understanding the *raison d'être*. The Greeks, for example, did not commence the entasis from the base of the shaft, as they recognised it up to about the average level of the eye the straightness of a line was not affected optically; consequently the shaft was made straight for the corresponding lower portion of the total height, and thence to the top a very gentle entasis was employed. The result of the scientific care exercised was an apparently straight shaft, but in the present day the entasis is too often carbuncular. In a similar way to what is required by columns as regards entasis, so also is it with spires. Another feature in the employment of which the Greeks increased their æsthetic feeling was the diminishing shaft.

They were either guided by Nature, who even in the shape and diminution of the trunk of a tree (possibly the origin of the Greek column) works æsthetically; haply their artistic instincts sufficed, or they may have been influenced by both in combination. It may be urged that nature has a scientific explanation for such diminution, and that art and nature do not necessarily work in parallel grooves; but the probability is that the Greeks, convinced that there was not any scientific principle involved that would condemn the use of the diminishing shaft, felt themselves to be at liberty to indulge their artistic proclivities.

Other devices were also resorted to by them to improve the effect of their buildings, and all show evidence of earnest thought. They gave apparently additional strength to the angles of their stylobades by lessening the extreme intercolumniations, and in their Doric order, this produced the additional advantage of bringing the end triglyphs close to the angles of the frieze, thus further giving the appearance of additional strength. In Appendix B, some remarks by the Roman architect, VITRUVIUS, are extracted from his work on Architecture. These extracts will show incidentally that certain of the principles advocated in the present series, and written in the twentieth century of the Christian era, are amply supported by the precedent established in VITRUVIUS's writings of the first century.

(To be continued.)

ARCHITECTURAL COMPOSITION.*

WHEN ADDISON first presented himself as "Mr. SPECTATOR," he narrated his history in the belief that a reader rarely is pleased with a book until he knows something about the character of the author, his appearance and disposition. In those days books were not so abundant as they are now, and there were fewer writers. People do not trouble themselves about their favourite authors nowadays, or if they give them a thought they have confidence in their own ability to realise all idiosyncrasies without further aid than is afforded by the printed pages. In the case of Mr. VAN PELT they would be likely to say he was a vivacious gentleman who was fond of informal teaching, who would express his thoughts as readily by a little diagram on the margin of a student's drawing as by words, and who would enforce his conclusions by referring to the practice of French architects in whose offices he worked, or the lectures he attended at the Ecole des Beaux-Arts. In the "Apologia pro Vita Sua" Cardinal NEWMAN tells us how he was taught by WHATELY to weigh his words, and to be cautious in his statements; how Dr. HAWKINS enlightened him about Tradition; how some other Don of Oriel expounded to him the doctrine of Apostolical Succession, and so on. Mr. VAN PELT in the same way states that one part of his volume is due to the teachings of M. GUADET, that M. THIERRY made him realise the significance of a plan, and M. DEGLANE the meaning of the word "composition." We suppose many a young Sunday-school teacher must have been amazed at the backwardness of JOHN HENRY NEWMAN although he was a Fellow of Oriel, and no doubt there are students who will take airs when they contrast Mr. VAN PELT's dulness with their own instinctive appreciation of planning and designing. Both cases suggest what different significations can be attached to simple words. Does every architect who is in practice comprehend the significance of a plan, or the meaning of "composition," with all the fulness which the words convey to the mind of a French professor of architecture? We do not think so, and we believe that a man has reason to be grateful to anyone who would demonstrate to him, even partially, how vast is the knowledge and skill which plan or composition can involve.

This demonstration is rarely to be performed by means of a book alone. We can imagine that Mr. VAN PELT's pupils in the Cornell College will say that in his volume

* A Discussion of Composition Especially as Applied to Architecture, by John Vredenburg Van Pelt, Architecte diplômé par le Gouvernement Français, Professor in Charge of the College of Architecture, Cornell University. Illustrated by the author. London: Macmillan & Co., Ltd.

there is not the animation which was to be found in his lectures and conversation. All students do not encounter the same difficulties, and the way to expound plans or to give an initiation into the mysteries of composition must be adapted to the peculiarities of an individual student. In other words, we believe that the "Discussion," which does not in this case mean debating, is little more than an outline of the college discourses. It is divided into six parts, some of which relate as much to painting and sculpture and other modes of production as to architecture. In the first we hear of artistic virtues such as truth, simplicity, carefulness, &c.; in the second the elementary principles of composition and technical laws are explained; in the third we learn about the application of the laws of composition; in the fourth various suggestions are made about decorative works; the fifth and sixth relate to planning under various forms.

Mr. VAN PELT supports his conclusions by extracts from various writers, RUSKIN, and more especially M. MAYEUX, being considered as serviceable. Many diagrams are introduced, and the careful reader will derive from the book such a knowledge of French practice as will be useful to him professionally. For example, the following laws of composition express qualities which in French work are generally present:—

1. The interest must be focalised, and have its most potent expression in one point. (This point we shall call the climax.)
2. The number of secondary focal points must be reduced to minimum; where such points exist they must be conceived primarily in regard to the climax, and in their comparative importance must work up to it.
3. The different minor elements of the composition, each perhaps relating to its own special focal point, must still feel the influence of the climax.
4. In a pictorial composition the different elements must balance in such a manner that the average of interest will fall in the middle of the frame. In the other visual arts balance in relation to the centre of gravity must be observed.
5. That the different elements of a composition, climax, secondary climaxes and sub-motives may attain to the highest interest they must contrast one with the other.
6. That unity exist in the composition the laws of harmony must be observed and no foreign element introduced.

The foregoing conclusions or axioms are of course explained and developed. It is difficult to base art on science, but Mr. VAN PELT does so as far as possible. There is, for example, an interesting chapter on optical effects which will suggest reasons for perceptions which are indisputably incorrect. Thus, the angle at the apex of an equilateral triangle, which must be equiangular, with a horizontal base, seems more acute than the angles at the base. Parallel lines, as everybody is aware, appear to converge; it is also a simple matter to make right lines on planes look to be curved, and hence "it is possible some of the curves apparently used by the Greeks in place of straight lines in their larger temples—the Parthenon, for instance—presumably intended to correct unpleasant optical effects, were, in essence, the outcome of the illusion just described." But even sceptics are disposed to make an exception of the Parthenon although they may allow the rule applies to other edifices.

When treating of plans, some examples which won the Grand Prix of the Ecole des Beaux-Arts are introduced. M. DEGLANE, who has been successful in that way, recognises the difference between ideal work and efforts to meet specific conditions. One of his maxims, we are told, is "The architect can never have perfection. He must always choose the lesser of two evils." That is peculiarly applicable in the case of planning. Modern needs are not served by plans in the Louis XV. style, but wealthy Americans are willing to put up with some inconvenience in order to have a château. Mr. VAN PELT explains one exercise in planning on a grand scale, in which his students at Cornell took part. The subject was "a riding club," with stables for 160 horses, an arena for riding lessons and exhibitions, a carriage house and servants' quarters. Each of the items was taken up separately and considered, and after going through the work in detail and making several attempts, returning, it may be, to the first thought as the most eligible, the final work required is thus suggested:—"Further study of the sketch means a careful redrawing of the whole, or, at least, of parts, on

successive pieces of tracing paper—five, ten, twenty times, if need be. We begin with masses, and end by going into the smallest details, first at a small scale, then at double. Finally come the exhibition or working drawings." An exercise of that kind must have a beneficial effect upon young architects, although they will afterwards discover that commissions have to be executed in a more summary way. The teaching must also induce American students to look to France as the only country in which the art of architecture is systematised. Mr. VAN PELT gives general directions about the manner in which the planning of different classes of buildings should be taken up. The following extract relating to churches will show the spirit in which the most important part of the discussion is treated:—

There are two extremes toward which such buildings tend, the mystical and the scientific. Of the former the Roman Catholic Church is a type; of the latter the ethical culture cults. The more worship tends to the mystical the more do forms, pageants, processions, impressive ceremonies, music and all that appeals to the senses, and through them to the imagination, become important; as the cult tends to the scientific the more are these, or any suggestion of aught greater than force and matter, excluded. Character must foreshadow these tendencies. The range is from the cathedral of Chartres or Notre-Dame de Paris to the ethical lecture-hall. None of our Protestant forms of worship have the fulness of the old Roman Catholic service. In all modern services there is need of an auditorium. The Episcopal service is the most ornate of these. While it is the direct descendant of the English and earlier Roman Catholic service, it usually shows no need for processions. In the planning of its churches it does away with the requisite of side aisles, and even chapels, substituting that the greatest number of worshippers must hear and follow the priest, both in sermon and service. It is true that the Church of England holds its services in old cathedrals, but this is in spite of their want of adaptation evidenced by the greater part of the English churches being closed off by choir screens, &c. The practical requirements are changed in the most conservative of our forms of modern worship. Is the spirit changed also? Certainly, some divisions of the Church of England are not far removed from the old feeling at Rome, but the great body is essentially modern. In our churches is a mistake to copy old cathedrals in plan—present needs are changed; a fault to imitate them in feeling—modern spirit has forgotten the old.

The volume cannot fail to be useful to students. It is not, however, to be treated as an auxiliary by those who are indisposed to think seriously about the problems which their art presents. Greater profit will be derived from the pages by all who will not regard it as a collection of ready-made formulæ, but rather as a guide to thinking. By means of it energetic students can create an Ecole des Beaux-Arts of their own, which will no doubt be infinitely below the great institution in the Rue Bonaparte, but which will at least be superior to the jog-trot routine which has to be gone through by a great many architectural aspirants in this country.

HILL OF TARA, CO. MEATH.

THE report of the Royal Society of Antiquaries of Ireland says in reference to the excavations at the Hill of Tara: "The irreparable injury done by the partial destruction of the 'Rath of the Synods,' continued during a portion of the present year, has occupied the serious attention of the Council and everything considered practicable was done to stop the work of destruction."

The alleged object in digging up this mound is stated to be a search for "The Ark of the Covenant," which the instigator of the search has stated he believes to have been deposited in this particular rath.

The search, as prosecuted by him, involved the digging up and consequent destruction of the contour of the portion of the mound examined, and it is to the credit of Irish archaeologists that they have not allowed themselves to be identified with the act of vandalism.

The search having proved fruitless, and a strong feeling of indignation having been gradually aroused in the locality elsewhere against the continuance of the work, and for other reasons, it was abandoned during the week ending June 28th. On the 18th of that month, the Navan Rural District Council, in whose district the monument is situated, adopted a strong worded resolution against "the action of the parties engaged in obliterating the ancient and historic landmarks—the far-famed Hill of Tara in the idiotic search for the mythical Ark of the Covenant."

The Council have received from the watching committee, appointed to advise in connection with the preservation of these mounds, a report as follows:—

"The committee find that the famed earthworks on the Hill of Tara have for long engaged the attention of the Society. They formed the principal attraction of the summer excursion in June 1894, for which occasion a short account of the antiquities and their history was published, with a copy of the Ordnance Survey map of the hill, and a map which was adapted from that of Dr. Petrie, as given in his 'Essay on the History and Antiquities of Tara.'

"The earthworks of Tara are enumerated in the schedule attached to the Ancient Monuments Protection Act, 1882 (45 & 46 Vict. cap. 73). Under the provisions of this Act the owner might by deed, under his hand, constitute the Commissioners of Public Works, Ireland, the guardians thereof. It appears that, in the case of Tara, no such deed as was contemplated by the Act was executed by the owners.

"The portion of the hill on which the greater number of the mounds are situated, and the more important part, is on the property of Earl Russell; the remaining portion is on the property of Mr. G. V. Briscoe.

"In the summer of 1899 attention was called in Parliament to the fact that deep trenches were being dug through the Rath of the Synods, which is on the property of Mr. Briscoe. The Board of Works took steps to stop the injury to this mound, but finding that it was not vested in them, withdrew from any further interference with the owner.

"On Lord Russell's portion of the hill, where the more important of the existing structures are to be found, there has been no visible alteration in their contour since Petrie's time. The Council wrote to Lord Russell representing the importance of preserving the present condition of the hill, and requested his lordship 'not to allow any excavations to be made on his property at Tara unless under competent archaeological advice, and that if his lordship wishes to allow excavations to be made, the Society would be prepared to arrange for such assistance, in the way of advice and supervision, as may be necessary.' To this communication a reply was received from the agent of the property, as follows:—'My instructions from Lord Russell are that he will allow no excavations to be made on his property at Tara. I have so notified Mr. Briscoe.

"Mr. Patrick Boylan, of Dublin, it appeared, had acquired the interest of a long lease of lands, of which Mr. Briscoe was the owner in fee. The Council at once put themselves in communication with him. Mr. Boylan being a resident in Dublin, the president, secretary and Mr. B. R. T. Balfour, of Townley Hall, had the advantage of several personal interviews with him, with the result that on June 15 he intimated that he withdrew his permission to Mr. Briscoe, and on July 1 last Mr. Boylan wrote as follows:—'I had an interview with Mr. Briscoe, and he gave me to understand that he would do anything I require in reference to Tara Hill. The men have ceased working at the Hill, and Mr. Groom has gone back to England.'

"Mr. Boylan's premature decease within the last few weeks has, perhaps, created some uncertainty as to the ultimate disposal of this portion of Tara, but for the moment nothing can be done.

"The condition in which the Rath of the Synods has been left is deplorable. It has been trenched over almost entirely to a depth of from 8 to 10 feet, and in some places to a greater depth. With such digging up and destruction of the contour no archaeological body could for a moment identify themselves; nor could your Society consent to take any part with the instigators of this search for the 'Ark of the Covenant.'

"Any well-devised scheme for the scientific investigation of the antiquities of Tara would require not only money, but experience on the part of the investigators, and would require the co-operation of Earl Russell and the representatives of the estate Mr. Boylan."

LIVERPOOL BUILDING BY-LAWS.

A MEETING of the Liverpool Architectural Society was held on Monday. Mr. W. E. Willink presided, and Mr. William Goldstraw, city building surveyor, read a paper on the revised building by-laws of the Corporation. The by-laws a question were provided in the Liverpool Corporation Act, 1902, which gave amended powers as to streets and buildings. One of the most important gave the Corporation the power to increase the width of new streets. Where the Corporation considered any new street to be a main thoroughfare or a main approach to the city they were now empowered to make a maximum width of 80 feet between buildings, instead of 5 feet. The object of this was to obviate the danger of having to pay heavy compensation in years to come. It was obvious that if they allowed the streets to be made 36 feet between buildings, and the necessity subsequently arose to

widen the thoroughfare and set back the buildings, very large amounts would have to be paid for compensation. In cases where a width of 80 feet was insisted upon the Act gave the Corporation power to pay any reasonable compensation. It was also stipulated that no new houses were to be built on new estates before the street had been laid out with a proper foundation and had been sewered, curbed and channelled, besides which the Corporation might require persons laying out estates to alter the proposed direction or position of any street and pay compensation. The Corporation were further empowered to require that the corner of a new building situated at the corner of two streets be rounded off or splayed off to the height of the first storey or more, in which case they might pay compensation. Where compensation was to be paid, if it was found that the improvement would be for the benefit of the owner of the building as well as the public, the arbitrator could take account of that and apply the principle of betterment. Another important provision related to the height of chimneys of manufactories and other similar buildings. Formerly the only question as to the construction of these chimneys was that of stability. A chimney might be of sufficient stability and yet be a nuisance to neighbouring buildings. Where the owner of such chimney was summoned and fined for a nuisance and ordered to have the chimney raised it might frequently happen that the existing chimney was not strong enough to allow of its being raised, and in order to avoid this the revised by-laws provided that such chimneys must in future be of such a height as the Corporation may require, having regard to the neighbouring buildings. Hitherto blocks of working-men's dwellings had had to be designed in accordance with the rule for ordinary dwellings, but the Corporation could now relax or modify the building regulations on condition that the medical officer of health, the city engineer and the city building surveyor certify that sufficient provision is made for air space and ventilation. The first building to be dealt with under this new provision was the Working Men's Home, Bevington Bush, where a very large addition was now being made to the premises. A section of the new Act also dealt with the nuisance caused by posts placed in or near the kerbstone to support awnings which stretched across the footway. These were particularly noticeable in front of places of business in Church Street and Queen's Square. There was a statutory power allowing owners to put the awnings in that fashion, but that power had been repealed, so that in future the nuisance in question could not happen. Another street nuisance would be done away with by the occupiers of shops and offices being made liable to place all the refuse from their respective places of business in dust-boxes provided by the Corporation. Referring to the new powers as to drainage by-laws Mr. Goldstraw said in the past where an owner, contractor and sub-contractor were concerned, it had been difficult to discover who was personally responsible for bad workmanship in the construction of drains; but in future if a w.c. or a drain was so constructed as to be a nuisance or injurious to health, the person who had so constructed it was liable to a penalty not exceeding 20% unless he could prove that it was not due to any wilful neglect or default. The section also carried the principle further by making the workman liable. On the whole the revised by-laws were, Mr. Goldstraw maintained, drafted for the benefit and health of the city, and he trusted that good results would justify them.

Mr. J. Woolfall thought the question of the 80 feet street required very serious consideration. He cordially approved of the regulation as to the construction of drains.

Mr. Middleton Shallcross said it was a matter for congratulation that municipal surveyors throughout the country seemed in practical accord as to the necessity for the reform of the Public Health Acts affecting building by-laws, and that Mr. Goldstraw had set so excellent a precedent. If discussions took place between the officials of each sanitary authority throughout the United Kingdom and the architects affected by their respective jurisdictions, the result of their joint deliberations would probably be that substantial improvement in building, not excluding economies therein, would be effected. Mr. Shallcross was proceeding to point out the necessity for various reforms in building by-laws generally, when at the suggestion of the chairman he agreed to reserve his comments for another meeting.

Mr. Grayson, in proposing a vote of thanks to Mr. Goldstraw, said it was advisable that great discretionary power should be given to officials like the building surveyor of Liverpool. Mr. Eccles seconded.

The Chairman said that it was only advisable to give discretionary power where the officials could be implicitly relied upon. Fortunately this was the case in Liverpool, and no one would be allowed to succeed Mr. Goldstraw and the other officials except those who could be relied upon to exercise a fair discretion and justice.

The resolution was carried with acclamation, and Mr. Goldstraw responded.

NOTES AND COMMENTS.

THE announcement of the purchase of the Prince's Tavern, Albert Square and Cross Street, Manchester, by the Scottish Amicable Life Assurance Society of Glasgow has revived an interest in the legend that it was the birth-place of THOMAS DE QUINCEY, the author of the "Confessions of an English Opium-Eater" and many valuable essays. He tells us in his Autobiography that he was born in a large town, the town of Manchester, even then among the largest in the island. In the register of baptisms at St. Anne's Church there is a record dated September 23, 1785, of THOMAS, son of ELIZABETH QUINCEY. But there is no certain evidence as to the particular street where the infant was born. He says he passed the whole of his childhood, except the very earliest weeks, in a rural seclusion, viz., in a cottage called "The Farm." After 1791 the family lived in Greenhay, a villa which his father had built about a mile out of Manchester, in a little hamlet known as Greenhill. The district is now absorbed in Manchester, and is familiar as Greenhays. DE QUINCEY's father died in 1793, and four years afterwards his mother considered the keeping-up of Greenhay was too expensive and removed to Bath, and in his twelfth year the boy entered the local Grammar school. When he was sixteen, and after some adventures, he was placed in the Manchester Grammar school, not to increase his classical knowledge, which was remarkable, but to obtain one of the exhibitions. He ran away from the school in July 1802, and then his connection with Manchester came to an end. DE QUINCEY was very exact about the history of his childhood, for at that period he believed his visions began, and he was therefore a prepared subject for the operations of opium on his brain. As he does not mention the street in which he was born we may conclude he was ignorant about it, and the efforts at its identification have not resulted in certainty.

THERE have been more important men in the world than MICHEL MONTAIGNE, but there never was a member of the human race who is so well known. He had no BOSWELL to record his conversations, but he did not hesitate with his own hand to lay bare his thoughts and opinions as well as his weaknesses. He described his surroundings, and especially the house in which he lived. Imagination has often pictured it, but very few travellers have inspected the out-of-the-way place at Périgord where it stood. All of it, with the exception of the library tower, was destroyed by fire in January 1885. At the time we published a description of a visit to the building in 1836 by JOHN STIRLING, who was one of CARLYLE's most intimate friends, if not his disciple. After the fire it was reconstructed by M. THERON-MONTAUBAN, who had married the daughter of M. MAGNE, the French Minister of Finance. STIRLING found the library to correspond with MONTAIGNE's own description:—"The form of my study is round, and has no more straight than what is taken up by my table and chair, so that the curve presents me with a view of all my books, in five rows of shelves, quite round me. It has three noble and free prospects, and is sixteen paces in the diameter." STIRLING says:—"The room still overlooks the entrance of the château, and from three windows in different sides of the circuit commands the garden, the court, the house and the outhouses. The books, indeed, are gone, but the many small rafters of the roof are inscribed on their lower faces with mottoes and pithy sentences, which recall, as by a living voice, the favourite studies and thoughts of MONTAIGNE." The château is now the property of M. DE REVERSEAUX, the French ambassador at Vienna. It has had a succession of owners and was subjected to many changes. It is remarkable that the only part of the ancient mansion which has survived the vicissitudes of years is the library, which was more closely identified than any other portion with the immortal author of the essays.

In all large cities the permanence of bench-marks becomes important. If they can be accepted as remaining at the same level, the operation of levelling is facilitated. For that reason a list of bench-marks with their reduced levels should always be found in the offices of a municipal

engineer. A list of bench-marks connected with the Ordnance Survey is obtainable, and has been found useful. In a great many cases it is almost impossible in the course of a few years for a bench-mark to remain at its original level. If it is on the street pavement the flags may be raised or lowered, and those on private premises are also liable to modification. In some cities arrangements have been made for providing bench-marks which can be described as permanent. Chicago is one of them. A block of granite concrete of a depth of 6 feet 6 inches is fixed in the ground; it is 3 feet 6 inches square and 1 foot 4 inches at the top, which is 6 inches below the surface of the ground. A ring or disc of hardened copper on the top indicates the bench-mark. There is an iron cover with a lid that can be moved when occasion requires. The bench-marks are placed about a mile apart, and already they have been established over one-half the area of the city. They are public monuments, and therefore it is an offence to meddle with them. In connection with them about 1,000 bench-marks have been established on doorsteps, pavements and other eligible places. The arrangement will be most convenient for the engineering staff, and will aid in the production of more accurate sections.

THERE seems to be some fatality, or rather series of fatalities, about the memorial to CHARLES GARNIER, the architect of the Paris Opera House. It is not a colossal undertaking, for the site assigned to it is beside one of the walls of the great building in the Rue Scribe. As the scaffolding which was set up to erect the framing of the bust had been removed, it was assumed that a day could shortly be fixed for the inauguration. The bust was to be a copy in bronze from a model by CARPEAUX, but it has not been completed. As the works of the underground railway are about to be commenced close to the building the inauguration has been postponed indefinitely.

AN election was held at the Royal Academy on Wednesday evening, when, as was anticipated, Sir E. WATERLOW, president of the Society of Painters in Water Colours, was elected an Academician. The new Associates are Mr. T. ARNESBY BROWN, who is known by his "landscapes with cattle"; Mr. J. H. F. BACON, whose painting of the reception of the City Imperial Volunteers was considered to be unusually successful; and Mr. W. COLTON, the sculptor of *The Girdle*, which was purchased out of the Chantrey Fund.

ILLUSTRATIONS.

WOODWORK: ALL HALLOWS CHURCH, LOMBARD STREET, E.

THIS illustration shows the altar-piece, pulpit, railing &c., forming the woodwork which is referred to in the resolution of the Society of Antiquaries against the demolition of All Hallows Church. Although the church is one of WREN's, it was not constructed until twenty-eight years after the Great Fire of 1666. At the time there must have been several wood carvers in London who may have felt some influence of GRINLING GIBBONS. That great carver lived until 1721, dying at his house in Bow Street, Covent Garden, but we doubt whether he was engaged on All Hallows Church. The altar-piece, with its seven canopies, was deemed to be a great success, but we can believe so simple an arrangement could have been imagined by GIBBONS. It was a special gift, costing £1867, and the vestry is a record of the names of the subscribers. The door cases are also carved, and it was characteristic of the time to introduce the semblance of a curtain in wood to conceal additional ornament. There are figures of Time and Death, and the font, which is of marble, has cherubs and floral wreaths. The parish is an old one, the Dean and Chapter of Canterbury being the patrons. There has been a connection with the arch-diocese since the eleventh century.

TOWN HALL, COLCHESTER: TOP LANDING, LOOKING TO MARTYR'S MEMORIAL.

CATHEDRAL SERIES: WORCESTER—CLOISTERS AND TOWER.

WAKEFIELD COUNTY BUILDINGS: THE COUNCIL CHAMBER.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. Aston Webb, A.R.A., president, in the chair.

The Hon. Secretary announced the decease of the following members:—Mr. William Wimple, fellow, elected 1888; Mr. J. F. Wadmore, associate, elected 1865; and Mr. Albert Charles Briggs, associate, elected 1892. He also announced gifts of books to the library and the fourteenth donation of 5*l.* from Mr. Sydney Smirke to the library fund.

Award of Prizes and Studentships, 1902-3.

The Institute Silver Medal and 25 Guineas (essays).—The subject, "A comparative review of the various past and present systems of architectural training at home and abroad," attracted three competitors. The medal was not awarded, but a certificate of hon. mention was granted to Mr. A. Troyte Griffith, of Malvern.

The Institute Silver Medal and 10 Guineas (drawings).—Measured drawings of ancient buildings in the United Kingdom or abroad were the subject of the competition. The medal was awarded to Mr. A. Rollo, of Glasgow, who submitted five strainers of Craigievar Castle, Aberdeen.

*The Soane Medallion and 10*l.* (for continental travel).*—There were twenty-one competitors. The subject was "Design for a town church." Mr. E. F. Reynolds, of Birchfield, was successful with six strainers. A medal of merit was awarded to Mr. F. C. Mears, of South Kensington, London, and also to Mr. C. Wontner Smith, of Finchley, London.

*The Owen Jones Studentship: Certificate and 100*l.* (for travel and study of colour).* Awarded to Mr. Percy E. Nobbs. A medal of merit and 10 guineas was granted to Mr. L. R. Guthrie.

*The Pugin Studentship: Silver Medal and 40*l.** was awarded to Mr. J. Harold Gibbons. A medal of merit and 10 guineas to Mr. A. Muir.

*The Godwin Bursary: Silver Medal and 65*l.**—Four applications were received. The successful competitor was Mr. A. Dunbar Smith.

*The Tite Prize Certificate and 30*l.* (for travel in Italy).*—The subject of the competition was "Design for a pavilion in a public garden." Fourteen competitors entered for the prize. The award was secured by Mr. David Smith, of London, who submitted five strainers.

*The Cates Prize, 40*l.**—Awarded to Mr. A. Halcrow Verstage.

The Grissell Gold Medal and 10 Guineas (for design and construction).—The subject was "Design for a stone dome over a porte-cochère to a large public hall." Eleven competitors submitted designs. Mr. J. B. Fulton was awarded the prize.

Ashpitel Prize.—Mr. W. Greenwood, of Blackburn, was successful.

Professor H. E. ARMSTRONG read a paper entitled

Science Workshops for Schools and Colleges.

He said that the importance of experimental studies carried on with the object of affording training in scientific methods, as a necessary part of the ordinary course in schools generally, whatever their grade, was already so widely recognised that ere long every school would need its workshops as well as its classrooms; it was therefore desirable that the general character of the requirements should be understood, in order that buildings may be properly designed to accommodate all necessary fittings and appurtenances—and more particularly to afford the necessary working space. The whole question of school design might assume a very different aspect in years to come; indeed, the architect might play a by no means unimportant part in helping on reforms which many thought to be very necessary if practical work was to take its proper place in the ordinary curriculum of every school.

Professor Armstrong illustrated his arguments largely by reference to the new buildings at Horsham for Christ's Hospital School, erected to accommodate 800 boys, from the designs of the President and Mr. Ingress Bell. When the position and size of the science block with reference to the other school buildings was noted, it would be obvious that extraordinary importance would be attached to experimental studies in the school. The science block occupied practically one side of a quadrangle, the opposite side of which was occupied by the chapel, the classrooms and school hall filling the third, the dining-hall the fourth side. The floor area of the ordinary classrooms was 15,482 square feet, that of the rooms in the science block was 10,326 square feet.

But the provision which would be made at Horsham for work such as he was contemplating would not be confined to the science block. At no distant date, he trusted, there would be distinct workshops for manual training in wood and metal, and the engineering appliances generally would afford opportunities for the instruction of the more advanced boys in the use of machinery. Moreover, surveying and map-making

would be practised in the country round, and there would be abundant opportunity for other out-of-door studies. Besides school gardens, a set of experimental plots were now being laid down on the lines of those at the Rothamsted Agricultural Station, which had so world-wide a renown. Christ's Hospital School, in fact, ere many years should be a model school; its buildings marked an extraordinary advance, far greater, perhaps, than most of those connected with them realised. As one of the governing body, Professor Armstrong asked to be allowed to say how much he appreciated the great work which Mr. Aston Webb and his colleague had carried out; in watching the progress of the buildings he realised how many things the architect must be to all men.

In designing science workshops the architect and his technical advisers should have three S's in mind—sense, simplicity and space. There should be due knowledge and understanding of the requirements to be met—mere copying should be impossible. The provision made should be of the simplest character possible, because simplicity of provision conduces to simplicity of practice; and the space should be ample, for, given sufficient space, almost anything may be done, and to grant proper space is to show proper respect.

Money spent on judicious ornamentation would always be well spent in the case of a school. Far too little heed was paid to the influence which surroundings exercised on young people; if we are ever to recover the sense of artistic feeling, we must do far more to make our schools attractive. The disregard of property which seemed to be so characteristic of boys at the present day was probably a consequence of the fact that at school they were not placed under conditions which would lead them to be mindful of their surroundings. "Thinking in shape," to quote Thring at Uppingham, was one of the most powerful means of stimulating the imagination and the æsthetic faculties; it was easy to carry out the idea in these days, as magnificent photographic reproductions of the masterpieces of nature and of art were to be had at comparatively small cost: hence neither classroom nor corridor should be without its picture-rail. He would also plead for a more liberal use of colour in our schools.

The fittings at Christ's Hospital were not thought of until long after the building was designed; but, to secure the best result, the building should be designed to the fittings. The science workshops at Christ's Hospital differed in an important manner from the laboratories hitherto provided for schools—there were four main rooms in which classes were held, and to each of these was attached a number of subsidiary rooms. No lecture-room was provided—an omission of set purpose, as it was purposed to discourage didactic teaching. Full provision was made in each room for such didactic teaching as might be necessary; there was a demonstration bench, in front of which sufficient space was left free where seats could be placed; or uprights could be fixed, provided with small desk tops, where students could stand and take notes. No special balance-room was provided. A novel fitting, the balance bench, had been introduced; this was merely a long narrow table (3 feet by 12 feet by 3 feet 6 inches high) covered by a glazed case for the protection of the balances. Instead of having a number of balances within separate glazed cases, one large glazed case had been provided to contain a number of separate uncased balances. The balances placed in such a case are those required for all ordinary work. The more delicate balances required for advanced work were always provided with a case; and, as the sensitive working parts were of agate, there was no need to keep them in a separate room; they were conveniently placed on brackets against the wall.

A third special feature of importance was the store or stock-room attached to each of the four workshops. This was intended not only for the ordinary stores, but also and especially as a room in which the apparatus for experiments left unfinished at the end of a lesson might be set aside until the next attendance.

Professor Armstrong followed with a detailed description of the more important fittings required, viz. working-benches, cupboards, sinks and drains, ventilation hoods and various special appliances. Referring to the regulations of the science branch of the Education Department which specify a water-tap and sink for every two students, the lecturer stated that such a provision was quite unnecessary. The class of work now advocated for schools required the use of water but seldom. Architects must harden their hearts on this point; there was no more reason why sinks should be everywhere in a laboratory than there was to have one in every room in a dwelling-house. The economy involved in localising the water-supply, sinks and drains was very great. At Horsham, in the rooms on the upper floor, all sinks were placed near to the walls, and the waste was carried down to the floor below in pipes fixed in chases in the walls. On the basement floor cross-channels were avoided as much as possible. In the lecturer's experience wooden sinks are far the best, provided that they are built up solidly without dovetailed joints, and that they are always kept partly full of water by arranging the

waste so that it projects several inches (about four) above the bottom of the sink. American white wood seems to be one of the best to use. Sides and bottom should be without joints. All surfaces should be well painted with thin coal tar before they are butted, and the whole surface inside and out should be similarly coated. The waste-pipe should either be somewhat expanded or should have a flange burnt on by means of which it may be held in position by two blocks, one of which—fixed by screws to the under side of the bottom—serves to carry bolts by means of which a second block is caused to clamp the pipe firmly. The space between the pipe and the side of the hole through which the pipe passes is filled in with pitch. The sink is wedged up against the bench top. Such sinks may be made of any size that may be desired, and no plumber is needed to fix them. As regards benches, the lecturer advocated some such arrangement as had been carried out at the Christ's Hospital Girls' School, Hertford, in the new science room (of which a plan was shown) designed by Mr. Stenning—about the simplest and most commonsense plan, he said, that could well be adopted.

The author thought that in future it would be possible to improve considerably upon the arrangements which had been made in the Christ's Hospital Schools, especially in the direction of simplification, by taking carefully into account the character of the fittings to be introduced at the time of designing the building. The ideal to be aimed at was to have the whole of the room, both floor and wall space, available for the work to be done in it. Wall space was invaluable for many mechanical and physical experiments, for blackboards, for shelving, &c. Benches, therefore, should not be fixed permanently against the walls, but should be placed out in the room. Projections into the room should be avoided, and windows be inserted at least 6 feet above the floor.

Whenever possible, steam or hot-water pipes for heating the room should be carried under gratings in channels in the floor. Radiators, &c., take up much space, and interfere with and damage fittings in their neighbourhood.

The lecturer questioned the need of the elaborate provision hitherto made for benches. If sufficient shelving, racks, &c., be provided, and cupboards for general use where necessary, there is little need for cupboards under the benches. He favoured steady, heavy benches of the kitchen-table type. For such benches it was unnecessary to use hard wood; all difficulties of staining, disfigurement and cracks would be overcome by the use of lead-covered benches—a long experience had led the lecturer to prefer these to all others.

With reference to girls' schools, briefly touched upon by Professor Armstrong, he advised that provision should be made, even in the case of girls, for some use of tools. Men had long been victims of academic prejudices, but were seeking to throw them off; the disease was now being contracted by women, and we had to deplore the all too literary bent of the curriculum in girls' schools, whether primary or secondary. By making liberal provision of space for domestic workshops the architect might do much to turn the tide.

With regard to the treatment of wall space, as much as can be spared here and there should be properly prepared, so that it may serve as a blackboard; or the special black canvas, so much used in America, should be fixed against it by battens. Wherever there is spare space stout battens should be fixed to the wall a few feet apart; when these are provided brackets may be fixed up at any time.

With reference to the science workshops in colleges as distinct from those for schools, in minor matters these differ considerably, but in principle they are very much alike. The lecturer observed that if he were called on again to design a laboratory he should greatly simplify the fittings, and follow as nearly as possible the model of the well-arranged factory.

The rules with regard to planning and fitting public elementary schools recently issued by the Board of Education undoubtedly tend to favour over-provision. It is not merely that much more money is spent than necessary, but a false complexion is put upon the work—it becomes drawing-room practice and not workshop practice, and when scholars go out into the world they find themselves placed under altogether strange conditions, unable to use the ordinary tools, and unable either to fit into or to follow the ways of ordinary life. The outcome is most serious; some action must be taken to put the schools on a simpler footing and to bring their work into harmony with ordinary requirements. In conclusion, Professor Armstrong urged that some attempt should now be made to standardise the requirements, both for elementary and secondary schools.

A vote of thanks to Professor Armstrong, proposed by Sir William Abney and seconded by Mr. W. D. Caröe, Mr. John Slater and Mr. J. J. Stevenson, terminated the meeting.

Mr. Andrew Pears has purchased the home of Gilbert White, the Hampshire naturalist, which is situated in the village of Selborne.

SOME PRINCIPLES THAT MAY BE GUIDES FOR THE APPLIED ARTS.*

ASKED to lecture here to-night, I have set myself, I fear, a somewhat difficult task in speaking to you of some of the principles that rule, or should rule, what are called the "applied arts." It were easy to cite examples of the arts—to describe the great works of the past, to catalogue the achievements that the mind of man has conceived and his hand has wrought. It were easy, I mean, to bring facts before you. It is not so easy to tell of ideal principles that should guide, and should enlighten the mind, of the designer or the doer. Yet all art is a thing to be sought after and to be learnt, and it must needs have its principles. Nevertheless, in some sort art is instinctive, spontaneous, and its happiest achievements are those that spring free, sudden, uninvited, the happy inspiration of the moment. It is not for all thus to conceive or thus to achieve. Rules are best for most of us.

Well, I am to speak to-night of some of the principles that may lead us into and guide us along the delightful paths of creative art—creative, for art is nothing if not creative. Are there any such principles? Is art only an inspiration? Or is it only imitative? It cannot be merely an inspiration, for it is certainly learnt, fostered and nurtured and developed by laborious thought of the mind and by the patient labour of the hand and by the traditions of the ages. It cannot be only imitative, for where then comes in the creative faculty? An inspiration may plant a seed, but the seedling will not reach perfection untended and uncultivated.

Here then comes in the use of principles to direct the growth into right ways, to prune, to educe the good and to root up and reject the bad.

This use, this carrying out, of principles in design is not, indeed, the most poetical or the most interesting department of the teaching of art—far from it. It is rather the prose and the common-sense aspect of its initiative. It is very different to that "light that never was on sea or land," it is different to the glad surprise of the joyous thought of an artist's mind, the grand or the beautiful conception, innate with the added creative power of the hand eager to achieve. Rules and laws are but as schoolmasters, and have a manner of restraining and curbing. But to go back to what I have said, are there any principles that may guide us along the path of art? I think there are. First and foremost there is the principle of following nature—nature in her stately grandeur or in her calm beauty. Nature from the "human form divine" to the simplest flower or delicate, tiny shell; from the mighty mountain to the tender grass of the valley. In the highest arts, as in sculpture and painting, there is the obvious principle of closely and faithfully following nature, not indeed without selection and judgment and feeling, and not, above all, without imagination. For we must touch all our art work with human feeling and human thought. Nevertheless, the everlasting law for the arts of painting and sculpture is to be in complete harmony with nature at her best, and to be faithful and true to her teaching. We know the superlative, the astonishing truthfulness of Greek sculpture; how each fragment found, if it be part of a nude statue, for example, is as delicately modelled as the living flesh and the skin-clothed muscles were—how drapery seems as if it were the very petrification of the light, delicate folds of the thin linen that draped the figure. I know not what is most remarkable about Greek sculpture, its beauty or its glad following of nature. This then I would put as the primary rule and principle for all art—the following of nature; and that not only in the forms and shapes of natural objects, but in giving to all things we make the very spirit of nature. Sir Joshua Reynolds wrote:—"It seems to me that there is but one presiding principle which regulates and gives stability to every art. The works, whether of the poets, painters, moralists or historians, which are built upon general nature, live for ever." What lessons of delicate curve and strength and delicate modelling do we not find in the human figure. And this brings me to the next principle that I would mention, one indeed closely allied to that of truth to nature. It is this—to endow everything we make with the expression of life—to give to all our hand-made productions, be they but the common utensils of daily life, be they but pots or pans, or be they crowns for kings and queens, the expression of life. In all the great days of art there was that expression (which, indeed, has a sort of divinity in it) given in all things made. You find it in Greek work; you find it in the work of the Middle Age, in all the civilised countries, when art was healthy and was growing gradually into the astonishing beauty that was produced in the great days of matured art. Everything, after its kind, was made, some more, some less, with an expression of life. In their nervous, graceful, or vigorous curves, in their kindly expression there was life. As you well know many flowers have an expression, some of the most pleasing nature. They smile at you. Well, in the same way the workers in

* A paper read before the Applied Art Section of the Society of Arts, by Mr. G. F. Bodley, R.A., on Tuesday, January 20.

gold, or in silver, or other metal, or in china, or pottery, gave an expression of life to the things they made, though the thing made had no exact resemblance in form to any natural object.

The thing, be it of the commonest type, be it your ink-pot, your chair or your table or wine-glass, or be it a jewelled cross or a silver heart for a lady to wear on her breast; be it a sceptre for a king, or a drinking cup for a child, one and all had, in the best days of art, an expression, nay, as it were, an endowment of life. The hand and the mind of man their maker had so endowed them. No doubt it may require some imagination to see this, and some good things may have it but slightly, and some more, some less.

But now look at modern things of the kind I mean. Except some few made under better auspices, they are dead as the clay or the gold out of which they were made. In the one there is the beautiful curve, full of energy, or it may be of repose, or it is generous of a pleasing and a kindly expression. The other is dull, nay dead, without expression, except indeed it be one of inane ugliness; and even that would seem to have come by chance, so much inanity there is in it. In the one the mind of a man who loved and enjoyed his work is reflected. In the other there is none of this. It is vacant, lifeless, hopeless. When you are at a museum of good old art objects look at them and compare them with nearly all modern manufactures. If you have artistic perceptions you will readily see what I mean. And it is this that I mean—the mind, not alone the hand of its maker, has endowed the object with an expression; and following, in all reverence be it spoken, the divine law of Creation, he has breathed into it the breath of life. Where this is done we have, so far, a work of art. If it is not done it is poor stuff at best. And it is not the richness or the poverty of the thing that brings this to pass, for the simplest object may have the expression of life and, indeed, of beauty, and the richest may be wholly without it.

The late Lord Leighton used to have a small Greek lamp on the mantelshelf in his studio. It was utterly simple in its lines, and without what you would call ornament, but it was not only beautifully designed, it was, to my eye, instinct with the expression of life. I have said that nature was our guide. Well, chairs and lamps, and the proverbial pot and pans, cannot be made like any natural object, or, if so made, they would be wrong, utterly wrong. But they and all things can, in different degrees and in different manners, symbolise life. Is it not this expression of life that makes conventional ornament not only bearable but pleasant in its place and after its manner? You know how, in every style and manner of architectural art conventional ornament has played a conspicuous, an important, nay, I may say, a delightful part. Well, why is this conventional ornament not only to be tolerated, but to be a real pleasure? I think, nay, I am sure, it is because in all good, intelligently designed conventional ornament there is an expression of life. It is this that gives a soul to art. Beautiful beyond compare are the forms of flowers, of leaves, of trees, of the very grass of the field. But more beautiful is their expression of expanding life, whispering perhaps and moving to the gentle air. And this expression you can give to the work of hand-made things—manufactures as we call them. I have mentioned the old testimony of the Creation, "He breathed into them the breath of life." And man, "whose breath is in his nostrils," so frail and passing, with so brief a life, can, if he will, endow his own handiwork, his own creation, with the very semblance of life. It is this that makes the lesser arts noble. And would not this and other principles raise manufactures that are made by the hand of man, directed by his mind, would they not take us, I would ask, into the region of art? I do not mean into the region of high or fine art. Things may be made, and are made, by machinery, helped by the hand of man, without help from his mind. There is no art in such things, only ingenuity. Others may be made by machinery too, but directed by the mind of man. I mean such things as woven tapestries and carpets and other textile fabrics, and they come into the region of art. As we say of some things, "It is quite a work of art." We may truly say so of the best kinds of Eastern carpets, so beautifully made and so beautiful in their colouring.

Have you ever observed how the mind of a weaver of these Oriental carpets works with his hand? For example, when an orange-tinted wool comes against a red, it pales to a more golden hue; when it comes against a blue it will warm or deepen again. The orange against the red would have been hot and unpleasant-looking. Alas! that these Eastern manufactures are so fast degenerating. Indeed, some kinds, or "makes" of carpets that have been beautiful for many centuries (we know some portrayed in the accurate pictures of a Van Eyck or a Memling) have, I am told, recently ceased to be made at all. I hope that Lord Curzon's good work in trying to maintain Indian manufactures may be of use. Not that much Indian furniture is really satisfactory in design. But the carpets and many other textile fabrics are beyond praise. They are delightful, and teach us how colour should be treated in manufactures. They are works of art most certainly. It is

true that fine art takes us into a higher region and to a nobler ideal. But here at this "Society of the Applied Arts" we are, I suppose, on somewhat lower, perhaps more useful ground. But even in the weaving of carpets—in their palpitant of colour—there may be this expression of life as well as in the drawing of their foliage or other ornament. I would that we lived with more beauty round us, and had not the deteriorating influence of the ugly things that crowd around us: life would be happier. How depressing are all ugly things. But I must pass on.

Another principle of art that I would mention is that of breadth of effect. It applies largely to artistic manufactures or manufactures that might be artistic. Now I cannot but think that in art one thing greatly lacking in these days is this grand quality of breadth of effect. I venture to think so of much modern painting, whether of pictures or decorative work. In all the arts breadth of effect is a great quality. Here again look at nature. The low-lying land and the grassy hills, are they not broad in colour, in their vast expanse of green? varied and gradated green, no doubt, as all nature's colouring is gradated, but broadly green. And the sky, is not its great dome at times all blue—gradated indeed again to a silvery tint where it touches the dark green land? And the clouds, are they not at times all tints of grey and at times all that beautiful colour of solemn subdued purple that we call ink? That is so beautiful against the green of the hill or of the trees. I am not forgetting the sunrise or the sunset, but those are but moments of exceptional beauty that linger but for a little while. And the green of the land may be sprinkled with flowers, but they are but as jewels on a robe of one tint.

The more subordinate the nature of decorative work may be the more broad it should be in its treatment. For example, mosaic work for a vaulting or a wall is quite the best if it has but few colours. You may have a gold background, and your figures may be—one all in shades of reds, another all in shades of blues or greens, or a purple robe may be lined with green—colours that have a delightful affinity, and the result will be broad and satisfying. So in marblework—black and white, red and white, green and white—only these two colours together—will be more dignified than if other tints are intermingled, to the loss of breadth of effect. What is it that makes the difference between many new buildings and good old examples of architecture? It is not the charm of age, for that chiefly affects the colour. Is it not that the old work has a noble breadth of effect and a unity of idea, restraint, and an avoidance of all discordant elements? While of much modern work must we not say that vulgar confusion and useless variety and display take the place of suavity of manner and a dignified and noble breadth of effect? For there is in old buildings a nice economy, not only of material, but of ornament, and there is a satisfying charm about most of them of almost any period. The old architecture had stately manners. Too many of our new buildings have pretentious ways. I think it is from the lack of the principle of refinement and especially of a delightful breadth of effect that many things suffer nowadays. It is a principle that extends to literature. Unity of idea is a mark of a great poem, or, indeed, of all good literature. But I am trespassing on to other land.

We live at a time in which there is a considerable feeling after a better and more beautiful treatment of designs for new buildings in our streets. They are certainly becoming more ornate, and more pains is being taken to make them more interesting than in days when the long unlovely streets, like Harley Street or Wimpole Street were built. What seems missing in many, if not most, of these street fronts is a sense of greater dignity and restraint of character; more refinement and more breadth of effect. In one word, a higher conception and a more refined and broad, and a more reasonable carrying out of such conception. The great principle I have spoken of, refinement, is too often absent. Indeed, too many new buildings cannot but be designated as pretentious and vulgar, instead of being dignified and refined. It is a critical time for architecture. I hope we may see better work done, more thorough in the expression of the principle of truth and of a stately beauty both in the humblest and the noblest buildings.

And now one word about colour. I can only briefly touch on this. It is a large subject, and colour is a thing so subtle, so delicate, so strange in its ways that it seems to be beyond rules and laws. For example, you may place one red against another—a crimson lake red against an orange red, in other words, you may mingle your different reds together, and always with happy result. Who has not seen the peasant children in Italy, in the shaded slums of the old town it may be, or in the country under the bright sunlight? Their dresses are frequently—most frequently—reds of different tints, scarlet and crimsons, and all harmonise. In pictures by the old masters you will find one figure in robes of one red, and side by side with it another in a robe of a totally different hue of the same colour; all is harmonious. Now try to do the same with different greens. You cannot. A warm fruity green, beautiful in itself,

will not harmonise with a cold silvery green, though that too may be beautiful—most beautiful—in itself. I am speaking of decorative painting. Why is this? I can find no reason except that colour is so delicate a thing that it is allowed to be free from laws—to be beyond rule, so that I am reminded of a volume of travel in which one of the chapters is headed in the index "The Snakes in Iceland." You turn to the chapter, and all that is said about the subject is, "There are no snakes in Iceland." And so with the laws and principles for colour. Indeed I think there are none. Nevertheless, the eye can be trained, and the taste can be cultivated to love the beautiful in colour as in form. For everything is there the law to be beautiful.

Another principal, or should I say a desirable, practice, is that of founding work on what has gone before. It is at times a charge made by somewhat shallow thinkers, if I may say so, that all work must be entirely original and absolutely new. Sir Joshua Reynolds did not think so of works of painting. He said the best work that had been done in the long history of painting was founded on the work that had been already achieved. He says that such work will be the "most original, though it seems like a paradox to say so."

It is, indeed, but reasonable in the different departments of the arts, it is but natural, to found your work on that of the past. You have a thing to do, you have to design for a certain object. Well, you build, as it were, on the foundations of the past. But you see how this or that can be improved on, refined on, or strengthened. You see it with the eyes of your own mind and conceive it afresh with your own imagination. You develop the original idea, you depart from it, or you give it a new character—a new clothing. In one word, you make it your own. Has not this been so in all the arts? Is it not thus that art hands on its spirit which is immortal? If I were speaking to students of art, I should say, "Fear not to found your work on that of the past ages." Catch the spirit of beautiful work already achieved, and, as it were, grasp the torch from the hand of the doer of work in the past, and throw a newly-directed light with it—a light to fall on a new parting of the ways, ways that may lead to higher heights than yet attained, and to pastures new. That is the way to utilise old traditions. You need not ignore them. Do not so, but use them as stepping-stones to still higher and nobler imaginings.

I could say much more of the guiding principles for art. I could tell you of the principle of strength, not only of strength of construction, but of strength of artistic expression. I could tell you of delicacy without weakness and of power without coarseness. Of truth (and indeed that should have had the first place). I could tell you of harmony and of the avoidance of all harsh and violent contrasts. I could tell you how the nature of the material some use often controls the very first idea of a design and of other characteristics leading to good and artistic work. But I should weary you, indeed I fear I have already done so. One word more, and it is this, while such principles as I have feebly touched on are and should be, as it were, the by-laws of art production, yet in all the arts a healthy, well-informed and well-cultivated imagination is beyond and above all rules.

BOOK-PLATES.

A PAPER on the history of book-plates was read by Mr G. C. Peachey at a meeting of the Berks Archaeological Society. He said a book-plate was a label, printed or engraved, heraldic or otherwise, which was intended to proclaim the ownership of a book when pasted inside its covers or added to its title or fly leaves. In short, it was a mark of possession. Sometimes it was called an "ex-libris," but there were objections to the use of that term, inasmuch as the word "ex-libris" included many marks of ownership which were not, technically speaking, book-plates. The interest to be found in book-plates might vary according to the taste of the student or collector. Most of them had their hobby, and he certainly knew of none which, when seriously studied, appealed to so many instincts as did the collection of book-plates. He was not without hope that his remarks might result in inducing some amongst them to become either students or collectors, and even to enrol themselves as members of the Ex-Libris Society. To those of an historical turn of mind the personal interest came first, and the lecturer then dealt with the book-plates of William Penn, Horace Walpole, Sam Pepys, David Garrick, Sir Francis Fust, Daniel Fleming, &c. By the heraldic style of most, if not all, plates anterior to about 1830 it was possible to give a date, always proximate if not precise, as to the time at which the plate was designed and the owner lived. By recognition of the arms an anonymous plate could be identified, and, if one might believe in the symbolisms of heraldry, the very arms themselves might point to the character and occupation of the man who first assumed them on his coat of armour. He knew of no records which showed at a glance so comprehensive a survey of the changes

which had occurred in heraldic style as a collection of book-plates. The largest collection of book-plates ever made was that of the late Sir Augustus Wollaston Franks, for many years keeper of antiquities to the British Museum. He possessed 150,000 separate plates, which he bequeathed to the nation, and these were now being arranged and catalogued by a book-plate expert, and would shortly be on view. Some people collected one sort of plate and some another, but he urged would-be collectors to master the subject before commencing to buy, and not to buy until they had fully decided upon what their specialty should be. A subject which he would suggest—and which, so far as he knew, was at present unappropriated—was the plates of Berkshire families. Anyone taking the hint would commence by acquiring any plates inscribed with a Berkshire address such as the plate of Bowles of Hanney, Thomas Wilder of Speen, &c. By studying "Burke's Commoners" one would soon get a list of families originating in or settling in Berkshire. Then he would easily ascertain the names of Berkshire peers and baronets, and so on. The lecturer then dealt with the history of book-plates, their rise in fashion, and the changes of the heraldic style and decoration which they exemplified. He said the earliest book-plates, like the earliest printed books, came from Germany, and it was reasonable to suppose that the use of book-plates originated in that country. Three undoubted examples of German plates printed from wood-blocks had come down to them from the fifteenth century, the oldest bearing the date 1450. Mr. Peachey then described the different varieties and changes in book-plates from the fifteenth century down to the present time, and at the close exhibited on a sheet a number of plates from his collection.

A vote of thanks was passed to the lecturer.

ARCHITECT'S FEES.

IN the Longton County Court a claim was heard before Judge Mulholland, K.C., which was brought by Mr. Ralph Dain, architect, Burslem, against Mr. T. I. Cope, solicitor, and Mrs. Cope, of 46 Ricardo Street, Longton, for 17l. 19s. for professional services rendered in connection with alterations made to the residence of the defendants at the above address. The defendants counterclaimed for 25l. damages, alleging that the plaintiff was guilty of negligence in the preparation of the plans and in his superintendence of the building.

In September last the defendants were sued by the contractor who carried out the alterations (Mr. Enoch Barnes) for a balance of account amounting to about 47l., and on that occasion Mr. Dain was called as a witness by Mr. Cope, and assuming every complaint which Mr. Cope raised as to the carrying out of the work had been justified, 5l. at the outside would cover them. Upon this evidence his Honour gave judgment for the plaintiff for the amount claimed, less 5l. With regard to the present claim, some two or three years ago Mr. Dain was invited by Mr. Cope to prepare plans and specifications and detailed drawings with reference to certain work proposed to be done at 46 Ricardo Street. Mr. Dain did so, but after that the matter stood over for some time. Subsequently, fresh instructions were given in reference to the plans, and eventually tenders were invited, and that of Mr. Barnes was accepted, and the work was carried out under the supervision of Mr. Dain. There was no allegation of negligence against the architect at the time of the former trial or until after his account had been rendered. To two bills sent in by Mr. Dain no reply was received, and in October a third application was made on behalf of Mr. Dain. To that Mr. Cope replied that the claim was absolutely incorrect, and he subsequently made specific statements of alleged inaccuracies.

The plaintiff entered the box and deposed that his charges were fair and reasonable and below what he was actually entitled to charge. The first intimation which he received of any negligence was when the counterclaim was delivered. The plaintiff was cross-examined by Mr. Cope as to the frequency of his visits while the work was in progress, and maintained that he gave all requisite attention in the superintendence of the work.

Mr. Cope, for the defence, submitted that the plaintiff was not entitled to recover his 5 per cent commission for the reason that the work under the contract had not been completed, for which there ought to have been a deduction from the contract price, and that there had been negligence which justified the building owner in claiming damages. He called Mr. A. P. Miller, architect, who said he had seen the work done at the house and had examined with respect to the damp-course. He ascertained that it was not in one part of the dining-room, and he could not at all be sure whether it was in the drawing-room or not.

After Mr. Cope had given evidence that there were no deviations or alterations from the plans after the tender was accepted, his Honour, in giving judgment, said he could find nothing to alter the view which he took in the previous action, and on that

Mr. Cope had gone to the Court of Appeal. With respect to the counterclaim, he had listened with great attention to all that had been said, and he could find no evidence of negligence on the part of Mr. Dain of any kind or description. He therefore found for the plaintiff for the amount claimed and also for the plaintiff on the counterclaim.

MR. PRINSEP'S ADDRESSES.

THE first of Mr. Prinsep's lectures to Academy students on painting was delivered on the 12th inst., under the title of "Style and Mannerism." According to the *Standard*, he said that style was hard to define, as it had grown to mean the way in which a man expressed himself, though the word came only from the implement—stylus—used for such expression. He would not speak on this style or on that, but refer rather to the subtle quality understood by "style." Readers were conscious of style in literature, though they could not perceive how it was produced. The two highest ideals of style in the fine arts were Phidias and Michel Angelo, both of whom reached it by their extraordinary tact in omission. They studied nature, but subdued it to their artistic personality. The character of Phidias could be read by his work, and the work of Angelo was a reflection of his character, as could be tested by the literature of his day. Mr. Prinsep said he was forced to use literature as an analogy to what constituted style in painting. When letters began to flourish it was akin to the primitives in painting, then little by little language was perfected by growth and use, not that amplification of words necessarily meant added clearness, for simplicity and clearness were the true signs of style, whether in literature or in art. The finest of all monuments to style in letters was found in the Bible, which had the simplicity of Phidias and the beauty of Angelo, and it was this monument which had kept our language pure, without straining after effect. Next to the Bible, Bunyan was most marked with style. When the Renaissance in Italy was in full vogue, euphemisms and ornate diction appeared in England. Voltaire had declared Shakespeare without style, and, judged by classic authors, that might be so, but to us, of Germanic family, what the Latins condemned was just what appealed to us. The painter most on the lines of Shakespeare was Rembrandt, and he, too, was said to have no style, though his transcendent handling made even a bullock's carcass noble. Johnson's sentences were ponderous, but without style. Macaulay saying that his spoken word was simple, but, in writing, he bolstered it up with padding. Fuseli's extraordinary outpourings in paint were Johnsesque in their laboured manufacture. A writer of epigrammatic order to contrast with Johnson was Gibbon, whose style was admirable, though his mannerisms could be laughed at. Macaulay differed from stylists before him and we could forgive his want of the tact of omission. Prose showed style best, because it revealed thoughts in a simpler and clearer way than poetry could do. Carlyle had picturesqueness, but his style was singularly unlovely, having no flow or melody, but was jerky and difficult to comprehend, yet full of fascination. That greatest of all stylists, whose rhythm and melody were beautiful—Ruskin—was a marked contrast to Carlyle, and Mr. Prinsep read excerpts from each, that from Ruskin being the description of the Clan-Grant district, in which the war-cry of the clan, "Stand fast, Craig Ellachie," says such a telling part. Touching mannerism, the lecturer said it was necessary it should sit easily on a mannerist, and be more of himself a man could put into his work the better. Rembrandt was a true mannerist; in Sterne mannerism was mingling and buffoonery. In painting style was conveyed by colour and form; poetry by colour and effect. Correggio strove to combine style and effect, but both Michel Angelo's and Raphael's best pictures were simple. France was, above all things, fickle, and although Classic authors reigned so long here, it demanded novelty in literature and had not much reverence for style in art. Millet had such a genius for omission, and his forms were so simple, that he might be called a stylist, but even now his greatness was grudgingly allowed in France. Puvis de Chavannes was another stylist, but he made way to rank only after years of obloquy. In England there had been no one with style except Flaxman until Leighton came, but there was a man still living who was senior to Leighton and who was a great stylist. Simplicity must be the aim of care, for in art, as in letters, "ready writing makes good writing, but good writing makes ready writing." In painting—an artist's handwriting—a word must be changed and there. To create a style was most difficult, but it was easier to acquire mannerism. A man need not emulate others, but he should scorn popularity and appeal to the few rather than to the many, adding some of that sentiment which is not in classicism, for picturesqueness and style were not incompatible.

In his second lecture he spoke on nineteenth-century art. Painting, he said, could never be a finite art, as it depended on inexhaustible nature, with the artist's personality in

addition, for no two men are quite alike, any more than two leaves are identical. In the first glorious roll of fame Angelo, Raphael and Titian had been; in the next century Rubens, Velasquez and Rembrandt; later, Reynolds and Gainsborough were among the great elect. Each of these had his own views and his own excellences; for just as bees gather honey from various flowers, and even from blossoms of unwholesome plants, so can painters extract what is sweet from the face of all nature. Painting and sculpture had given forth the thoughts of men at two marked periods—in the third and fourth centuries B.C. in Greece, and in the fifteenth and sixteenth centuries in Italy. Italy, and perhaps Holland, had the greatest number of great artists, but those of Spain and of England could almost be counted on the fingers of one hand. During the Napoleonic war the study of fine Italian art was closed to England, travelling being difficult, and there was then no National Gallery. Freedom, too, is essential to the development of painting. Art withers during war, though it may flourish for a time, as it did under Philip of Spain. Reynolds had profited by the Italians, and he was himself copied more or less slavishly—by Hoppner particularly. Reynolds, though simple, was full of methods, and these methods influenced Northcote and Lawrence, but they could not attain his effects due to glazings. Lawrence was more flashy and direct, truer to likeness, and easier to imitate than Reynolds and Gainsborough. He met with the *dilettantes'* approval and prospered—Wilson did not, and he nearly starved. Art made no progress in the early part of the last century, for literature was more powerful than pictures after the Peninsular War, Byron, Scott, Wordsworth, Shelley and Rogers making way with the people and as social lions. Macaulay divided honours with the new show of hippopotami at the Zoo, and Scott was almost "on view" when he dined out. Later, Dickens's "Pickwick" led to further developments. He, like Ford Madox Brown, was truly British, and might be called the Millais, as Thackeray was the Leighton of literature. Bulwer Lytton, compared with those authors, was pretentious, false to nature, full of theatrical effect, the sentiment of "The Lady of Lyons" just suiting his style, because the sentiment itself was tawdry. Painters, like authors and doctors, had not been held in high esteem socially, and Thackeray's *Gandish* was the first artist introduced in literature. The estimation in which painting had been held was in proportionate relation to the epitaph of a lady amateur. "She painted well in water-colour, she was cousin to Lady Jones, and of such is the Kingdom of Heaven." Scott having dressed his romances in realism, led to anecdotic pictures by Wilkie, Leslie and others. Landseer alone showed a line of his own, yet scored popularity, a love of animals being inherent in our land of sports. Landscape was as traditional as other branches. Titian generalised it so as not to interfere with his figures, and British painters added landscape backgrounds to portraits that had been painted indoors. Poussin was a slave to tradition, and Claude was in a measure conventional, though his technique and his brown tree and ruin in foregrounds to "felt" landscapes were so beautiful. To Canaletto we owed much, as, in defiance of rules, he struck a new line in which the brown tree was not. Wilson, less assertive than Claude, was very captivating, and the one landscapist of his age with heartfelt love of nature. Tribute was paid by the lecturer to the honest outlook of Dutch landscape painters, especially to Rembrandt, and then it was shown that Turner was the first to point out the subtlety of God's work, for men are blind until such as Turner have shown them what to see. Turner began with the brown tree, but little by little he assimilated what was good in the past. Only at the end did he indulge in dexterity which is the bane of so much modern work. Mr. Prinsep drew a comparison between Giorgione and Turner in their Venice pieces, and then touched on Cotman and on Constable, who in his way was superb, but he came back again to Turner, who, he said, was in water-colour as English as Constable, as perfect as Crome, and as weatherful as Cox. It was to the credit of the Academy that it had unstintingly marked its early recognition of Turner's artistic genius, for his personality was unsympathetic, secretive and unsocial. Mr. Prinsep closed his lecture with well-chosen words descriptive of the wondrous qualities of "The Fighting Téméraire."

In the third lecture Mr. Prinsep had much to say about the great writer whose every word tended to elevate the artistic craft. Ruskin himself was never an artist; his knowledge of inanimate nature was exact, but his drawing was almost archaic; outline was his idea of form, and he "shaded," but he did not model. Even sculpture he viewed from a purely literary standpoint; and in painting his admiration went to the workman rather than to the artist, so that the dexterous niggling of Harding appealed to him. The great picture is that which calls up the noblest thoughts, and Turner struck the chord, the response of which came from Ruskin when he saw and described, in poetical language, so much more than the painter himself had felt or intended. Doubtless, this had gratified Turner, as it was right that every

man of imagination should think for himself when the painter had struck the chord. Ruskin's belief in himself was stupendous, but his teachings had never made a great painter, or his writings a great thinker, though by his road-making he had compelled young patricians to see the dignity of labour, and by his books he had taught England how to think on art. The finest preacher or painter could do no more. Ruskinism had the valued recommendation of being serious. It was the truth, the whole truth and nothing but the truth, although Ruskin's own view was singularly limited, for, although so intense about nature, he had never a word on human form. Perhaps he would have excused himself by saying that man's form was warped by the fashion of living, clothes distorting natural proportions; but in answer it could be pointed out that a gnarled and stunted tree gives more pleasure than one of perfect growth; though to this Ruskin might retort that the symmetrical tree was the nobler because it was one of development. Ruskin's was always the literary view, and when dealing with Turner's works he made much of their subject. Mr. Prinsep next touched on that distinct phase of art in the last half of the nineteenth century, the pre-Raphaelite Brotherhood and those allied to them, especially Ford Madox Brown, who, he said, was slow, shy and sensitive, taking a narrow view of life, and never budging from his earliest convictions. His "Christ Washing Peter's Feet" might be called ugly, but it was original and it was sublime, the most religious picture in the whole of the Tate Gallery. Millais's "Huguenots," "Autumn Leaves," "Ophelia" and "The Carpenter's Shop" touched a chord that was never awakened by the latter pictures, full of charm though "The Vale of Rest" and "The Eve of St. Agnes" were. Very tenderly did Mr. Prinsep describe the truth to nature shown by Millais in Ophelia's watery grave, but he also told his hearers that pre-Raphaelitism was essentially a creed for the young, that in all art generalisation is absolutely necessary, and even in literature imagination must be allowed to fill up the gaps. John Bright had said that Gladstone, when speaking, was like a ship following the coast, going round every bay and up every river mouth, but that a great orator should go from headland to headland. This, said the lecturer, was what painters should do, too—in fact, remember Schiller's sentence about the "tact of omission." Regarding foreign influence, Mr. Prinsep said rules were everything to French artists, and any one could see how Delacroix got his effects in his slap-dash work. The French were always striving for new things, but in that clever, bright, fickle and cynical city of Paris how many are serious painters, or in whom eccentricity did not reveal itself rather than true originality. Paris wrecked more artists than it made. Americans, he said, were yet more analytical in their observations than the French, who are such followers of method; but Mr. Prinsep said he knew of no rule in art that could not be broken by a great artist. The English mind had a distinct means of expression, and did not readily absorb the Latin feeling. Young men returned from Paris with dexterous manipulation of aggressive emphasis. Millais, Burne-Jones, Pettie, Holl, Walker, Mason, the Moores were all distinctly English. Leighton alone bore foreign influence. There was much to be got out of our little island, and painters' works should be a strong type of their land.

CRETAN PICTURE WRITING.

AT the Royal Institution on Thursday, the 15th inst., Mr. Arthur Evans gave the first of three lectures on "Pre-Phoenician Writing in Crete and its Bearings on the History of the Alphabet." He said that articulate language was of relatively late development, and that picture-writing was anterior not only to writing, but to speech itself. Even in the Reindeer period hunting scenes were depicted. Later, gestures and sign language gradually enriched human methods of expression. Of gestures added to the picture in this prehistoric period, and expressive of hunger and other feelings, illustrations were thrown on the screen from rock symbols in California. These pictures found in North America had their counterpart in various parts of Europe, and he had himself seen examples in the Maritime Alps and in Andalusia; and in Scandinavia were interesting specimens of rock carving attributable to the Bronze Age. In Ireland and Brittany the rock carvings were of a similar form, and bore like symbolical meanings—records of hunters, death and other events. North Africa disclosed similar remains to those found in the Iberian peninsula. As time went on the tendency to conventionalism and a systematic selection gradually exhibited themselves. The same story was repeated in Babylonia in the cuneiform characters and also in the Hittite inscriptions. In the Nile valley and in Asia Minor the picture writing had become highly formalised, and it was therefore somewhat surprising that similar records were not to be found in the Hellenic world. This was the more remarkable after the discoveries of Schliemann, who amid the relics of a high primitive civilisation, found no picture writing.

Stillman, indeed, found traces of this kind at Knossos. For long it was held that writing was an unknown art, in any form in Homeric times; but his own personal investigations led him to a different conclusion, and in 1893-94, at Athens and in Crete, he found stones which seemed to disclose the existence of prehistoric picture writing. Of these specimens were shown on the screen and explained. These were for the most part seals, but on the libation table in the Dictæan cave of Zeus he found inscriptions, pictographic and linear. There was also in many instances to be found a blending of gesture and language in the picture itself, and this indicated an advanced stage of civilisation. In the Great Palace of Knossos evidence was discovered of pictographic writing, chiefly on shells, and of this system gradually becoming linear. It would be difficult to make out anything like an alphabet out of these materials, the constituents being syllables or half-words rather than letters, but the advance in that direction was clear. The evolution from the purely pictographic to the linear was illustrated by specimens shown on the screen. Thus there came into existence a syllabary growing out of the pictographic forms. There was good reason to believe that this comparatively advanced form of writing, approaching the alphabetic, existed at least as early as 1800 B.C. These might be brought into relation and comparison with Egyptian scarabs of the twelfth dynasty. It might be thought, he safely affirmed that this form of writing could be traced as far back as 3000 B.C. The lecturer showed some remarkable specimens—some of them very primitive in design—of this conventionalised pictographic system in Crete. Remarkable specimens of the first Egyptian dynasty were shown in comparison with early Cretan and Mycenaean forms. His inference was that these forms were not borrowed from Egypt, but were indigenous, though there was reason to believe that from the earliest times there was intercommunication between Crete and Egypt. These Cretan survivals, he thought, might be attributed to the third and even the fourth millennium B.C. Crete, indeed, was in the forefront of civilisation when the rest of the Greek world was in comparative darkness.

HISTORICAL CONGRESS, ROME.

THE Board of Education have received through the Foreign Office a copy of the programme of an International Congress on Historical Studies, which is to be held in Rome on April 2 to 9, 1903. The congress is under the patronage of the King of Italy, and Signor Pasquale Villari is president of the organising committee. The deliberations of the congress will be conducted in eight sections, devoted respectively to ancient history, mediæval and modern history, history of literature, archaeology and numismatics, with history of the fine arts, history of jurisprudence, history of geography, history of philosophy and religions, history of the mathematical, physical and medical sciences. The Board of Education are especially requested to announce that the Italian Government will most welcome a large attendance of British scholars and of representatives of British learned societies and institutions. Those desiring further information should communicate with the secretary of the congress, Signor Giacomo Gorini, committeo direttivo del Congresso Internazionale di Scienze Storiche, 26 Via del Collegio Romano, Rome.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

THE bi-weekly meeting of the above Society was held on Thursday, January 15, the president, Mr. Butler Wilfrid F.R.I.B.A., in the chair. Amongst those present were Richard Wood and Mr. G. T. Bowman (vice-presidents), H. S. Chorley (hon. secretary), Messrs. Robert P. Oglesby, A. E. Dixon, &c. At the conclusion of the usual business paper, entitled "Rome, Ancient and Modern," was read by Mr. Arthur Marshall, A.R.I.B.A., president of the Nottingham Society. The lecturer remarked that although there was abundant evidence of Regal Rome possessing structures of some magnitude, it was left to Imperial Rome to furnish the city with most striking monuments. The best preserved of these undoubtedly the Arch of Constantine, the sculptures of which had previously adorned other edifices. The Pantheon, Catacombs, the Coliseum amongst others were also described with the assistance of lantern slides, most of them excellently coloured by Mr. Marshall's own hand. A vote of thanks to the lecturer was moved by Mr. H. S. Chorley (hon. secretary), who dwelt upon the fact that a portion of Rome as we see it to-day was built from materials of other and more ancient structures which have since disappeared.

Mr. Robert P. Oglesby, in seconding the vote, referred to the welcome decision of the Italian Minister of Instruction

ace marble records upon the site of vanished structures, thus enabling all to see the positions once occupied by Rome's grand monuments.

In conveying the Society's thanks to the lecturer, Mr. Butler Wilson remarked that the oftener one visited Rome the deeper was the impression left by every succeeding visit. It was quite possible to leave Rome after first acquaintance depressed and overwhelmed by the magnitude of its architectural wealth. Only by repeated visits could Rome be satisfactorily grasped and realised.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A SPECIAL meeting of the Council was held at the Institute Rooms, 20 Lincoln Place, on Monday, Mr. G. C. Ashlin, F.R.I.B.A., president, in the chair. There were also present Sir Thomas Drew, Mr. A. E. Murray, Mr. G. P. Sheridan, Mr. F. Hicks, Mr. R. Caulfield Orpen and Mr. W. E. Parry, hon. secretary.

The matter before the Council was a communication from the Architectural Association of Ireland having reference to a proposal submitted by the Association that the Institute should put on foot a qualifying examination as a condition precedent to admission to the ranks of membership of the Royal Institute. The question gave rise to a very animated discussion, and the hon. secretary was instructed to communicate with the secretary of the Royal Institute of British Architects on the subject and to report to the next regular Council meeting.

ARCHITECTURAL ASSOCIATION OF IRELAND.

THE first of the new series of technical demonstrations connected with the above Society was held at the premises of Messrs. John M'Ferran & Co., Beresford Place, on the 15th inst. There was a fair attendance of members. Mr. R. M'Ferran having explained the various qualities of iron pipes, showed a double-socketed pipe, which has the advantages of rapidity in laying, true alignment and resistance to subsequent depression. Various samples of English, Irish and Scotch bricks were brought to the notice of the members, the durability, quality and facilities of manufacture of each being commented upon. The weather-resisting qualities of Irish, Welsh, American and French slates were compared, some excellent examples of the Killaloe slate being especially noticeable. The demonstration concluded with a series of tests on Portland cement by a representative of the firm. Many vivid and practical methods of distinguishing good from bad materials were explained, these latter being very useful to the assembled students. Mr. M'Ferran was assisted by a representative of the Bourtreehill Coal Company. The second demonstration was held yesterday at Mr. Edmund Sharp's premises, Brunswick Street, at 3.30 P.M., the subject being, Building and Decorative Stones and Mosaic.



Chepping Wycombe Municipal Buildings Competition.

SIR,—The conditions for the Chepping Wycombe Municipal Buildings competition contain the following clause:—

"The President of the Royal Institute of British Architects, some architect to be nominated by him, will be asked to select these awards according to his judgment, but the competition does not undertake to carry out any designs, and reserve the right to select for erection any set of designs either awarded a premium or not) they may themselves select."

The President of the Royal Institute of British Architects requests that you will kindly allow him through your columns to inform those concerned in the competition that, as he understands the promoters decline to modify this clause, he has been unable to nominate an assessor.—I am, yours faithfully,

W. J. LOCKE,

Secretary Royal Institute of British Architects.
January 20, 1903.

Messrs. Watkins and Dr. Brook.

SIR,—In your last issue we notice a full report of the meeting of the quarterly board of the Governors of Lincoln County Hospital, at which meeting an attack was made by one of the Governors on our professional integrity. We now enclose you a copy of the *Lincoln Leader* of last Friday's date, in which you will find copies of correspondence

that has taken place between ourselves and the Governor referred to, and in which he unconditionally withdraws all the charges and insinuations he previously made.

We must ask you to be good enough to give the same publicity to this correspondence as you did to the report of the meeting at which the charges were made.—Yours faithfully,

W. WATKINS & SON.

St. Edmonds Chambers, Silver Street, Lincoln:

January 19, 1903.

[COPY.]

St. Edmonds Chambers,
Silver Street, Lincoln:

January 10, 1903.

Dear Sir,—Your remarks at the quarterly meeting of the Hospital Governors on the 8th inst. were of such a character and calculated to be so injurious to us in our profession that we are bound to take serious notice of them. You very clearly intimated your belief that we were claiming and obtaining commissions to which we were not entitled, that extravagant expenditure was being incurred under our direction for the sake of the commission thereby obtained, and that we were improperly drawing money professionally from a charitable institution. You must have been fully aware that such remarks were devoid of all warrant and that to make them could not be otherwise than a serious injury to us. Having made your remarks and so insured their broadcast publication, your subsequent attempt to explain them away in no way satisfies us. We must ask you therefore to withdraw without condition or reserve the remarks of which we complain, and in as public a manner as they were made and published. Should you decline to comply with this reasonable request we propose to take the necessary steps to vindicate our professional integrity against your unwarrantable and cruel attack.—Yours truly,

(Signed) W. WATKINS & SON.

C. Brook, Esq., Lincoln.

[COPY.]

Minster Yard, Lincoln:

January 13, 1903.

Dear Sir,—I have received your letter of the 10th inst., and much regret that you should consider any remarks of mine at the quarterly meeting of the Hospital Governors on the 8th inst. to be injurious to you in your profession. With reference to your suggestion that I intimated my belief that you were claiming and obtaining commission from tradesmen to which you were not entitled, I emphatically deny that I made, and I did not intend to make, any imputations to this effect. I think it is probable you assumed, unfairly to me as I submit, that I had this intention, but as soon as I became aware that this was the construction you placed on my remarks, I unhesitatingly withdrew any words which could have favoured this impression, and without reserve I say now that I do not believe that you ever received any illicit commission to which you were not entitled, and if any words of mine could bear any interpretation to this effect, I unreservedly withdraw them and express my regret for the annoyance such suggestions may have caused you. With reference to your further allegations to the effect that I stated that extravagant expenditure was being incurred at the hospital under your direction for the sake of the commission you thereby obtained from the hospital funds, or that you were improperly drawing money professionally from a charitable institution, I entirely repudiate any such charge, which was never suggested or made. It is perfectly true that I asked what commission you obtained, and whether such commission was chargeable upon the accounts of all the tradesmen who supplied goods in connection with the recent new works, and I fail to see what reasonable complaint you can urge against this request. I never suggested that you were improperly running up an expenditure for the purpose of earning increased commission, though it is perfectly obvious upon the replies you gave that the larger the outlay the greater would be your commission. I should be very sorry to suggest that this has influenced you in recommending any expenditure at the hospital which has not been justifiable, and I deny most emphatically that I made any suggestions of professional misconduct in what you have done, and I regret exceedingly that you should have attributed to me an imputation which I should be very sorry to make upon a gentleman of your integrity and position. If therefore you think that any remarks I made are such as to prejudice your professional reputation I willingly withdraw them, but at the same time I reserve to myself the fullest right, as one of the Governors, to criticise the existing arrangements under which remuneration is paid to the surveyor for services rendered to the Institution. I propose to send a copy of your letter to this reply to the chairman of the weekly board with a request that he will be good enough to read them at the next meeting of the weekly board.—Yours faithfully,

(Signed) CHARLES BROOK.

To W. Watkins, Esq.

[COPY.]

St. Edmonds Chambers,
Silver Street, Lincoln :
January 15, 1903.

Dear Sir,—We have to acknowledge the receipt of your letter of the 13th instant, addressed to our Mr. Watkins senior, and are very glad to accept your assurance that it was not your intention to make any imputations against our professional conduct, and that if any words of yours could bear such an interpretation you unreservedly withdraw them and express your regret for the annoyance such suggestions may have caused us. As these imputations were commonly understood, from your words as reported in the public press to have been made, it only remains that equal publicity should be given to your present full exoneration; we therefore propose to send a copy of your correspondence to the press. We could have wished that such publication which the justice of the case requires had been volunteered by you. We would only further observe that a discussion of the mode in which architects are remunerated may or may not be a matter of general public interest; but if it is, a meeting of hospital governors is scarcely a fitting place for such a debate, nor should the proper and agreed remuneration of their architects be the subject of critical and adverse comment.—Yours truly,

(Signed) W. WATKINS & SON.

C. Brook, Esq, Lincoln.

[COPY.]

The Minster Yard, Lincoln :
January 15, 1903.

Dear Sir,—I am quite agreeable to your making any use you may desire of my letter —Yours faithfully,

(Signed) CHARLES BROOK.

To W. Watkins, Esquire.

GENERAL.

The McKinley Memorial.—We are requested to announce that foreign artists—that is, all non-residents of the United States of America—who are desirous of competing for this Memorial at Philadelphia must communicate their intention of so doing on or before February 1 to Mr. Leslie W. Miller, 320 South Broad Street, Philadelphia, Pa., U.S.A., forwarding him the bills of lading, stating name of vessel on which drawings are being sent, and then they will be admitted free of duty and responsibility taken for their return in due course.

The Prince of Wales has consented to lay the foundation-stone of the new workmen's dwellings which are to be erected by the Westminster City Council in Regency Street. The date of the ceremony has not yet been fixed.

The Prince and Princess of Wales will be present at the dedication of the nave of Truro Cathedral, which will take place probably in the last week of June or the first week of July.

The Drawings, photographs, plans and casts illustrative of Mr. Arthur Evans's excavations at the palace of Knossos, Crete, will remain on view during the whole time of the winter exhibition at the Royal Academy is open, namely, till March 14, instead of during January only, as previously announced.

The South Molton Corporation, Devon, will shortly seek power to borrow money for the erection of workmen's dwellings to be let at 5 $\frac{1}{2}$ %, 6% and 7% a year.

The Luxembourg is supposed to contain only works by living artists. Pictures and drawings by the following artists were accordingly lately removed to the new galleries of the Louvre:—Cabat, Daumier, Jules Dupré, François, Jean Gigoux, Isabey, Ch. Jacque, Emile Lévy, Robert-Fleury, Viollet Le Duc, Cals, Mottez, Tassaert and Meissonier.

The Westminster City Council have resolved to plant trees in Whitehall and Parliament Street from Horse Guards Avenue to Bridge Street on both sides of the roadway. Sir John Wolfe-Barry, a member of the Council, undertook to give the trees, and an estimate of 229 $\frac{1}{2}$ s. for planting them and supplying grids, guards and kerbs was approved.

Mr. William Ridgeway, M.A., Fellow of Gonville and Caius College, Cambridge, has been re-elected for a further period of five years to the Disney Professorship of Archaeology.

A Memorial to the late Archbishop of Canterbury is to be raised in the county of Devon. It is to take the form of a new west window and brass or other memorial tablet in Exeter Cathedral. Over 3,000 $\frac{1}{2}$ will be required.

The Lord Chief Justice will preside at the meeting of the Society of Arts on Wednesday evening, the 28th inst., when a paper on "The Cost of Municipal Trading" will be read by Mr. Dixon H. Davies.

M. Nenot, the architect, is now temporarily acting as secretary of the Académie des Beaux-Arts.

The Scheme for a Mono-rail from London to Brighton is not likely to be proceeded with, owing to the opposition prepared by the Brighton Railway Company against the scheme on Standing Orders, and to enable the arrangements for the construction of the Mono-rail between Manchester and Liverpool to be completed. The promoters of the City and Crystal Palace Tube Railway have also abandoned their scheme for the coming Session.

The Westminster City Council have resolved:—"That a communication be addressed to His Majesty's Government suggesting that the Royal Commission about to be appointed to inquire into the congestion of traffic in the streets of London be directed to receive evidence and report upon the obstruction caused by the breaking-up and use of the streets by companies and other undertakers under statutory powers to lay pipes, wires, &c., and execute works over, under, across and along the streets, and also as to the advantage and practicability of requiring such pipes, wires, works, &c., to be placed in subways under the streets."

The Yacht Club of France has decided to organise an exhibition intended to encourage marine painters. The first exhibition will commence on February 7 at Paris.

The Hove Town Council having proposed to introduce and work tramways in the borough at the cost of the ratepayers, a poll was demanded by the Hove ratepayers' defence committee. The counting of the votes was superintended by the Mayor; 3,111 votes were given in favour of the resolution to promote the Bill and 4,185 against the Bill, making a majority of 1,074 votes against the Bill. There were 2,161 individual voters for the resolution and 1,806 against.

The Rev. P. Rousset, a missionary in Natal, has made an appeal to French Catholics for funds to erect a chapel in Napoleon's Kop in Zululand, where the Prince Imperial was killed. The Empress Eugénie, however, opposes the project as the true monument to the prince has been erected at Fainburg.

Mr. George Frampton, R.A., having completed his portrait of Mr. James Fleming, chairman of the Governors of the Glasgow School of Art, it was recently unveiled at the institution.

The Court of Common Council have instructed the Library committee to consider whether, having regard to the interest of historic associations attached to the signs in Lombard Street which the Court had ordered to be removed, a request should be made to the owners to present them to the Guildhall Museum.

Mr. A. C. Gow, R.A., and Mr. W. F. Yeames, R.A., have each received commissions to execute frescoes for the alabaster at the Royal Exchange. Mr. Yeames will have as subject "King Henry VIII. bestowing on the Mercers' Company the License to build St. Paul's School."

Mr. Henry Hart, for thirty-six years district surveyor of North-West Kensington, died on the 16th inst. at the age of eighty-eight.

The Old Exchequer and Audit Offices which were formerly located at Somerset House, having been removed to new premises on the Thames Embankment near Blackfriars Bridge, the offices thus vacated are being structurally altered and renovated in order that additional accommodation may be provided for the Inland Revenue Department.

A Block of buildings to be known as King Edward VII. Memorial is now in progress at Port Elizabeth, South Africa. The architects are Messrs Jones & McWilliams, and the contractors are Messrs. Rochelle & Smith. The contract amount is 35,000 $\frac{1}{2}$.

Mr. Saint Gaudens, the American sculptor, has announced to the committee that the monument of Robert Louis Stevenson, which was to be set up in St. Giles, Edinburgh, this summer, has been delayed owing to his illness. The relief, which is the body of the memorial, is being cast in bronze.

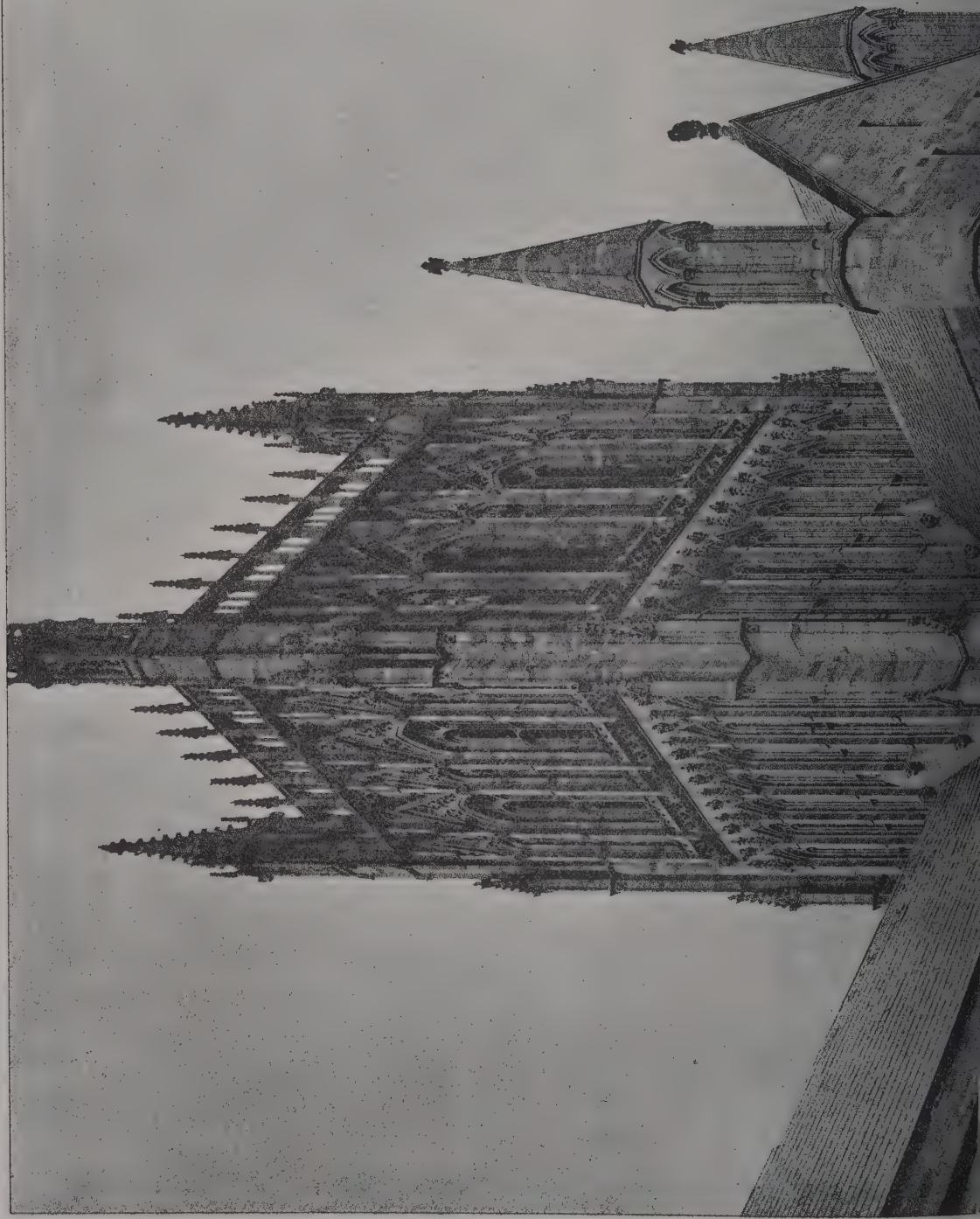
Mr. Carnegie has purchased two houses adjoining Shakespeare's birthplace, and has presented them to the trustees in order that they may be removed and the sites become part of the birthday garden.

Mr. Ralph Hedley, R.B.A., will deliver an address before the Northern Architectural Association on Wednesday evening upon "Sketching in Charcoal."

Papers will be read at the meeting of the Institution of Civil Engineers on Tuesday by Mr. Maurice Fitzmaurice, C.M.G., on "The Nile Reservoir, Assouan," and by Mr. F. Stokes on "Sluices and Lock-gates of the Nile Reservoir, Assouan."

The Library Supply Company have added to their list of appliances for offices an "Auto-fix Case," which is well adapted for architects and others who wish to preserve apart their illustrations as appear in this Journal.

The Architect, Jan 23rd 1903.





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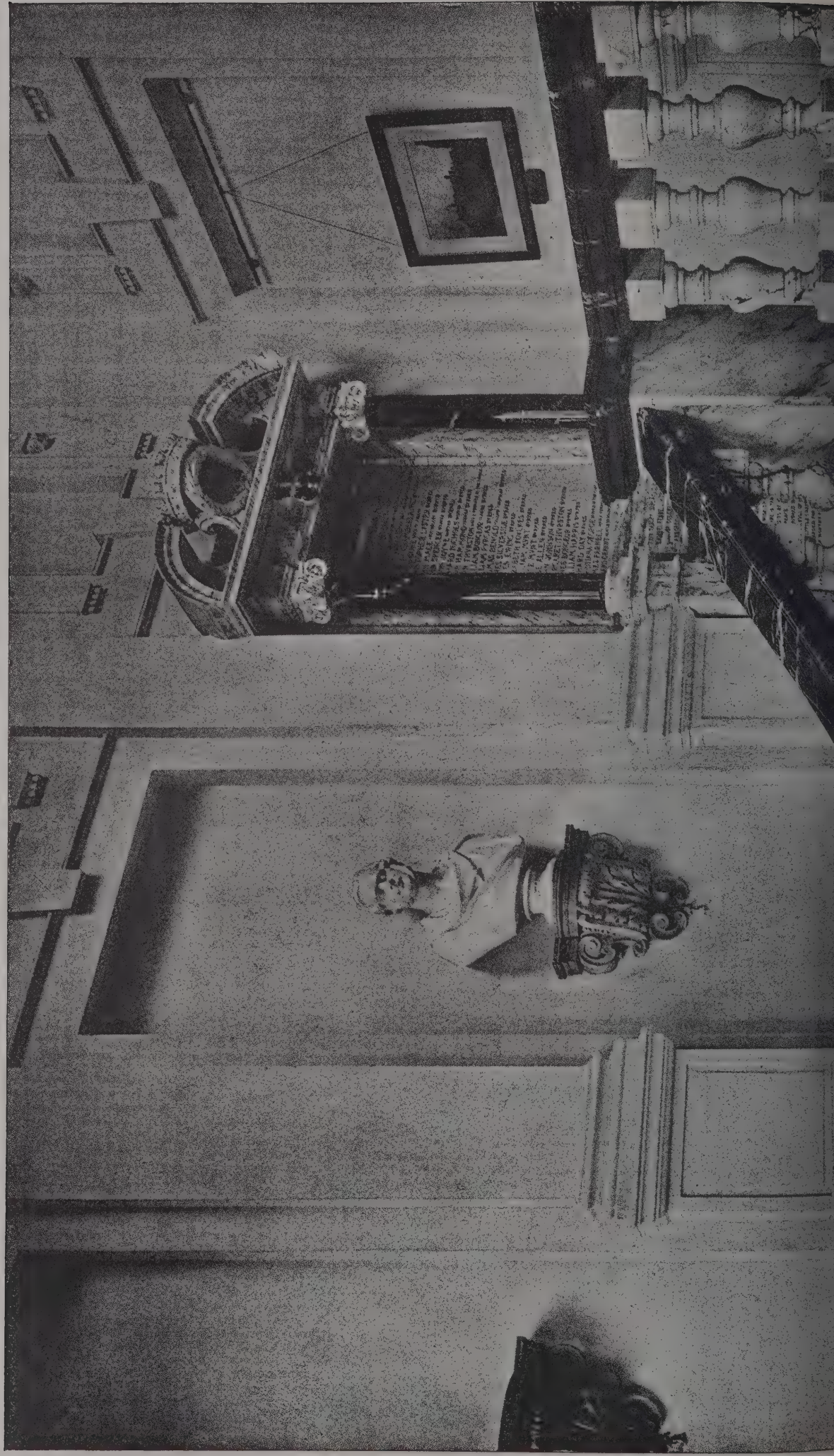


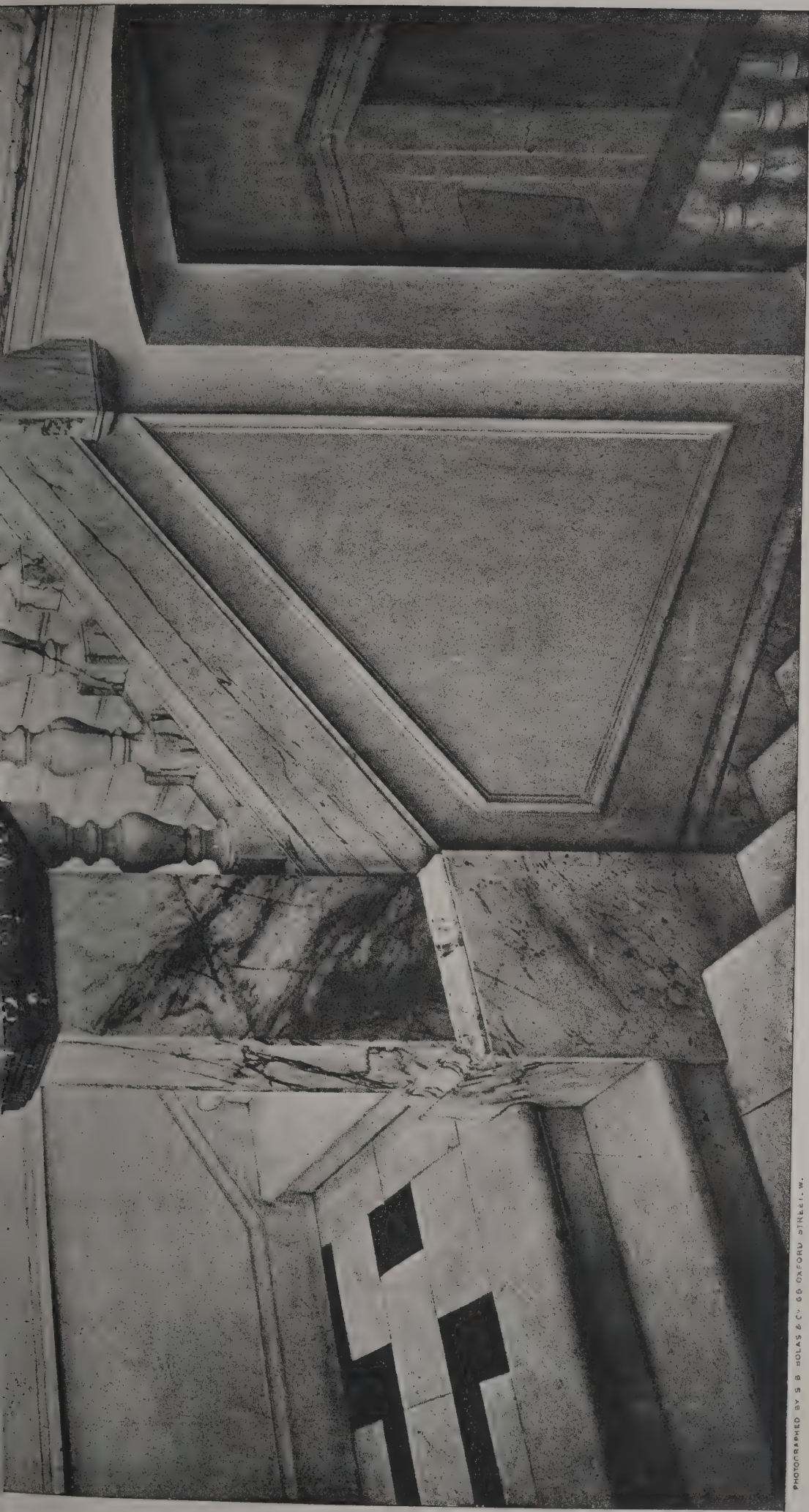
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The Architect, Jan 23rd 1903.





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TOWN HALL, COLCHESTER: TOP LANDING, LOOKING TO MARTYRS' MEMORIAL.

JOHN BELCHER, A.R.A., Architect.



PHOTOGRAPHED BY BEDFORD LEMERE & CO 147, STRAND W.C.

3rd 1903.



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THE COUNCIL CHAMBER.

Architects

THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Parrett. Mr. W. T. Baker, town clerk, King Square, Bridgewater.

BRISTOL.—Feb. 9.—The Bristol School Board invite designs for school premises at Moorfields, St. George, Bristol. The competition will be restricted to Bristol architects. Mr. W. Avery Adams, clerk to the School Board, Guildhall.

CAPE TOWN.—Jan. 31.—The Council of the University of the Cape of Good Hope invite designs for the erection of university buildings. Premiums of 400*l.*, 200*l.* and 100*l.* will be awarded to the authors of the designs placed first, second and third respectively. Particulars of the competition may be obtained on application to the Registrar at Cape Town, or to the Agent-General in London.

CASTLEFORD, YORKS.—Mar. 31.—Designs are invited for a free library. Premiums 15*l.* and 10*l.* respectively. Mr. H. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

HULL.—Mar. 31.—Designs in competition are invited for the extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

SMETHWICK.—Jan. 31.—Competitive designs and tenders are invited for erection of a refuse destructor. Mr. C. J. Fox Allin, borough surveyor, Town Hall, Smethwick.

ST. IVES, CORNWALL.—Jan. 31.—Competitive plans are invited for the erection of municipal buildings, to consist of a guildhall, council-chamber, jury room, public hall, town clerk's office, surveyor's office, treasurer's office, muniment room, parochial office, mayor's parlour and fire-brigade station and offices. Premiums of 70*l.* and 30*l.* respectively will be awarded to the architects whose plans and specifications are considered to be first and second in order of merit. Mr. Edward Boase, town clerk, Town Clerk's Office, St. Ives, Cornwall.

SUTTON COLDFIELD.—Feb. 20.—Designs are invited for the erection of a town hall adjoining the council house, the total expenditure to be limited to 7,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* respectively will be awarded for the three best designs in order of merit. Mr. W. A. Clarry, C.E., borough surveyor, Council House, Sutton Coldfield.

CONTRACTS OPEN.

BEXLEY HEATH.—Jan. 31.—For the adaptation of the buildings known as Oak House, Broadway, Bexley Heath, Kent, for council offices, and the erection of council chamber, waiting and cloak-rooms, &c. Mr. Thos. G. Baynes, clerk, Public Hall, Bexley Heath, Kent.

BIGGLESWADE.—Feb. 16.—For erection of a boys' National school at Biggleswade. Messrs. Townsend & Fordham, architects, Cross Street, Peterborough.

BIRMINGHAM.—Jan. 30.—For erection of ten cottages for the use of the workmen stationed along the line of aqueduct from Wales to Birmingham, for the Birmingham Corporation. Mr. Edward Orford Smith, town clerk, Council House, Birmingham.

BIRKENHEAD.—Feb. 2.—For erection of iron fire-escapes and alteration to the offices at the union workhouse, Birkenhead. Mr. Edmund Kirby, architect, 5 Cook Street, Liverpool.

BISHOP AUCKLAND.—Jan. 31.—For alterations and additions to 2 South Road, Bishop Auckland, and erection of printing works at the rear of the premises. Mr. W. Perkins, architect, Victoria Street, Bishop Auckland.

BLESSINGTON.—Jan. 28.—For erection of a medical officer's residence, dispensary and out-offices in the town of Blessington, including the formation of yard, the construction of drains, the erection of yard wall, entrance and side gates, closets, baths, lavatory, basins, &c., and providing a hot and cold-water supply for the premises. Mr. D. J. Purcell, clerk of the Naas Union, Blessington.

BROMLEY.—Feb. 2.—For erection of two shops, High Street. Messrs. F. & W. Stocker, architects, 90 and 91 Queen Street, E.C.

BURY.—Jan. 26.—For fittings to shops and newsroom at Ainsworth Road premises, for the Bury (Lancs) District Co-operative Provision Society, Ltd. Mr. D. Hardman, architect, Agar Street, Bury.

CHESTERFIELD.—For erection of ten cottages and corner shop at Whittington Moor, near Chesterfield. Mr. W. M. Ashmore, architect, Highfield Road, Chesterfield.

DERBY.—Feb. 3.—For erection of boys, girls and infants' schools, teachers' residences, fence, walls and conveniences at New Heath, in the county of Derby. Messrs. Rollinson & Son, architects, 13 Corporation Street, Chesterfield.

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DURHAM.—Jan. 26.—For erection of an isolation hospital (stone built) at Windy Nook, Felling. Mr. H. Miller, architect, Felling.

EAST DULWICH.—Feb. 4.—For erection of eighty-five houses upon the Grove Vale Estate. Mr. William Oxtoby, borough engineer.

EVESHAM.—Jan. 31.—For erection of vagrant wards and union offices. Mr. G. H. Hunt, architect, Bridge Street, Evesham.

GRIMSBY.—Jan. 27.—For erection of a corrugated iron hospital and administrative block at Laceby and the erection of laundry building, mortuary, steriliser, disinfector, destructor, &c. Mr. H. Gilbert Whyatt, borough surveyor, Town Hall Square, Grimsby.

HALIFAX.—Jan. 26.—For erection of five houses on the Manor Royd Estate, fronting into Manor Heath Road. Messrs. Richard Horsfall & Son, architects, 22A Commercial Street, Halifax.

HALIFAX.—Feb. 5.—For conversion of Clare Hall into two residences. Messrs. Richard Horsfall & Son, architects, &c., 22A Commercial Street, Halifax.

HAMPTON.—Jan. 31.—For erection of a detached house in the Acacia Road, Hampton, Middlesex. Mr. Fredk. G. Hughes, architect, Marling Park, Hampton-on-Thames.

HARROGATE.—For alteration of the old Yorkshire home for incurables, in Montpellier Parade, into business premises. Messrs. Whitehead & Smetham, architects, Albert Chambers, Albert Street, Harrogate.

HINDLEY.—Feb. 2.—For erection of public offices in Wigan Road, Hindley, Lancs. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

HOUGHTON.—Jan. 31.—For a reading-room at Houghton. Mr. Wm. Gregson, Houghton.

HUDDERSFIELD.—Jan. 28.—For erection of three dwelling-houses at Dalton. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HUDDERSFIELD.—Feb. 12.—For alterations and additions to Ravensdeane, Edgerton. Messrs. John Kirk & Sons, architects, Huddersfield.

IRELAND.—Jan. 28.—For erection of a medical officer's residence, dispensary and out-offices in the town of Blessington. Mr. D. J. Purcell, clerk to the Guardians, Naas.

IRELAND.—Jan. 30.—For erection of a new church at Glacknadrummond, county Donegal. Mr. John M. Robinson, architect, 7 East Wall, Londonderry.

IRELAND.—Jan. 30.—For additions and alterations to the workhouse infirmary and new board-room, Newtownards Union. Mr. James Colville, clerk, Poor Law Offices, Newtownards.

IRELAND.—Jan. 31.—For erection of new Presbyterian church at Grey Abbey. Mr. Thos. Pentland, architect, 35 High Street, Belfast.

ISLE OF WIGHT.—Feb. 6.—For erection of new coastguard buildings at the Needles, Isle of Wight, consisting of houses for four men, watch-room, outbuildings, &c. Specifications, &c., can be seen at the Director of Works Office, at the Alum Bay coastguard station, or at the office of the Superintending Engineer, Portsmouth Dockyard.

KEIGHLEY.—Jan. 27.—For additions to Holy Trinity schools, Keighley. Messrs. Barber Hopkinson & Co., architects, Craven Bank Chambers, Keighley.

LEEDS.—Jan. 26.—For erection of spinning-mill, engine-house, boiler-house, chimney, stables, cottage, &c., at Woodside, Horsforth, near Leeds. Messrs. Jowett Kendall & J. Harper Bakes, architects, Calverley Chambers, Victoria Square, Leeds.

LIVERPOOL.—Jan. 30.—For erection of a sorting office for postmen at Mossley Hill, Liverpool. Particulars may be obtained on application to the Assistant Architect, H.M. Office of Works, General Post Office, Liverpool.

LONDON.—For execution of certain builders' work on the workhouse premises in Bancroft Road, Mile End Old Town. Mr. William Thacker, Guardians' Offices, Bancroft Road, Mile End, E.

LONG EATON.—For erection of thirteen pairs of houses at Long Eaton. Mr. Frank H. Collyer, architect, 8 Bridlesmith Gate, Nottingham.

LYMINGTON.—Jan. 29.—For erection of a borough surveyor's office, Gosport Street, Lymington. Mr. J. Davis Rawlins, town clerk, 38 High Street, Lymington.

MANCHESTER.—Jan. 31.—For erection of a messhouse and cart-shed at Green Lane Yard. Particulars obtained at the office of the City Architect, Town Hall.

MARSDEN.—Jan. 28.—For erection of three dwelling-houses, cart-shed and stables at Wood Bottom, Marsden, Yorks. Mr. John E. Lunn, architect, Milnsbridge.

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NEW HEATH.—Feb. 3.—For erection of boys, girls and infants' schools, teachers' residences, fence walls and conveniences. Messrs. Rollinson & Son, architects, 13 Corporation Street, Chesterfield.

NEWTON ABBOT.—Feb. 10.—For erection of casual wards, &c., at the workhouse. Mr. S. Segar, architect, Union Street, Newton Abbot.

NORTHALLERTON.—Jan. 26.—For extension to linen mills at Brompton, near Northallerton. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

NOTTINGHAM.—For additions to Wesleyan church, Mansfield Road, Nottingham. Mr. A. E. Lambert, architect, 22 Park Row, Nottingham.

OVENDEN.—Feb. 4.—For erection of ten dwelling-houses at Friendly, Ovenden, Yorks. Mr. Medley Hall, architect, 29 Northgate, Halifax.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

ROTHERHITHE.—Feb. 5.—For repairs to the floor, &c., of the kitchen at the infirmary, Lower Road, Rotherhithe. Messrs. Newman & Newman, architects, 31 Tooley Street.

ST. ALBANS.—Jan. 26.—For erection of a stable and coach-house on the Hill End asylum estate, near St. Albans. Mr. George T. Hine, architect, 35 Parliament Street, Westminster.

ST. GERMANS.—Feb. 2.—For erection of a Sunday school, organ chamber, &c., at the Wesleyan chapel, St. Germans, Cornwall. Mr. J. Sansom, architect, Greenbank Lane, Liskeard.

SANDWICH.—Jan. 28.—For repairs and other works to the Barbican. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

SCOTLAND.—Jan. 26.—For erection of a cottage at King Street, Burghhead. Messrs. A. & W. Reid & Witter, architects, Elgin.

SCOTLAND.—Feb. 6.—For erection of a new coastguard boathouse and alterations to existing slipway at Stornoway, in the Island of Lewis, Scotland. Particulars will be supplied on application to the Director of Works Department, Admiralty.

SELLY OAK.—Feb. 2.—For construction and fixing of woodwork fittings for the general stores and receiving wards

at the workhouse, King's Norton, Birmingham. Mr. Edwin Docker, clerk to Guardians, 10 Newhall Street, Birmingham.

SWADLINCOTE.—Jan. 28.—For slating a wrought-iron roof, 50 feet by 20 feet, at the gasworks. Mr. W. A. Musson, Gasworks, Swadlincote.

TIPTON.—Feb. 5.—For erection of a block of schools at Park Lane, Tipton. Mr. Alfred Long, architect, 21 New Street, West Bromwich.

WALES.—For erection of a residence at Sully. Messrs. Teather & Wilson, architects, Andrew's Buildings, Queen Street, Cardiff.

WALES.—Jan. 26.—For erection of a stone lifeboat house, with timber slip, &c. upon or near the foreshore in the harbour of Newquay, Cardigan. Mr. W. T. Douglas, architect, 15 Victoria Street, Westminster, S.W.

WALES.—Jan. 26.—For extension to the King's Arms hotel, Caerphilly. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—Jan. 27.—For addition of teachers' rooms and a cloak-room for the boys and girls' department in the Eveswell Board school. Messrs. Swalwell & Creighton, architects, Steam Packet Chambers, Dock Street, Newport, Mon.

WALES.—Jan. 29.—For erection of two shops at Evans-town, Gilfach Goch, near Bridgend. Mr. J. Morris Williams, architect, Blackmill, near Bridgend.

WALES.—Jan. 30.—For erection of a school at Rhiwfawr, Cwmlllynfell, Upper Cwmtwrch. Mr. D. J. Rees, architect, Ystalyfera.

WALES.—Jan. 31.—For erection of a drill hall in Aberystwyth, 1st Cardigan Royal Artillery Volunteer Corps. Mr. G. T. Bassett, architect, Aberystwyth.

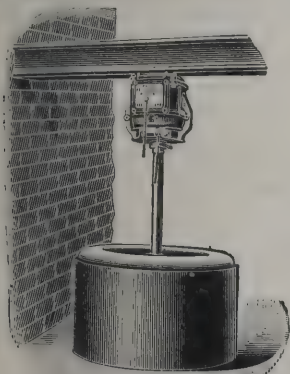
WALES.—Jan. 31.—For erection of vestry and renovation of Caersalem Baptist church, Victoria. Mr. A. Watkins, 59 Cwm Road, Waen Llwyd.

WALES.—Jan. 31.—For rebuilding the Cross inn, Rumney, near Cardiff. Mr. Edward H. Bruton, architect, 119 Queen Street, Cardiff.

WALES.—Feb. 7.—For erection of a police-station and court-house at Caergwrle, Flintshire. Messrs. John H. Davies & Sons, architects, 14 Newgate Street, Chester.

WALSALL.—Feb. 9.—For erection of a school to accommodate 1,000 children, and a cookery centre and caretaker's house at the Chuckery, Walsall. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

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WALTHAMSTOW.—Jan. 26.—For erection of a school to accommodate 520 at Selwyn Avenue, Hale End, and alterations and additions, including nine new classrooms, to the Maynard Road schools. Mr. H. Prosser, architect, School Board Offices, Walthamstow.

WANDSWORTH.—Jan. 26.—For construction of underground sanitary conveniences at Tooting Broadway. Particulars may be obtained at the Surveyor's Office, 215 High Road, S.W.

WEST HAM.—Jan. 27.—For street works in Queen's Road (part), Fife Road, Watford Road, Exeter Road, Brent Road, South Molton Road and Wellington Place. Mr. John G. Morley, borough engineer, Town Hall, West Ham, E.

WOOLWICH.—Jan. 27.—For demolition and removal of some large old three-storeyed warehouses in Woolwich dockyard. All information will be furnished on application at the Building Works Department Office, Royal Arsenal, Woolwich.

WORKINGTON.—Jan. 28.—For erection of house and shop in Oxford Street and Corporation Road, Workington. Mr. T. Johnston, builder, Corporation Road.

WORKINGTON.—Jan. 31.—For restoration of St. John's Church, Workington. Mr. James Howes, architect, 106 Harrington Road, Workington.

THE sub-committee of the Lord Provost's committee of the Edinburgh Town Council, on a motion by Councillor Wilson as to the number of the staff of the burgh engineer's department, have submitted their report to his lordship's committee. They reported that the staff, as authorised by the Council, consisted of 1 burgh engineer, 28 assistants, 43 inspectors and 66 workmen—138 in all; that the staff at present employed consisted of 1 burgh engineer, 24 assistants, 28 inspectors and 45 workmen—a total of 98; and that since the date of their remit, June 1902, 31 officers had left the service of the department. The sub-committee recommended that for the future the staff should comprise 1 burgh engineer, 18 assistants, 28 inspectors and 44 workmen—a total of 91, and that the burgh engineer be empowered to employ a number of men for extra duty when required, not exceeding 9. It was pointed out by the sub-committee that until the magistrates and Council finally determined whether the burgh engineer should in the future discharge such extra duties as have fallen to him of late in connection with the cabling of the tramways and the housing of the working classes schemes, he would have difficulty in suggesting any further permanent reduction of the present staff. The Lord Provost's committee approved the report.

TENDERS.

BARKING.

For supply of a heater for heating the water in connection with the public baths by means of the exhaust steam from the electricity works. Mr. C. P. DAWSON, surveyor.

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BETHNAL GREEN.

For erection of dormitories, maternity wards and other buildings at the Waterloo Road workhouse, Bishop's Road, Victoria Park. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.

Patman & Fotheringham	£13,423 0 0
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W. Smith & Son	11,289 0 0
H. Wall & Co.	11,275 0 0
A. E. Symes	11,175 0 0
J. O. Richardson	10,900 0 0
WATTS, JOHNSON & CO., Limehouse (provisionally accepted)	10,297 0 0

BIRDWELL.

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T. Green & Sons 350 0 0
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For installing electric light at the entrance to the Brighton Aquarium.
G. Hignett & Co. £275 0 0
H. J. Galliers 272 0 0
C. G. Reed & Son, Ltd. 244 10 0
G. VIRGO, 40 Edward Street, Brighton (accepted) 200 0 0

BRADFORD.

For alterations to the workmen's rooms, Hammerton Street destructor; and to the municipal milk-shop, Manchester Road.

J. TOTTY, Bradford (accepted).

For the erection of new central baths and public hall, Morley Street, Bradford.

Accepted tenders.

Jackson Bros., Bradford, carpenter and joiner.
C. W. Webster, Bradford, electric lighting.
Hewitt & Kellett, Bradford, steam-boilers.
Note.—Heating, ventilating, &c., adjourned.

CROYDON.

For street works in Phipps's Bridge Road, Mitcham. Mr. R. M. CHART, surveyor.
Wheeler £118 0 0
Parry & Co. 110 0 0
Free & Sons 108 0 0
E. ILES, Mitcham (accepted) 75 0 0

CHESTERFIELD.

For construction of sewerage settling tanks, carriers, and laying-out irrigation area, and automatic machinery for supplying the latter; also a 12-inch and 9-inch sewer in the village of Cresswell, with manholes, ventilators, &c. Mr. E. HAZLEDINE-BARBER, engineer, Hollin Hill, Clown, Chesterfield.

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For street works in Thirza Road, Waldeck Road and Marriott Road. Mr. W. H. HARSTON, surveyor.

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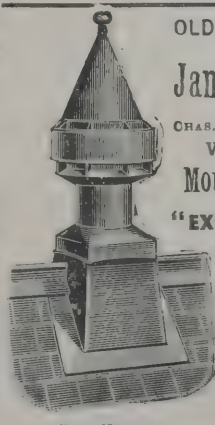
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R. Gilchrist & Sons, masonwork £3,320 10 0
Robert Anderson & Sons, joinerwork 1,211 5 2
Slater 117 0 0

HALIFAX.

For erection of three houses and a shop in Warley Road, Halifax. Mr. LISTER COATES, architect, Yorkshire Bank Chambers, Halifax.

Accepted tenders.

T. Pickles, Luddendenfoot, excavator and mason. £456 10 4
W. Rutcliffe & Sons, Claremont, Halifax, carpenter and joiner 170 0 0
Rushworth & Firth, New Bank, Halifax, slater and plasterer 56 0 0
C. Firth, Luddendenfoot, plumber and glazier 34 10 0

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For street works in back road off Bower Road. Mr. F. BAGSHAW, borough engineer.
J. FROST, 2 Haywra Street (*accepted*) £414 5 4

HAVERHILL.

For rebuilding Melborn bridge, Haverhill, Suffolk. Mr. A. AINSWORTH HUNT, architect, Sudbury.
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Mason & Son 350 0 0
LANGLEY BROS. & TOZLAND, Leicester
(*accepted*) 303 0 0

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F. BRADFORD & CO. HOMERTON, LONDON, N.E.

For Index of Advertisers, see page x.

ILFORD.

For supply and erection of the following plant:—Contract No. 1—Dry-back, semi-marine type boiler (15,000 lbs. evaporation per hour), superheater and accessories and motor-feed pump; 2, steam, feed and blow-off pipes and feed filter; 3, surface condenser, cooling tower, motor pumps, hot well, grease extractor, exhaust, steam and water pipes.

Accepted tenders.

J. Fraser & Son, London (Contract No. 1)	£3,835	0	0
W. H. Allen, Son & Co., Bedford (Contract No. 3)	3,000	0	0
Babcock & Wilcox, London (Contract No. 2)	517	0	0

LANCASTER.

For supply of about 1,550 lineal yards of 12-inch cast-iron pipes and special castings.

J. OAKES & CO., 21 Wharf Road, City Road, London, N. (*accepted*).

LONDON.

For construction of an outfall sewer and surface-water sewers in Harringay Passage.

R. Ballard, Ltd.	£15,598	0	0
Foster Bros.	13,370	0	0
D. R. Paterson	11,859	0	0
T. Adams	11,512	11	8
C. W. Killingback & Co.	10,875	9	8
C. Ford	9,487	0	0
E. E. Parry & Co.	9,485	13	0
JOHNSON & LANGLEY (<i>accepted</i>)	8,175	0	0

LOWESTOFT.

For supply of the electrical equipment for the tramways.

Accepted tenders.

R. Blackwell & Co, City Road, E.C., overhead equipment	£3,860	0	0
Callender's Cable and Construction Co., Hamilton House, Victoria Embankment, underground feeder cables	3,324	0	0

MORTON BANKS.

For sewerage works at the isolation hospital, Morton Banks, Yorks.

T. E. Sugden	£141	19	8
R. Wood	129	10	1
W. Morley & Sons	123	2	6
W. H. Crow	122	1	6
H. V. ROBINSON, Keighley (<i>accepted</i>)	105	0	0

NEWPORT.

For supply of boilers, &c.

Accepted tenders.

W. & T. Avery, coal-weighing apparatus, hoppers and valves for boilers	£250	0	0
Lysaght, new boilers for the steel flue at the power station	175	0	0

NOTTINGHAM.

For construction and erection of a new bridge over the canal, Wilford Street, Nottingham. Mr. ARTHUR BROWN, city engineer.

Carter Bros. & Co.	£1,575	7	8
Cross & Cross	1,470	0	0
Heenan & Froude, Ltd.	1,445	3	5
E. C. & J. Keay, Ltd.	1,434	0	0
Constructional Engineering Co., Ltd.	1,410	9	7
Westwood & Wrights	1,402	10	0
A. Handyside & Co., Ltd.	1,397	17	1
W. A. Baker & Co., Ltd.	1,397	2	4
G. Taylor & Co.	1,350	4	9
Railway and General Engineering Co.	1,359	16	11
J. O. Brettell	1,348	8	6
Skipwith & Jones	1,323	17	0
Phoenix Foundry Co.	1,302	5	9
J. Tildesley, Ltd.	1,274	0	0
Butterley Co, Ltd.	1,237	1	2
HORSELEY CO, LTD., Tipton, Staffs (<i>accepted</i>)	1,216	0	0

PLYMOUTH.

For sewerage works at Plymouth.

R. H. B. NEAL, Bolitho Bank Chambers (<i>accepted</i>).	£23,146	0	0
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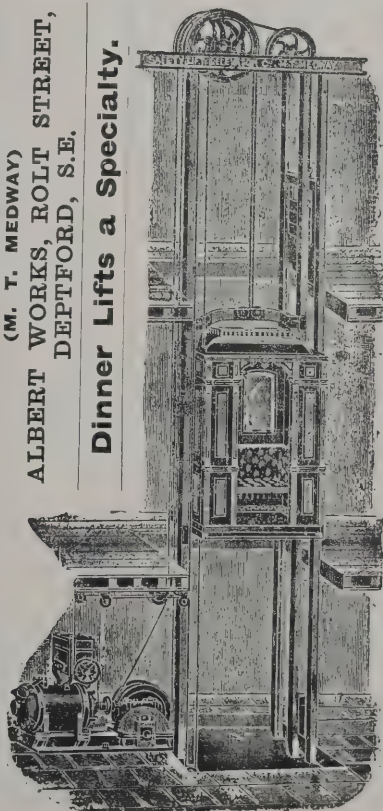
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OF ALL KINDS OF
IRONWORK.

TANKS & CISTERNS.

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PLYMOUTH—continued.

For construction and laying of about 47 yards of cast-iron pipe sewers, 4 feet internal diameter, from a point on the quay below the chemical works out into the Cattewater Channel, and about 120 yards of cast-iron pipe sewer, varying from 4 feet to 3 feet 6 inches internal diameter, along the foreshore between Millbay Pier and Rusty Anchor.

SHELLABEAR & SON, 1 Mutley Plain (accepted) £6,000 0 0

SCOTLAND.

For construction of new streets between Nichol Street and Abbotshall Road, and the extension of Ava Street to Milton Road. Mr. WILLIAM D. SANG, engineer, Kirkcaldy.

G. Mackay & Son	£1,551	4	6
W. Dobson	1,491	7	10
A. Brunton & Son	1,462	4	2
W. Wilson	1,432	8	5
J. Jamieson	1,304	5	9
J. Mackay	1,287	3	10
D. Whyte	1,247	11	9
D. Gilmour	1,217	12	3
J. KENNEDY, Kirkcaldy (accepted)	1,194	11	11
W. Brown	1,194	1	4

For renovation of and additions to Tyrie parish church. Mr. WILLIAM REID, architect, Saltoun Square, Fraserburgh.

Accepted tenders.

G. Corbett, builder.
J. Blake, joiner.
W. Watt, slater.
A. Craig, plasterer.
F. Watt, painter.
R. Tindall, heating.

ST. HELENS.

For construction of sewage precipitation tanks, engine-house, &c., at St. Helens. Mr. GEO. J. C. BROOM, engineer.

W. CUNLIFFE, Kingston-on-Thames (accepted) £17,195 0 0

STREATHAM.

For erection of London Baptist Association church, Mitcham Lane, Streatham. For first portion of scheme, viz. nave, tower, vestries, &c. Messrs. GEORGE BAINES & R. PALMER BAINES, architects, 5 Clement's Inn, Strand, W.C.

J. Carmichael	£4,846	0	0
Mattock Bros.	4,833	0	0
Johnson & Co.	4,752	0	0
Holloway Bros.	3,985	0	0
Jenkin & Co.	3,798	0	0
Holliday & Greenwood	3,736	0	0
S. J. Scott	3,692	0	0
F. Gough & Co.	3,692	0	0
J. Garrett & Son	3,668	10	0
Goddard & Sons	3,656	10	0
Lorden & Son	3,575	0	0
BATTLE, SONS & HOLNESS (accepted)	3,523	0	0

SUNDERLAND.

For supply of steam alternators, generators, transformers, &c. ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT, Berlin

(accepted).

For supplying and fixing electric-lighting fittings to the patients' villa and home at the Ryhope Asylum.

SUNDERLAND FORGE & ENGINEERING CO., LTD.

(accepted).

TROWBRIDGE.

For sewerage works with manholes, &c. Mr. H. G. NICHOLSON-LAILEY, town surveyor.

P. Isley & Co.	£53	12	0
F. Cheverile	44	10	0
G. Moore	32	12	0
E. LINZEY, The Halve (accepted)	25	14	6

For reconstruction of the urinal at the town hall. Mr. H. G. NICHOLSON-LAILEY, town surveyor.

F. Cheverile	60	7	6
W. G. Bresser	59	10	6
Gowen & Stevens	57	18	6
E. LINZEY, The Halve (accepted)	48	0	0

WALES.

For laying-out and draining the extension of St. Woolos cemetery, Newport, Mon.

J. HOOPER (accepted) £4,915 0 0

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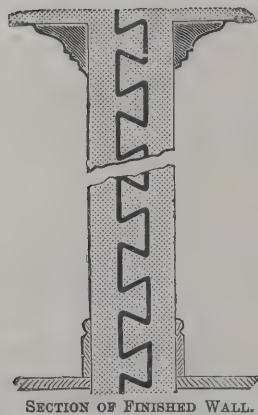
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WALES—continued.

For erection of twenty-five houses at Pengam. Mr. P. V. JONES, architect, Hengoed, <i>via</i> Cardiff.			
J. Morgan	£6,000	0	0
T. F. Howells	5,650	0	0
J. H. James	5,212	10	0
D. Powell	5,100	0	0
W. Jones	4,975	0	0
Davies & Thomas	4,937	10	0
E. Edwards	4,816	5	0
E. HUGHES, Capel Street, Bargoed (accepted)	4,763	2	6

WEYMOUTH.

For constructing a public convenience under the Esplanade, near the cabmen's shelter, with sewers, drains, manholes, inspection chambers, Adams's sewage lift, fences, &c. Mr. W. B. MORGAN, borough engineer and surveyor.			
J. G. Wells & Co.	£1,494	0	0
J. A. Bartlett	1,097	0	0
J. Purchase	1,080	0	0
G. F. Bowring	1,075	0	0
J. T. WHETTAM, jun., Grange Road (accepted)	1,070	0	0

WOLVERHAMPTON.

For sewerage, surface draining, forming, levelling, kerbing, metalling, channelling, bricking and otherwise completing a continuation of Cartwright Street. Mr. GEORGE GREEN, borough engineer.			
J. Owens	£359	19	0
W. H. Reading	351	0	0
H. HOLLOWAY, Wolverhampton (accepted)	343	4	2

WREXHAM.

For providing and fixing boarding on the underside of the roof over the swimming-bath.			
Hughes	£101	0	0
Cathall	93	0	0
DAVIES BROS., Wrexham (accepted)	83	9	0

Received too late for Classification.

CONTRACTS OPEN.

LANGLEY PARK.—For erection of a workmen's club. Mr. F. H. Livesay, architect, Bishop Auckland.

LEEDS.—Jan. 28.—For erection of four new shops and warehouse premises fronting to the new street from Albion Place to Briggate, Leeds. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

LEICESTER.—Feb. 3.—For supply of 1,000,000 Jarrah or Karri wood-paving blocks. Mr. E. George Mawbey, borough surveyor, Town Hall, Leicester.

TRADE NOTES.

THE "Cliff," Tutbury, has recently been fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd, engineers, Liverpool, employing their ornamental "Rahnee" radiators.

MESSRS. WILLIAM POTTS & SONS, clock manufacturers, Leeds, have erected a large illuminated turret clock for H.M. Government at the new Post Office Savings Bank, Kensington. The same firm have also erected a large double-dial turret bracket clock for the Edmonton Coronation committee.

OWING to the great curtailment of showroom space rendered inevitable by the rebuilding of their extensive premises, Messrs. Hewetson, of 204 & 212 Tottenham Court Road, are holding a "rebuilding sale" of carpets, cabinet-work, curtains, floor rugs, decorations, bedsteads and bedding, linoleums, upholstery, china and glass, &c, details of which are fully set forth in the neat little brochure which the firm is issuing. From this we gather that the prices show a very *bona fide* reduction all round, and that some very genuine bargains may be secured, if an early visit be paid.

MR. WILLIAM AUGUSTUS GIBSON, at one time president of the American Elevator Company, and more recently managing director of the Otis Elevator Company, Ltd, has organised and registered a company for the manufacture and sale of lifts under the title "William Augustus Gibson, Ltd.," one of the claims of which to public support is that only best material and workmanship are to be employed, and another is that all the machinery of the company will be made in this country.

MR. THOMAS SMITH, steam and electric crane manufacturer, of Rodley, near Leeds, has taken his sons into partnership, and the business will henceforth be carried on under the style of Thomas Smith & Sons. In this connection

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various improvements have been carried out in the works, which are now of the most modern and up-to-date nature. New and improved machinery has been introduced into every department for the economical and efficient manufacture of every type of electrical, steam and other cranes, and every description of lifting machinery for which the firm is specially noted and to which it devotes its attention exclusively. A new installation of plant for electrical driving (supplied by the Westinghouse Electric Construction Company and other well-known makers) has been laid down, the power being provided by one of the very latest types of high-speed Belliss & Morcom's engines.

VARIETIES.

THE Local Government Board, having considered the report of their inspector upon the local inquiry held with reference to the application of the Scarborough Town Council for sanction to borrow 720*l.* for permanent works in connection with the new smallpox hospital, have informed the Corporation that they are not prepared to sanction the loan, on account of various objections.

THE new premises of the Whitehaven Young Men's Christian Association were formally opened on Tuesday by Lord Kinnaird, the vice-president of the National Council. The premises are situate in Irish Street, and are admirably suited to the needs of the Association. The cost has been about 2,000*l.*, towards which about 1,000*l.* had been raised before Tuesday's ceremony.

THE alterations made in Ednam Church, Edinburgh, amount to a reconstruction of the edifice, with the exception of its walls and seating. A vestry and entrance, built fifty years ago at the east end, have been removed, and a chancel of good proportions built. The entrance has been transferred to the south-west end, where a porch has been erected. A commodious vestry is built on the north side. The old windows have been built up or altered into Gothic forms, the larger having Early Decorated tracery. Internally the new roof is open and ceiled with stained and varnished wood, nearly to the ridge. The floor of the church and chancel are of pitch pine and block flooring, each with its own pattern. The floor of the chancel is raised 1 foot above that of the church, and divided from it by red-tinted concrete the width of the chancel arch, and on this the base of the pulpit is formed. The chancel is approached by two broad Sicilian marble steps

The pulpit, which is the gift of the minister, is octagonal, in oak, with raised panels, three of which have carving and an oval moulding, enclosing ecclesiastic symbols and interlacing foliage. The church is comfortable, heated with hot-water pipes and ventilated. The alterations were carried out from plans by Messrs. Hardy & Wight, architects, Edinburgh, and have cost about 700*l.*

THE forty-eighth annual report of the Wesleyan Connexional chapel committee gives evidence of remarkable progress in chapel and school extension throughout the country. This year new enterprises have been sanctioned which in the aggregate amount to 625,234*l.* Clearing off chapel debts has also discharged 45,269*l.*, or 11,356*l.* more than was paid off last year. The total amount of debt discharged during the period of the chapel committee's administration is 2,703,518*l.* The amount of completed cases is 223,523*l.* Sanction has been given for the erection of 119 new chapels, at an estimated cost of 403,179*l.*, an increase on the previous year of 206,983*l.* and an increase of 28 new chapels. There are also 175 cases of alterations, which in many cases amount to reconstruction, and represent an additional expenditure of 155,200*l.*, an increase of 81,486*l.* The total additional accommodation provided in the new chapels is 24,600 sittings.

ELECTRIC NOTES.

EIGHTEEN months ago the Pudsey Corporation obtained a provisional order for lighting part of the town by electricity. The order will lapse next August, but nevertheless no action is likely under it. The reason is that whilst the cost of carrying out the scheme was from 18,000*l.* to 20,000*l.*, the demand for electric light was comparatively small. A new scheme is, however, brought before the Council by Mr. A. E. Vickers, chairman of the electricity sub-committee, which proposes that a generating station should be rented and 5,000*l.* spent on plant. By this means 4,000 eight candle-power lights might be provided, and extensions be made as the demand increased.

MR. S. W. BAYNES, chief electrical engineer of the St. Pancras Borough Council's successful electric undertaking, has obtained the sanction of the Council to fitting four new boilers at the King's Road generating station with oil fuel apparatus. From this he confidently anticipates various advantages, namely (1) complete absence of smoke; (2) cleanliness, there being no coal dust or ashes to handle or dispose of; (3) saving of labour—one man per shift looking after the

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Adjustable-back Easy Chair, full size, well upholstered and covered in Tapestry, 50/-

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ILLUSTRATIONS.

WOODWORK: ALL HALLOWS CHURCH, LOMBARD STREET, E.C.

TOWN HALL, COLCHESTER: TOP LANDING, LOOKING TO
MARTYRS' MEMORIAL.

CATHEDRAL SERIES: WORCESTER.—CLOISTERS AND TOWER.

WAKEFIELD COUNTY BUILDINGS: THE COUNCIL CHAMBER.

steaming of ten to fifteen boilers; (4) ease of control or manipulation, a boiler being instantly raised to full duty or shut down entirely by the simple manipulation of the burner controlling valves. The Council have further, on the recommendation of their electricity committee, sanctioned an expenditure of 1,046*l.* for providing oil storage, feed-pipes, &c.

BUILDING AND BUILDERS.

MESSRS. J. RYAN & SONS, of Limerick, have obtained the contract for the new post office which is about to be erected in that city.

THE West Riding authorities have received a communication from the clerk to the North Riding asylum in which the suggestion is made that the hospital for consumptive lunatics should be erected in proximity to one of the larger asylums in the county, and that patients from the other two Ridings should be sent there as out-county patients. The matter has been referred to the superintendents of the three asylums in the West Riding with instructions to report.

PLANS are in course of preparation by the Chiswick District Council for the provision of entirely new machinery at their sewage disposal works, the motive power to be gas, supplied from the gas company's mains, with the view to the abandonment of the whole of the existing machinery at the works; and advertisements will be issued inviting tenders for the supply and erection of the machinery, and also of a dust destructor suitable for the requirements of the district.

PLANS have been passed by the building committee of the St. Anne's (Lancs) Council for a palatial hydropathic establishment to be erected by a private company on a site bordering Fairhaven and St. Anne's. The building, which is to be called the Dunes hotel, will have a frontage of 190 feet to Clifton Drive, and be five storeys high. It will be equipped with

needle, electric, Russian, vapour, German and plunge baths, and lighted throughout by electricity. It will contain no fewer than seventy-two bedrooms. The building will be one of the largest in the town. The architects are Messrs. Woodhouse & Willoughby, of Manchester.

THE Harrogate Corporation sanitary committee has met to consider a new scheme of sewage disposal. The Corporation have had before them several schemes. Within the past few days Messrs. Strachan & Watson, two eminent engineers, have been consulted by the Corporation, and the committee have now decided to make land—belonging to the trustees of Dorothy Dare—adequate for their requirements. The Corporation propose to deal with the sewage by septic tanks, following this treatment by double percolation on the north side, but by single percolation on the south of the borough. The estimated cost of the scheme is about 95,000*l.* The new scheme is calculated to save 350*l.* a year for pumping, or capitalised about 10,000*l.*

THE Royal Victoria hospital, Belfast, which is approaching completion, and which has been erected under the supervision of Messrs. Henman & Cooper, architects, of Birmingham, has been constructed on most up-to-date lines. The greater portion of the flooring has been laid by Diespeker, Ltd., in their Venetian marble mosaic, which was selected in competition with other firms for its durability, the hardest marbles only of their respective kinds being used in its composition. The angles between the walls and floors have been formed with a curved skirting, which leaves no place for dirt or dust to lodge, and in the laundry block the channels and dishings of the various gulleys and outlets have also been formed in mosaic by the same company. The total quantity is upwards of 4,000 yards.

LAST week Mr D. W. Kemp addressed the members of the Edinburgh Building Trades Exchange on "The Duchess of Sutherland's New Technical School at Golspie." After describing the school, which is to be erected early this spring, Mr. Kemp stated that the money for the building had been provided by the Duke of Sutherland and Mr. Carnegie, each giving 5,000*l.* The students in the first instance would be all young men, the expense of whose maintenance and education would be met by bursaries, thirty-five of which had already been subscribed by various persons interested. The architect of the school, Mr. J. M. Dick Peddie, had prepared the plans, which were exhibited to the meeting.

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COLONEL A. G. DURNFORD, R.E., inspector of the Local Government Board, attended at the Hampton Urban District Council offices on the 14th inst., and held an inquiry into the Council's application for sanction to borrow 3,313*l.* for sewerage, sewage disposal and surface water drainage, together with 502*l.* for depôt purposes. Mr. Edgar Cosens appeared in support of the application, and the proceedings were purely formal. Later the same day an inquiry was held into the Council's application to borrow 14,685*l.* for the erection of fifty-six dwellings for artisans. The evidence adduced in support of the application was practically the same as that tendered at the recent inquiry into the purchase of Rosehill estate, where it is intended to erect the proposed cottages. The inspector promised to report to the Local Government at an early date, so that the work may not be delayed.

THE annual general meeting of the Master Builders' Association of Ireland was held on the 15th inst. in the Grosvenor hotel, Westland Row, Dublin, Mr. James Beckett (president) in the chair. The report and financial statement for the past year were considered approved, and it was decided to invest a further sum of the funds of the Association. The election of officers for the ensuing year was then proceeded with. The following were elected:—President, Mr. James Beckett; hon. treasurer, Mr. James Kiernan; hon. secretary, Mr. John Good, 55 Great Brunswick Street, Dublin. Committee, Messrs. R. Denne Bolton, Thomas Connolly, W. Foley, Thomas Mackey, W. Meade, H. Pemberton, E. Warren and B. W. Whyte. It was decided to hold the annual dinner on the 12th prox. A vote of thanks having been passed to the outgoing officers, the meeting adjourned.

A STEP further has been taken in regard to the proposed extension of the Renfrew and Clydebank Joint Hospital at Blawarthill. At a meeting of the Board in Clydebank, the clerk (Mr. Hepburn) submitted plans and estimates for the extension, showing the total amount to be 12,809*l.* The plans and estimates were unanimously agreed to, with an instruction to the burgh representatives on the Hospital Board to exercise their best efforts in hastening on the completion of the necessary arrangements. It was also reported that the district committee of the County Council of Renfrew had approved of the extension, but that the burgh of Renfrew had declined to be a party thereto. It was resolved to ask the district committee to join in a representation to the Local Government Board in terms of the minute of agreement constituting the Hospital Board.

THE Nottingham City Council have just been discussing the erection of working-class dwellings on land belonging to the Corporation, and during the course of an interesting debate on the subject Dr. Milner said the condition of houses in certain parts of the town was very bad indeed. The dwellings were mainly all back-to-back houses, by which Nottingham was very unfavourably placed, having for its population more back-to-back houses than any other city in England. These houses contained four or five rooms, each room often inhabited by six or seven people, and the partitions between the houses were sometimes merely rags stretched over frames. These insanitary conditions caused diseases of the chest, rheumatism and typhoid fever to be very prevalent in the city. In the end the matter was referred to the estates committee, who will bring up a report in the near future.

YORKSHIRE BUILDERS' FEDERATION.

AT the annual dinner, in Sheffield, of the Yorkshire Federation of Building Trades Employers, Mr. J. Dawson (Huddersfield), president of the Federation, was chairman.

Mr. S. Smethurst proposed "The Yorkshire Federation." He said there was a very useful function before these federations. If they were thoroughly well organised they could arrange differences and eliminate grievances without resorting to force and a brutal system of fighting which ought to be out of date.

Mr. Mansfield said the northern section had done much to show that only reasonableness and justice were wanted. Years ago builders were helpless in the hands of the trades unions, but now they had got into the sunshine of liberty. They ought to nurse the institution that had done so much for them.

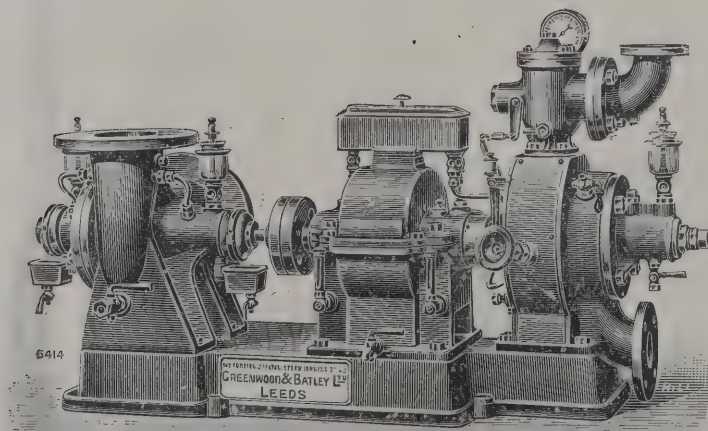
Mr. E. R. Good said he was not antagonistic to trades unionism, but he challenged any English workman to say that the practice of trades unionism had in any sense approached the ideal of this title in the last fifty years. Instead of being unionism it had been coercion and tyranny under the leadership of unscrupulous men.

Mr. J. Dawson said the master builders had been forced to federate by the unreasonableness of the workmen. By persuasion and talking over disputes they had done good service in preventing strikes or lock-outs, and that was the great end they had in view. For twenty years the men had done practi-

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cally as they liked, but as the law had recently been interpreted by the judges those practices had to stop. Indeed, the tables had been turned to some extent, for an employer who was threatened with the black list brought an action against the men and won his case, getting 500% damages. The men filed their petition and the employer got nothing, but it was not a very long step from getting damages against the men to getting damages from the union funds. They need never fear the demands of the men if they held together, were loyal to the local association and made sacrifices for one another's good.

Mr. A. Sinclair proposed "The City and Trade of Sheffield." During the five years' existence of the Yorkshire Federation, he said, no town had given less trouble to the executive than Sheffield.

Mr. W. H. Lancashire said he thought municipal trading was going too far when it went into the building trade. He had never been in favour of the works construction committee, believing that with the large undertakings already in hand they could have dispensed with a committee of that kind. It was undesirable that a Corporation should enter into strong competition with the trades of the city, and they ought to be content with bringing their present schemes to the greatest perfection, and give private traders a fair chance of earning a living.

Mr. Longden said builders preferred to pay good wages if they could only get the equivalent amount of good work done. Unfortunately of late years the pay had increased and the work had decreased. By forming their Association they had got a better understanding between the men and the employers, and where there used to be a score of strikes they now did not get more than two or three.

Mr. Muir Wilson said the works construction committee was the greatest sham, farce and iniquity in connection with the Corporation. He was going to move that it be dissolved, but he doubted whether he should be successful against the blind majority that sat in the Council prepared to deny a fair share of work to a representative of the ratepayers. But there was a time coming when these matters would be placed in a proper light. For a Corporation to build was an encroachment upon the rights of private trading.

Mr. J. Wright submitted the toast of "The National Association." He said they did not wish to interfere with trades unionists in their right to combine and sell their labour at the best price, but they did say they should not interfere with those willing to work for the masters. The reason they

wished for the success of the National Association was that in large disputes and general matters the building trades should be actually represented, and, if necessary, take united action. He suggested that it would be advantageous to appoint a national managing secretary, and have a head office to carry on the Association's business with a continuous policy, with a national building journal edited at that office.

Alderman W. H. Jessop, in response, welcomed the idea of a permanent staff, and said builders would hail with joy the day when a Minister of Commerce was appointed, with a seat in the Cabinet. He regretted the fact that only 20 per cent. of the builders of the land were included in the Association, and urged upon members to advocate the claims of the Federation on those who had not joined.

PAVING OF STREETS.

THE Glasgow Corporation recently appointed a sub-committee to report on the paving of streets and the construction of conduits. Among the places visited were London, Liverpool, St. Helens, Paris, Vienna, Berlin, Hamburg, Hanover and Brussels. The following report is the result:—

We, in view of the widening and improvement of Nelson Street, City, by the City Improvements Department of the Corporation, recommend the Corporation to construct in that street, when it is being widened and re-formed, an experimental and well-ventilated conduit for the reception of all service pipes, cables or wires required for public or private purposes, including those of the gas, water, electricity and telephone departments of the Corporation, as also those of the Post Office and any other service pipes, cables or wires that the Corporation may agree to receive.

In our view such conduit should be constructed by and at the cost of the committee on statute labour, who should have the control and management thereof.

Cross-connections, extending on each side of the street to the kerb, and suitable for carrying branch pipes or wires from such conduit to the properties adjoining the street, should also be made by the committee on statute labour at certain points to suit the requirements of those properties. The whole expense of making such cross-connections should ultimately be borne by the owners of the particular properties for whose use the connections are made, but the connections should, like the

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conduit itself, be under the control and management of that committee. The cost of those connections should be paid by those owners when use is made thereof by them in connection with their properties.

For the use of the conduits by the various departments of the Corporation and others annual charges should be made by the committee on statute labour according to a tariff to be fixed by the Corporation.

Sewage should not be introduced into the conduit, but should be conveyed in a pipe or sewer independent of the conduit. Any necessary connection between the conduit and the pipe or sewer should be adequately trapped.

In the event of such a conduit being constructed in Nelson Street, and the Corporation being satisfied with the efficiency thereof, it would be for the Corporation to say in any further widening or reconstruction of streets, or in the construction of any new streets of importance, whether conduits should then be introduced into those streets.

In streets without tramways, in and near to the business parts of the city, and in main thoroughfares through the suburbs, in which there is more or less continuous traffic, and where the gradient is not steeper than, say, 1 in 55, the paving thereof should, in our opinion, be of asphalt. Our view is that there should be throughout the city a very great extension of asphalt paving. Where, in the same class of streets, the gradient is, say, between 1 in 55 and 1 in 40, the paving should be of hard wood, and in such class of streets there should also be a considerable extension of that class of paving. Again, in the same class of streets, where, however, the gradient is steeper than 1 in 40, the paving thereof should, according to circumstances, be square dressed setts, either of granite or of whin. Where, in such streets as have been described, there are tramways, and where the gradient is not steeper than 1 in 40, the paving thereof should, if possible, be of asphalt or hard wood, but the case of each such street would require to be considered on its particular merits. Where, again, in such described streets having tramways, and where the gradient is steeper than 1 in 40, the paving to be used should be that of square-dressed setts.

In the case of those streets in the central and other districts of the city where there are no tramways and where the other traffic is not great, and which are more or less of a residential character, the paving thereof should, according to gradient, be of asphalt or hard wood, unless that gradient is so steep as to render the adoption of smooth paving inadvisable.

In suburban streets of a main or important character, and which may or may not have tramways, the paving should also be of asphalt. In the less important of those streets the paving (where the gradient is not clearly unsuitable) should probably be that of tar macadam, and in the remaining streets having little or no vehicular traffic the paving should be that of ordinary macadam.

As regards private streets, including courts and lanes, the paving to be adopted should, in our view, be as far as possible that recommended in the case of central and district and suburban streets, but each such street must be determined by its special and particular requirements, its situation and its gradients; and, of course, it must be kept in view as regards those private streets that the demand of the master of works for a particular kind of paving by the proprietors is subject to the review of the Dean of Guild Court on the questions of the reasonableness and necessity of the requisition made.

Rubble causeway being, in our view, so insanitary, and otherwise very objectionable, should as far as possible both in public and private streets be superseded whenever opportunity arises. In some cases that course might be economically adopted by covering the rubble with a coating of asphalt.

Where smooth paving is adopted in any street all gullies and manholes therein should be effectually trapped, or otherwise so constructed as to prevent detritus being carried into the sewers. Of course due provision would at the same time require to be made for the adequate ventilation of the sewers.

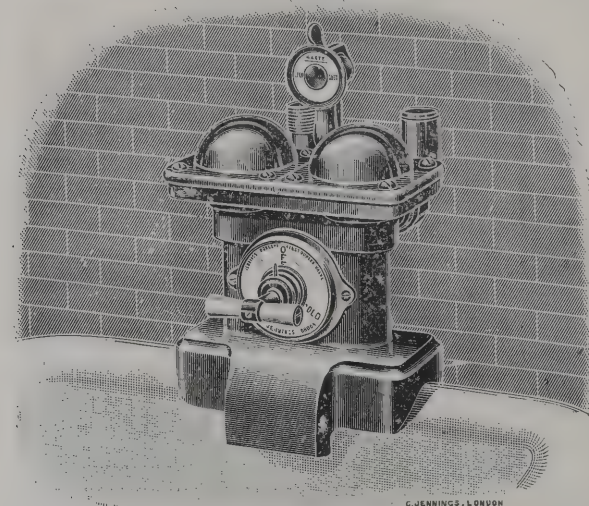
If the Corporation should see fit to adopt the foregoing recommendations as to the smooth paving of streets, it would, of course, be expedient, if not indeed necessary, that there should be an extensive and frequent sanding of the streets so paved, and that, as in London and elsewhere, accommodation should be provided at junctions of streets or other suitable places for storing the sand or gravel to be used.

Private streets should not, as heretofore, be taken over by the Corporation as public streets on a payment being made by the proprietors interested to the Corporation to relieve them of their statutory obligations as regards the cleansing, lighting and maintaining of such streets. The primary and controlling condition on which such private streets should be taken over by the Corporation as public streets should be that those streets be or be put into a condition satisfactory to the committee on statute labour and in conformity with the foregoing recommendations.

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as a public street until two-thirds, or at least one-half, of the buildings to be erected thereon have been actually erected. Otherwise no contribution, or, at all events, no fair or adequate contribution, towards the cleansing, lighting and maintaining thereof by the Corporation would be made by the proprietors; and, moreover, such partly-built-on street would very probably be afterwards put into serious disrepair by the further building operations therein, and by the necessary heavy traffic in connection with those operations, and such disrepair would have to be made good at the expense of the Corporation.

We are strongly of opinion that in lieu of the present practice of entering into contracts with varying conditions for the paving with asphalt of separate streets, the system should be adopted of dividing the city into districts, and the Corporation entering into contracts with responsible firms for the paving with asphalt of such streets within those districts as may from time to time be determined on by the committee; that is to say, that the existing practice as regards the ordinary paving with granite or whin of streets in districts should be made applicable to the paving with asphalt. Such contracts too should certainly be of some considerable duration as the committee might determine, and in the contracts it should also be provided that the contractors who laid the streets should, on terms to be provided for in the contract, maintain the streets for such period of years as might be resolved on and mutually arranged.

Again, where smooth paving is adopted, all the pipes and cables of the various departments of the Corporation, and those of the Post Office and others should, in some systematic manner, and as far as possible, be laid in lanes or in the footpaths, and not in the roadway as at present. We feel so strongly on this point that we are prepared to recommend the Corporation, under the powers conferred on them by the Glasgow Police Acts or otherwise, to undertake the maintenance of those pavements in which pipes or cables are laid, with the right, however, to the Corporation, through the committee on statute labour, to make a small annual charge against those departments or the Post Office, or companies whose pipes or cables are there laid, to cover the extra cost of maintenance of the pavements.

In our view the Corporation should endeavour to arrange with the proprietors interested, as a condition of taking over the burden of maintenance, for the acquisition of the whole surface and solum of the pavements, on such pavements being in or being put into good order by the proprietors. If in or

after being put into such order and taken over, the Corporation would, of course, maintain the whole of such pavements, subject, however, to their right to make charges, as aforesaid, against any department, the Post Office or any company using part of such solum for placing pipes and cables.

In new streets to be made in the city, the various departments and companies, as also the Post Office, should, where there are no conduits, be taken bound to, as far as possible, lay their pipes and cables in the footpaths thereof, and not in the roadway.

In any street where pipes or cables are laid by such department or company, or by the Post Office, such department or company or the Post Office should be obliged and taken bound to make reasonable provision for the future requirements of or developments in their respective undertakings.

MANCHESTER BUILDERS AND "FAIR CONTRACTS."

THE Manchester City Council, having at the instance of the local trades council adopted a "fair contract clause," it has been introduced in the conditions for a new fire and police-station. The following letters on the subject were addressed by the Manchester and Salford Builders' Association to the Town Clerk:—

Manchester and Salford Master Builders' Association,
Cromwell Buildings, Blackfriars Street,
Manchester:
December 23, 1902.

Amended Form of Building Contract and the Fair Wages Clause.

Dear Sir,—At a meeting of this Association, held yesterday, I was instructed to write and say that my members are of opinion that the new conditions proposed to be introduced into your form of contract will have wider and more far-reaching effects than the Corporation either intend or anticipate.

I have further to say that my members regret they cannot tender for any work under the proposed conditions, and particularly under clause 42, but they will be pleased to confer with your committee or officials on the subject.—Yours faithfully,
JOHN TOMLINSON, Secretary.

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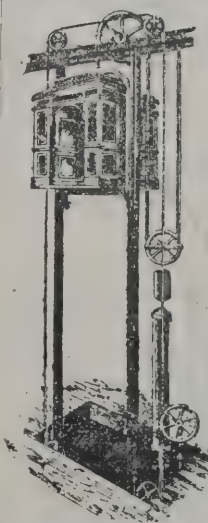
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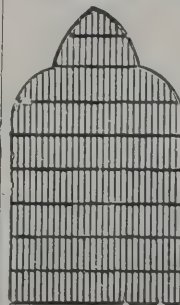
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The second letter is as follows:—

January 6, 1903.

Dear Sir,—At a meeting of the building contractors interested in Corporation work, held at this office to-day, I was instructed to write and point out the objections the federated employers have to signing any contract agreement containing the new clause adopted by the Corporation at their November meeting, which they consider will have many far-reaching and injurious effects, so far as the building trade is concerned, and which were, perhaps, scarcely foreseen by the Council when the clause was under consideration.

In the first place, I would point out that my members very strongly object to the words, "Contractors tendering for or executing work under this Council must be paying the standard rate of wages to the whole of their workpeople, and observing the hours of labour recognised by the local organised bodies of workers in the various trades affected in the districts where such work being executed," for the following reasons:—

1. By this clause a contractor having a job in Manchester for the Corporation could be required to pay the wages recognised by the Manchester trade-unionists to the whole of his workpeople wherever they might be employed, and whilst a Manchester employer could be required to pay Manchester wages to men he employs in other towns where wages are much lower, an employer at, say, Stockport, Bury or Preston, could be required to pay his local staff at the Manchester rate if he had a Manchester Corporation contract, thereby handicapping employers who are working for the Corporation.

2. The use of the words "local organised bodies of workers" places it in the power of any organised trades society to fix their own rate of wages and hours of labour, and if a contractor has signed the Corporation clause, he could be forced by the Corporation to observe such rates or hours, or run the risk of having his contract cancelled. Thus the employers would have no voice in fixing wages, &c., as trade agreements with operatives in the building trades cannot be enforced at law, and there could be no resisting the men's demands by strikes or lock-outs, as this would practically mean giving up the contract, a position in which very few employers would care to be placed.

3. Most building trades contractors have in their employ a number of old men who are not able to do full work, and who are by recognised custom paid below the standard rate; under this clause these men could no longer be employed except at the risk of a cancelled contract.

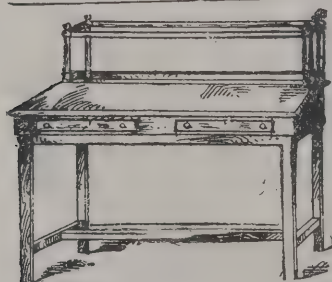
My members also object to the use of the words:—"The principal contractor shall be responsible, however, for all work done and for its being carried out under the same conditions as if executed by himself," not as it applies to responsibility for quality of work, but in respect to its application under the first part of the clause previously objected to.

On every building contract there are about a dozen different trades employed, and it would be practically impossible for a sub-contractor who sub-lets a considerable portion of the work, and has to purchase a large quantity of the materials, to ascertain that all workpeople executing such work or manufacturing such materials are paid the rate of wages, &c., that their trade union might demand for them. For ironwork from Scotland, steel girders from Belgium, tiles from the Potteries, earthenware from various centres, locks and screws from Birmingham, granite from Aberdeen, and stone of all kinds from various quarries, &c., you ask the sub-contractor to be responsible, and should any of the producers of these materials be guilty of a trifling offence against trade unionist requirements, you take power to cancel the whole contract, not only involving the contractor in serious loss in the first instance, with a possibility of having to indemnify the Corporation for extra cost of completion, but you lay him open to an action for loss and damages by each and all of his sub-contractors.

Again, my members object to the onus of proof being thrown upon the contractor on any vexatious complaints, made by labour delegates or other responsible persons, for though they might find no difficulties in showing compliance with the conditions so far as their own workpeople were concerned, the trouble in the case of sub-contractors' and manufacturers' employes would be so great that no self-respecting contractor would pledge himself to undertake it on account of what might prove a very trifling matter.

Many of my members also very strongly object to your requirement that their sub-contractors should be approved by the Council, as they consider that they are by a long experience better able to judge of the fitness of a firm to do the work required than even the members of the Council, whilst they think that so long as the sub-contractor is well known and established, and is willing to take the responsibility for the proper execution of the contract, it is undesirable that they should be tied to such sub-contractors as the Council think fit. The Government and railway companies do not make such conditions.

In conclusion, my members altogether object to the ve-



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trastie penalty that the Corporation take power to enforce for what might be a very trivial offence, and they hope your Council will reconsider the matter.—I am, yours faithfully,

JAMES TOMLINSON, Secretary.

The subject will be discussed at the Council meeting to be held on February 4.

CREWE MUNICIPAL BUILDINGS.

MR. R. H. BICKNELL, C.E., inspector for the Local Government Board, held an inquiry at Crewe on the 15th inst. into an application by the Town Council for sanction to borrow 18,000*l.* for new municipal buildings.

The Inspector asked what were the outstanding loans of Crewe, and Mr. Cooke (town clerk) said that sanction had been obtained for 138,801*l.*, although all the loans had not been taken up. In reply to a further question the town clerk said that the assessable value of Crewe for general district rate purposes was 136,842*l.* When they took up all the loans for which sanction had been obtained their indebtedness would exceed by 2,000*l.* their total rateable value for one year.

Mr. H. T. Hare, of London, produced plans of the proposed new buildings.

The Inspector reminded the town clerk that ten years ago the Local Government Board sanctioned a loan of 2,500*l.* for new municipal buildings, which were then described as likely to be sufficient for fifty years.

The Town Clerk said that at that time they could not have prophesied the great increase of Crewe. They wanted new provision for the town clerk and staff, the borough accountant, the rate collectors and the sanitary inspectors. Those offices would be on the ground floor. Above would be three offices for the borough surveyor, one for the medical officer of health (with a small laboratory) and a room for the school attendance officer.

The Architect said that the buildings would be lit by electric light and ventilated by an electric fan. The estimated cost, with the furnishing, was about 18,000*l.*; the building would be on the Corporation's freehold land.

The Inspector said it looked pretty elaborate for the money. The Local Government Board, before they gave their sanction for the loan, would require quantities to be got out and tenders from competent contractors. The Council could invite tenders and accept one provisionally, subject to getting the sanction

of the Local Government Board for the loan. The Local Government Board had been driven to that by the manner in which loans had often been exceeded, in some cases by 100 per cent. Excess loan inquiries were most unpleasant. There was no opposition to the application.

THE STRAND-HOLBORN IMPROVEMENT.

ACCORDING to the report of the improvements committee of the London County Council, every effort has been made to expedite the works in connection with the Holborn-to-Strand improvement. The Council is now in possession of the whole of the property between Catherine Street and the Law Courts on the Strand frontage, besides most of the land needed for the new crescent road, and nearly all the houses have been demolished.

The work of forming the new street from Holborn to the Strand and clearing the insanitary area at Clare Market is being undertaken as one scheme. In the Clare Market area about 3,038 persons of the working class were displaced, and the scheme sanctioned by the Home Office was that accommodation should be provided for 750 persons on the cleared land at Clare Market and for 1,500 persons at Millbank. For the new street about 3,700 persons of the working class will be displaced, and the scheme sanctioned by the Home Office is that accommodation shall be provided as follows:—250 on the Duke's Court and Marquis Court sites, 799 in a lodging-house in Drury Lane, 1,681 on the Reid's Brewery site, 680 on the Herbrand Street site and 290 at Millbank.

In carrying out the complete scheme of improvement it will be necessary to acquire in all forty-nine licensed houses, and the Council has decided to continue the policy hitherto maintained and to abandon these licenses.

The widening of Southampton Row between High Holborn and Eagle Street has been completed, and the widening of the remaining portion of that thoroughfare will be undertaken at an early date. The formation of the portion of the new street immediately south of Holborn will be undertaken in the course of two or three months.

The work of widening the Strand has involved the acquisition of portions of the churchyards of St. Mary-le-Strand and St. Clement Danes. The Act requires the Council to undertake the removal and reinterment of all human remains which

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may be found in the parts of the churchyards required for the improvement. The Council accordingly made arrangements for the removal of the remains and their reinterment in the consecrated portion of Brookwood cemetery. All the work connected with the widening of the Strand from Catherine Street to the Law Courts has been completed, including the new sewer and the subway for pipes, wires, &c. The work connected with the formation of the eastern portion of the new crescent road, which will commence at the Strand close to St Clement Danes Church and will re-enter the Strand at Catherine Street, has been commenced.

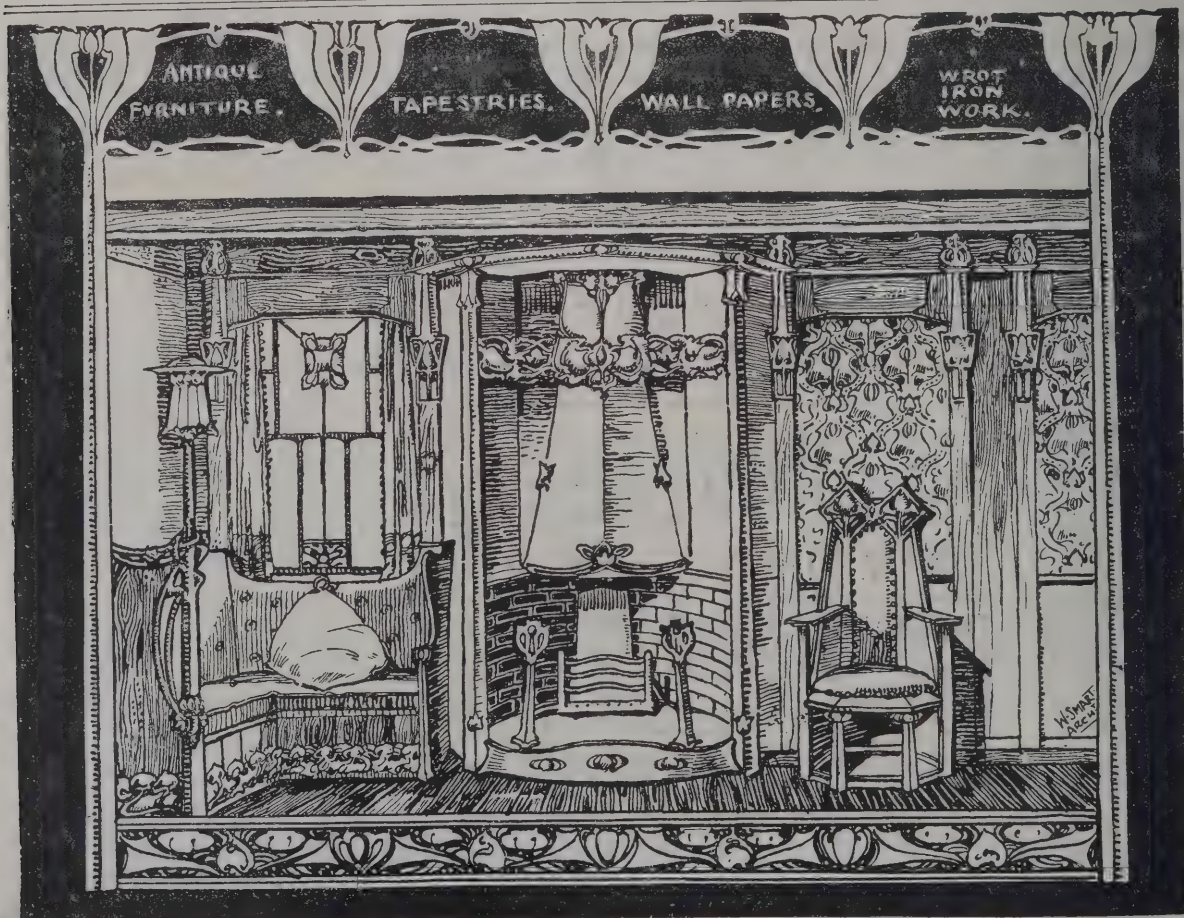
The acquisition of property needed for improvements necessarily occupies a lengthy period. Much as the Council may strive to press the negotiations to a successful issue, the same spirit of expedition does not always characterise the action of the claimants and their agents. The public, observing that the houses are not removed, think that the Council is responsible for the delay, with the result that numerous complaints of dilatoriness are frequently made when the Council has been doing its utmost to carry out the improvements with expedition. When all interests in the property have been acquired the materials of the houses are sold by auction and the premises are demolished. Contract drawings for the paving and other works having been prepared, the sewerage and paving works are at once commenced and pressed on with rapidity.

"From the facts above stated," say the committee, "it will be apparent that we have spared no efforts to expedite as much as possible all the work connected with the very large and important improvements now in course of progress in the Strand and between that thoroughfare and Holborn."

MANCHESTER ASSOCIATION OF ENGINEERS.

THE seventh meeting of the forty-seventh discussion session of the Manchester Association of Engineers was held at the Grand Hotel on Saturday evening, the 17th inst., when an address was given by the president, Mr. E. G. Constantine. Speaking of the developments in engineering science and practice, he said that in the present generation electricity, for instance, had emerged from an abstract science into a concrete practical force. This and the triumphs of Marconi showed that the wildest flights of fancy in connection with electricity might one day be realised. The only limit to the

practical application of the electric current was the cost of generation, and this was gradually being reduced. From small dynamos we had grown to large generators driven by slower-speed reciprocating engines, and the perfecting of the steam turbine was leading to the adoption of still larger units for the conversion of lines of force into electric current. We were already familiar with the idea of 5,500 kilowatt-power turbo-generators. But before it could be generally used the current would have to be generated at a lower cost than now. In this connection a question of interest to engineers was whether the reciprocating steam-engine would be supplanted by the steam turbine. One could not think of an ideal steam turbine without being fascinated by the beauty of a motor in which the moving parts should always be in equilibrium, practically annihilating friction and wear and tear; where the motor only required starting and would run indefinitely as long as the steam supply was maintained. According to data obtained from tests made of two 1,000-kilowatt condensing turbines, working with steam at 140-lbs. pressure and about 25 degrees Fahr. superheat, the steam consumption amounted to only 14.2 lbs. per electric horse-power per hour. With a higher steam pressure, a greater superheat and the experience obtained in the further adoption of this form of motor, it was more than probable that for large powers the economical working of steam turbines would rival if not surpass that of the best design of reciprocating engines, of which it would be regarded as a formidable competitor in the future. Referring to boilers, which he said were too much neglected, Mr. Constantine said he had no hesitation in saying that in stationary boilers it was more than doubtful whether the average amount of heat obtained from the fuel and converted into useful work in generating steam exceeded 55 per cent. of the calorific value of the fuel, or whether the average combined efficiency of the boilers and economisers employed in the industries of this country was more than 65 per cent. There was no valid reason why, with a properly designed plant, 80 per cent. efficiency should not be obtained from the boilers and economisers combined, and yet this result was, to say the least, uncommon. A saving of 10 per cent. of the many millions of tons of fuel which were annually consumed in the furnaces of steam boilers, converted into money, would liquidate the cost of the Boer war. They were all too familiar with the frequent newspaper statements that we were being ousted from foreign markets by American and German competitors. If the writers of many of these alarmist articles had taken the trouble to



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study the Board of Trade returns of our exports of steam-engines and machinery, instead of being so ready to jump to conclusions on erroneous data, they would not have found any indications of our decadence. If figures had any meaning at all, Britain had more than held her own in the world's markets for engineering work. This, too, was only part of the story, for in the last few years very large sums had been spent on engineering work in industrial development at home. To whatever causes it was to be attributed, the fact remained that during the last four or five years there had been such a reorganisation, extension and installing of new engineering works as had never before been experienced in Great Britain. Many firms had been thoroughly awakened to the danger of becoming obsolete, realising that "sitting still" spelled industrial extinction, with the result that some millions sterling had been expended in bricks, mortar and improved machinery with a view to increased output at lower cost. Among the progressive firms this district was exceedingly well represented, and he was probably well within the mark in estimating that not less than 700,000*l.* to 800,000*l.* had been invested in this manner within three or four years in the immediate neighbourhood of Manchester, without taking into account the reputed expenditure of 1,700,000*l.* by the British Vestinghouse Company at Trafford Park. A feature in the economic position full of good omen was the change—amounting to almost a revolution—in the attitude of the workmen towards progress. The introduction and acceptance of the "premium" system of payment, the encouragement of workmen to make suggestions regarding improved methods of producing work, the visits of the men and representatives of trade unions to other countries to investigate the conditions of labour were all steps tending to break down the dead level of mediocrity so fatal to advancement, and to stimulate healthy emulation leading to greater efficiency and to that community of interests which should in the future prevent the resort to suicidal strikes as a means of settling disputes. The manner in which the necessities of present-day conditions were being realised and dealt with by an ever-increasing number of those engaged in the engineering industries, the greater attention which was being paid to technical and commercial education, the recent reform in the patent law, principally brought about by the agitation instituted by the Manchester Chamber of Commerce, and other signs of the times, justified him in the confident prediction that we should be able to retain our engineering grip on neutral markets in spite of all comers.

LIVERPOOL INFIRMARY FOR CHILDREN.

THE new out-patient department of the Liverpool Infirmary for children was opened on Wednesday by the Countess of Derby. The building now completed forms only a portion of the scheme which the President and committee hope to carry out in the near future and for which they invited architects to submit designs in a limited competition, particulars of their previous experience in hospital work having to be stated, as well as the list of works they had carried out. The designs of six architects—three from London, one from the Midlands and two from Liverpool—were considered, and finally that of Messrs. Haigh & Thompson were selected as the best. Their design is now on view in the board-room of the present infirmary.

The new "extern" stands alone, surrounded by streets on three sides and a public passage on the fourth; it has therefore been possible to obtain light and ventilation on all sides. The patients' entrance is at the south-west angle of the building, approached from Mulberry Street, and exactly opposite the infirmary. It opens into a space for the accommodation of perambulators, and through this communicates directly with a large waiting-hall. The latter is placed in the centre of the building, and round it are grouped the various consulting, examining and operating rooms. Near the entrance is a registration-room, adjoining which an isolation-room is provided from which infectious cases can be removed without their re-entering the main building. The dispensary is suitably placed opposite the principal entrance, to the right of which are also conveniences for the women and children. At the north end of the building, next Mulberry Street, is the entrance for the staff, near which the various rooms for doctors and nurses are situated, with lavatories and other conveniences. An ophthalmic room is provided, also a store for splints, &c. At this end of the building are placed the heating-cellar in the basement, and on the first floor accommodation for the keeper and his wife, with a small yard.

The building generally is one storey high; the waiting hall being higher than the adjoining rooms (and above the keeper's yard, which is on the first floor) can therefore be lighted and ventilated on four sides, which is an obvious advantage in getting a blow through. The rooms are warmed by hot water, the fresh air passing through the radiators. Provision is also made for admitting fresh air by means of "Leather's" venti-

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lators. All windows have opening casements. The various rooms have extract ventilators connected with the trunk in the roof, which is turned into an automatic ventilator fixed in the centre of the ridge to the main roof.

The interior walls are lined with glazed bricks dado high, having round internal and external angles, both horizontally and vertically. All the joints have been finished flush with Parian cement. The wall surfaces above the glazed bricks have been rendered in Portland cement, finished with a smooth surface of Parian, which has been painted in white Ripolin. The floors have been paved with terazzo generally, but some with wood block and "Litosile." The front entrance has an inclined plane without steps. All lavatories, sinks, water-closets, &c., are bracketed from walls, without floor supports. Electric light has been fitted throughout. The building has been built of Accrington red bricks, with Darley Dale stone dressings, the roofs being slated.

The sole contractors of the new out-patients' building were Messrs. Holme & Green; warming, Messrs. Killick & Cochran; terrazzo floors, Messrs. John Stubbs & Sons; metal casements, railings, &c., Mr. George Wragge; electric lighting, Messrs. Harford & Co.; plumbing and painting, Messrs. Cottrill & Beszant; sanitary fittings, Messrs. Doulton; slating and plastering, Messrs. Tanner & Sons; while the furnishing contract was let to Mr. James Parkinson, excepting the benches, which were made by Messrs. Bennet, of Glasgow.

The new infirmary, which is to be erected on the old site, is designed on what is known as the pavilion plan—one pavilion running north and south on the Mulberry Street boundary of site, and the other having a corresponding aspect, parallel to the Liverpool Gymnasium, but 27 feet away. The south gables of both pavilions will come up to the Myrtle Street boundary line. Between these wings is placed the administrative block, facing Myrtle Street, but set well back, with the principal entrance in the centre. The nurses' home is arranged on the St. Mary's recreation-ground boundary, but is connected with the main central block by a "conservatory bridge." The pathological department is situate in the north-west angle of site, and the boiler-house and detached isolation block on the rear boundary.

The following is a brief description of the accommodation:—There will be five main wards in pavilion blocks for twenty cots each, one on the ground floor and two on the first floor for medical cases, and two on the second floor for surgical cases. In the centre of these two latter, in administration block, and

facing the north, is placed the operating-room, with anaesthetic and sterilising rooms adjoining. The ground floor of one pavilion is planned to accommodate three resident medical officers, with sitting, dining-rooms, &c., together with the secretary's office. The board-room and lady superintendent's quarters are situated near the principal entrance.

On the first and second floors over, the playrooms for children occur, with large outside sun balconies facing the south. The various floors of this centre block contain the clinical, ophthalmic, linen and clothes rooms, ward kitchens, food stores, &c. The porters have their sitting and bedroom accommodation in the basement, on which floor is also placed the reception-room, dispensary, stores, linen airing, sorting and folding rooms, and linen and blanket rooms in connection with the sewing-room.

The kitchens, larders, dairy, &c., are on the third floor, and the maids' sleeping accommodation over each ward pavilion. The various floors are served by two staircases, one being the main or principal, in the centre of which is a large lift, which travels from basement to top storey. This lift is for the conveyance of patients, staff, cooked food and goods, ambulance, &c. The cooked food in hot jacketed trollies will be conveyed in this manner to the different wards, dining-rooms, &c.

The nurses' home provides accommodation for forty-two nurses, with separate sitting and bedrooms for the sisters. An infirmary is also provided for sick nurses. The isolation block is planned for four cots, and is in itself a complete, though small, hospital.

Generally the buildings are planned in detached blocks so as to insure a perfect circulation of air all round each, and in no case will a single soil drain pass under the buildings, all being readily accessible for inspection. Electric light will be used throughout. Warming will be by open fires, supplemented by steam or hot-water pipes and radiators. The ventilation is to be on the "natural" principle, all windows opening and arranged so that they can be cleaned from the inside. To the buildings throughout adequate fire escape stairs are provided. All sanitary conveniences are completely cut off by disconnecting lobbies. Fireproof construction will be provided throughout the main buildings, and fire hydrants placed in convenient positions.

Externally the elevations are boldly treated in brick and stone, with slated and leaded roofs, the whole being designed to be complementary to and in conformity with the new out-patients' department.

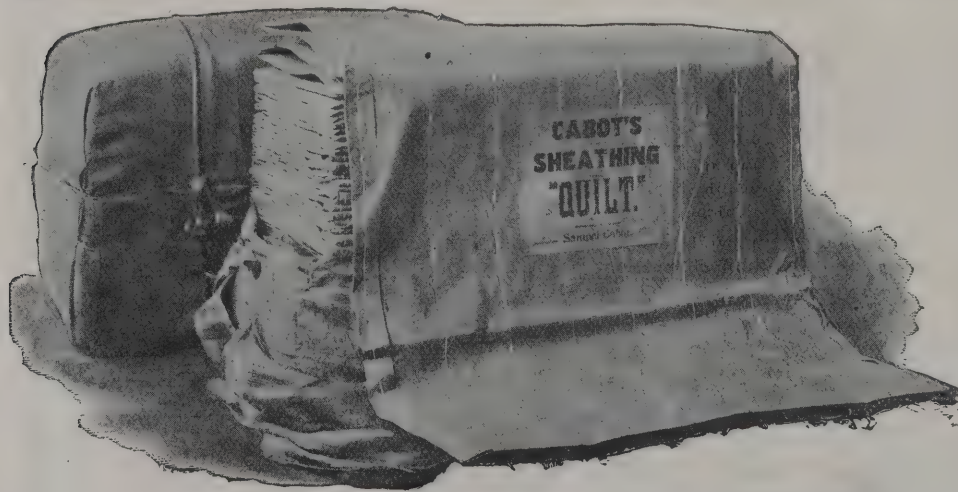
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The Architect.

THE WEEK.

THE fearful fire at the Colney Hatch Asylum, which broke out about 5.30 on Tuesday morning, must excite alarm about the safety of other institutions of that class. The increase of lunacy during late years makes it necessary that flimsy buildings should be improvised. Five huts formed of corrugated iron and wood were the scene of Tuesday's disaster. Similar structures are to be found elsewhere, and one has been lately constructed at Epsom which is to contain 700 women. It is not to be denied that asylum accommodation for London and Middlesex is insufficient. The huts which were destroyed have existed for about seven years. But we suppose there was a continual change of patients in them. The circumstances at the time of the outbreak were unfavourable. The fire occurred at an early hour, and the high wind spread the flames. Colney Hatch is somewhat out of the way, and difficult to approach. An hour had elapsed before an adequate number of engines and firemen were on the spot, and then the tragedy had been consummated. The provision in the asylum for emergencies was on too small a scale to cope with so large a fire, and the water supply was deficient. If it were not for the energy, courage and self-sacrifice of the staff the victims must have been far more numerous. But of 330 inmates in the annexe 52 have perished. The calamity will, we hope, be made the subject of a more far-reaching inquiry than a coroner's inquest. When helpless patients who are deprived of reason, and are therefore unable to extricate themselves from danger, are locked up in frail shanties, it would seem as if the most deplorable consequences were being invited. As yet authorities in general appear to be unable to realise how suddenly fire may break out, and how difficult it is to master the flames. Nowhere are temporary buildings so much out of place as in a lunatic asylum. We hope, therefore, the Home Secretary will give instructions for more care to be exercised in the licensing of huts which in any way resemble those which have been so easily annihilated at Colney Hatch.

THE difficulty of fixing a building line in suburban districts was suggested by a case heard on appeal in the last Quarter Sessions of Liverpool. The West Lancashire Rural District Council summoned a builder for infringement at Formby, and he was convicted. He appealed. It appeared that he sent in plans for the erection of shops and houses in Elson Road and Andrew's Lane as far back as March 1895, but the work was not commenced until last September. Meanwhile a house had been erected in the road and another in the lane, and the builder was notified that he must not go beyond the main wall in either case. The surveyor to the Rural District Council stated that one residence was set back 39 feet 6 inches, and the other 25 feet, and those building lines should be accepted unless there was special authority to the contrary. On behalf of the appellant it was contended that the building line was only an artificial line, and evidence was given that there was scarcely a road in the township where the buildings were in line, and in fact a definite frontage line was unknown in Formby. The magistrates decided to allow the appeal as respected the road, but not in the lane, and the costs were to be assessed respectively.

WE referred a month ago to the decision of Mr. Justice BUCKLEY in *TOLLER v. SPIERS & POND, LTD.*, in which it was decided that the owner of property had no legal right to enter on premises which were leased in order to carry out the provisions of the Factory and Workshop Act. We then said that we considered the judgment to be almost sufficient to render the Act inoperative, for in a large building where there were several leaseholders the opposition of one could nullify the provisions of the Act. The subject was brought before the meeting of the London County Council on Tuesday. The Building Act Committee reported that the effect of the judgment would appear to be

to make it practically impossible for the Council to deal with any "old" factory premises other than those which were wholly in one occupation and those which were tenement factories within the definition contained in the Act, as construed by Mr. Justice BUCKLEY—that is, premises the whole of which was occupied as factories, the mechanical power for which was supplied from one common source. It would be easy for the owner of a factory building, by letting such building to more than one occupier, to nullify the provisions of section 14 of the Factory and Workshop Act, 1901. Already it is extremely difficult to carry out the provisions of the Act owing to the liability to trespass. It has been found that out of 106 cases one in four, or twenty six in all, cannot be effectively dealt with owing to questions of trespass. The Council intend for the future to remit to the Home Secretary all cases with which it is unable to deal effectively under the present law, and the Home Secretary is to be asked to receive a deputation to urge the necessity of the introduction of legislation to remove the difficulties arising from questions of trespass in the administration of the Factory and Workshop Act, 1901.

SEVERAL years ago Mr. E. A. HEFFER was closely associated as secretary to the local society of architects with the architecture of Liverpool. Among his buildings in that city is the church of St. Bridget. Dr. STUBBS, the present Dean of Ely, belonged to it, and he describes it as "a building which, especially as to its interior, for loftiness of conception and nobility of proportion, is acknowledged by all good judges to be one of the most impressive modern basilican churches in England." As Mr. HEFFER continues to be as capable and as enthusiastic as ever, it was anticipated by his friends that he would signalise himself in the competition for the new cathedral. Owing, however, to a misunderstanding of the meaning of the circular, he did not send in a design which he had prepared. It has, however, been published in connection with a sermon which was preached by the Dean on behalf of the project. Dr. STUBBS says that "for originality of design, nobility of proportion, skill in mass-grouping, and general beauty of outline, it is worthy of the very best traditions of the old English master-builders, and one which all Liverpool men would be proud to see taking shape as the mother church of city and diocese on St. James's Mount." One of the features in the design is an octagon, 85 feet in diameter and 165 feet to the crown of the vault. It is pointed out by the author that the angles "do not rise from the walls, as at St. Paul's and Ely, but are free from them, a double aisle coming between the octagon and the circular turrets containing the triforium stairs. This arrangement is probably unique, the idea being to give additional floor-space, and at the same time increase the beauty and importance of the centre of the cathedral by opening it up all round." Dean STUBBS testifies that Ely Cathedral is a much easier building to speak in than many a parish church of a twentieth part of its size. For the style of his building Mr. HEFFER has drawn inspiration from Westminster Abbey. It is to be regretted that so excellent a design did not come under the notice of the assessors. The pamphlet, containing a sermon by Dean STUBBS, with the design, is published by Mr. WALMSLEY, Liverpool.

SOME time ago we published an article on Celtic interlaced ornament which was partly written by an Irish gentleman, Mr. COOKE-TRENCH, who gave much attention to the subject of Celtic art. He was a member of the Council of the Kildare Archaeological Society until his death. At the annual meeting a few days ago a vote of condolence was passed to his family, for he was one of the Society's most distinguished members, and had aided it since its foundation. His theory was that Celtic artists first covered the space they were to decorate with straight lines, crossing one another and woven in and out like basketwork. The ends were then formed. Finally, the crossings were obliterated occasionally. The operation was not entirely mechanical, for much depended on the skill with which the lines were joined in parts while other parts were obliterated. In whatever way it is explained, there is no doubt the process must have been slow.



"IRON WORKING."—By J. C. HORSLEY, R.A.

RUSKIN AS A CRITIC.*

IN the interesting and eloquent lectures which Mr. VAL PRINSEP has just delivered to students of the Academy he referred to Mr. RUSKIN's influence at some length. It is not the first time the critic was dealt with by Academy Professors. Indeed, it would hardly be possible to treat of landscape painting or of some of the old masters without recognising the popular notions on the subjects, and which were derived from his books. It was to be expected that the limitations of the writer's power should be set forth. Mr. PRINSEP says that RUSKIN was never an artist; that he always took the literary view, and that even sculpture was regarded from a purely literary standpoint. Probably the majority of artists are of the same opinion, and it may be worth while briefly to examine how far it is to be accepted. An opportunity to do so is afforded by the publication in a handy volume of the notes on pictures at the Royal Academy and other exhibitions, as well as those on SAMUEL PROUT and WILLIAM HUNT.

It must be allowed that Mr. RUSKIN was, if possible, more amenable to such criticism as Mr. PRINSEP has expressed, if judged by architects. The exclamation wrung from PUGIN, "Why doesn't the fellow build something!" was a summary expression of the discontent which justly arises in an architect's mind when a critic deals with his work as if it were little more than an abstraction or independent of all sublunary necessities. RUSKIN spent so much time in the contemplation of nature, he appeared to think that every building should possess some of the characteristics of the Alps. It might also be concluded from his writings that architects could be as free in the exercise of their creative faculty as was TURNER himself. "Genteel houses" were an abomination in Mr. RUSKIN's sight, but he forgot that the raising of them, in spite of all their shortcomings, was a sign of progress and an attempt on the part of imperfect beings to attain as much beauty as their limited purses allowed. Indeed, in none of his criticisms is Mr. RUSKIN so far removed from this life of ours as when he treats of modern buildings. It is well, however, to remember the class of people to whom Mr. RUSKIN addressed himself. He had the writer's gift, and was eager to appeal to a great number. He wished to be accepted as an authority on art like FARADAY on science. If his books were expensive he believed that self-denial would be cheerfully undergone to purchase them. He altered his style and almost ceased to be eloquent in the expectation of reaching a wider circle. If he confined himself to technicalities which artists alone could understand, the possibility was that he would not be read by the very men for whom he made sacrifices. In his review of the "Materials for a History of Oil Painting" he endeavoured to be more technical than EASTLAKE himself, but

it is to be doubted whether any member or even any student of the Academy has studied the article.

The fact is that in dealing with painting a critic who aspires to be technical, however extensive may be his knowledge, lays himself open to being charged with incompetence. The liability arises from the peculiar secretiveness which is inseparable from the practice of the art in this country. REYNOLDS, to take one instance, might be considered as bound from his position as the recognised chief of the English school to impart all the information possible to other artists. In his "Discourses," however, there is a systematic avoidance of any allusion to the results which he had arrived at from experiments and put into practice. He made careful notes of the processes he employed in many of his pictures, but they resemble the formulæ of the alchemists; they are in a language of his own invention and could not be turned to account by any contemporary or succeeding artist. If one of REYNOLDS's assistants were to criticise a particular painting by the master on the assumption that it must have corresponded with others he had seen him producing, the President would probably be able to say that he was wronged and that the critic was not a painter. ETTY was for some time toiling in the house of Sir THOMAS LAWRENCE, but he had to own that he received little or no instruction from the portraitist. It is very doubtful whether he would have been capable of giving a correct description of LAWRENCE's methods. TURNER also ceased to work if by any chance another painter found entrance to his room. When, therefore, it is objected that a critic deals only with the ethical or literary relations of a painting, it should be remembered that few painters are uniform in their technique, and the changes in process are concealed from their friends. Who would believe that TURNER sometimes used water-colours over oil, and oil-colours over water? There are, in fact, British secrets which are as impenetrable as the ancient Venetian secret, especially in relation to the application of colours.

RUSKIN sometimes attempted to speak of colours as one painter might to another, and it is possible that in each case the artist who was noticed would maintain that he was incorrect, although the inaccuracy might be trivial. It would be easy to give numerous instances from the volume of criticisms. There is much about the relation between colour and light or shadow. RUSKIN objected to J. R. HERBERT's painting of a scene from "King Lear" because of defects in the jewels of a coronet. He says:—"Each stone has a white spot, or high light, upon it. Now, that flash is always the reflection of the highest light to which the jewel is turned, and here, in a tent, it must be of an opening in the tent on the left-hand side. Now, as the jewels are set round the brow, each in a different position, each would reflect this tent door from a different spot of its surface. This change in the position of the reflection would be one of the principal means by which nature would indicate the curve of the coronet. Now, look at the painting. Every gem has actually the high light in the same spot, on

* *Ruskin on Pictures.* A Collection of Criticisms by John Ruskin not heretofore Reprinted, and now Re-edited and Rearranged. Vol. II., Academy Notes. Notes on Prout and Hunt. (London: George Allen.)

the left-hand side, all round the brow!" Microscopic criticism of that kind could hardly come from a mere literary judge. It is the criticism of a pre-Raphaelite artist. Before a picture of the Duomo at Milan he asks:—"But why does Mr. ROBERTS always draw painted windows lighter at the top than the bottom? I have often seen them lighter at the bottom than the top; certainly, I never saw them, as in No. 418, darker at the bottom than the stone of their jambs, the whole breadth of casement telling as a gloom instead of a light." MACLISE was not one of RUSKIN's favourites, and in his notice of *Peter the Great in the Dockyard at Deptford*, he objects to it because the houses on the other side of the Thames appear with blank, square patches of grey for their doors and windows:—"When we look at real houses across the Thames, we see panes in the windows (or rags in them, as the case may be); bricks in the walls (or holes in them); planks in the doors; tiles on the roofs; incidents of all kinds in form and colour, infinitely rich and abundant; more or less confused, indeed, but this confusion is not, with us, the unfortunate plurality peculiar to distant objects. All natural objects are confused to us, however near, however distant, because all are infinite." The sarcasm is the more severe owing to the artist being singularly far-sighted. It may be said that, from their truth, the objections reveal they did not originate with a painter. It would be more correct to say they were not inspired by the conventionalism of that period.

A remark in the Notes on the Royal Academy in 1857 will be perhaps more interesting to the majority of our readers than those on the shortcomings of painters. RUSKIN exclaimed, after writing his single paragraph on the architecture and sculpture in the Academy, "But what a dark sign it is of the state of our architectural schools that there should never be seen in this room one example of sculpture applicable to external decoration or subordinated to an architectural use." If in our day the need of sculptured decoration for buildings is more widely admitted, much of the credit for the change is due to Mr. RUSKIN, who cared little for sculpture when seen apart from architecture.

RUSKIN may not have been exact in his criticisms of figure-painting, but in judging vegetation he was Rhadamanthine. EDOUARD FRÈRE by his tender sentiment captivated him more than any of his countrymen. But it was pointed out mercilessly that "his grass in no wise resembles grass; not a leaf of it is true, nor is it lovely," and that he could not draw a sheaf of wheat. Here we may give his remarks relating to a coast-scene at Blankenburg, which are applicable to a great many French landscapes:—

The French painters always chill the colours of nature as they lower them, by toning everything with grey, and thus not only alter the depth and pitch of the colour, but the colour itself. They do not merely change its key, but debase its nature—that is to say, if they have trees to lower, they turn what is in reality pale, pure green into dark, dirty green, when they ought to change it only into a darker green of the same purity. And if they have pale yellow sand to lower, instead of lowering it to a dark yellow, equally glowing, they lower it to a dark grey, and thus turn sand into slime. It is very curious that, in spite of all the talk about Titian, this simple principle of his colouring has never been understood. When Titian lowers tones, he always lowers them without changing the colours. Pale blue he translates into ultramarine, pale rose-colour into crimson, pale sand-colour into deep brown and pale green into emerald green, but he never pollutes the blue sky with blackness, nor stains pale roses with clay; whereas nearly all the French landscapes in this room represent nature seen through a smoked glass. If the sky had only been half as livid at the last eclipse of the sun as the French landscapists represent it on sunny afternoons, the birds would have gone to roost in a much more satisfactory way than I hear they did.

This may be literary criticism, but many lectures have been delivered by Royal Academicians which have far less definiteness and are less applicable to the needs of young painters. He may have been wrong in adopting nature as a standard instead of an academical code, and in testing pictures by their fidelity to what can be seen before our eyes. But so long as it remains undetermined how far a different standard is to be the criterion, we must at least admit that RUSKIN had logic on his side.

Among all the exhibitions RUSKIN was most at home

in the room of the Water-Colour Society. "What a simple company of connoisseurs we were," he says, "who crowded into happy meeting on the first Mondays in Mays of long ago, and discussed with holiday gaiety the unimposing merits of the favourites from whose pencils we knew precisely what to expect." That was in the forties and early fifties; for in 1859 he had to confess, "I cannot enter with any pleasure into examination of the works of the two water-colour societies." Both were then, he believed, in steady descent, ruined by the endeavour to rival oil-paints and display facility. Or, as he put the change in a few words, "the sponge and handkerchief have spoiled water-colour painting." None of the pages are therefore more satisfactory than the Notes on PROUT and HUNT. He records how PROUT lived in Brixton, where the parish church enabled him to prize Strasburg Cathedral and the Hôtel de Ville of Brussels, while HUNT was only properly at home in the Hampstead Road. He acknowledges that HUNT's choice of subject was sometimes plebeian—not to say vulgar. But there were no drawings produced in modern times which were considered to be at once so sincere and so accomplished. PROUT's influence on RUSKIN cannot easily be measured. It caused him to give a preference to ruggedness in architecture, meaning also open joints in masonry. The confession, "I had almost rather see Furness or Fountains Abbey strewn in grass-grown heaps by their brook-sides than in the first glow and close setting of their fresh-hewn sandstone," is by itself sufficient to explain why he was dissatisfied with modern building.

It would be easy to point to much else in the book which is so inseparable from JOHN RUSKIN as to become almost biographical. The interest in the pages is of many kinds. Why the author did not comprise the "Notes" in the new and more popular edition of his works is not stated; he may have undervalued them, but if they were only to be found in their original states, to be hoarded by collectors, it would be a loss to the literature of art. In his criticisms Mr. RUSKIN was endeavouring to show how the question, "What's in the Academy?" put each year to those who attend private views, could be answered. He brought his principles into application; the wise saws and modern instances were combined. In some cases the pictures which were selected for admiration are forgotten, it may be unjustly, but in others RUSKIN's remarks have been endorsed. Apart from their immediate effect, the "Notes" are a revelation of RUSKIN himself, and for those who have no time for a systematic study of his numerous volumes they will form an excellent companion to the "Selections" and the "Notes on TURNER." They have been produced most carefully by Mr. E. T. COOK, who has added whatever information is required to enable the present generation to understand the circumstances under which the criticisms were produced, and an index which is exhaustive. There are also nine admirable plates.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER IV. (continued.)

ALTHOUGH perhaps not strictly within the province of this treatise, it will not be amiss to criticise at this place the contention that the Greeks translated into stone the original timber construction of dwellings. The arguments are very ingenious, and it would be rash to assert dogmatically that the origin was or was not due to timber prototypes. But, remembering that the Greeks were so artistic and generally truthful in their art (whatever they may have been in other matters), it is curious that they should on all four faces have used triglyphs, if these are supposed to represent joist ends, as such construction with joists would not be feasible.

Again, the use of mutules and dentils below a pediment is similarly unjustifiable on the hypothesis that they represent respectively Principal and Common rafters. Their introduction would be legitimate in the absence of a pediment, for with a hipped roof (in conjunction with which a pediment should not be used) these rafters are

used constructively on contiguous return faces. The origin of guttæ is variously ascribed. On the supposition that they represent rain drops, their introduction on all faces is perfectly legitimate; but on the hypothesis that they represent pins or fastenings for the timbers, their use should be restricted to the same extent as the use of triglyphs, &c., &c. VITRUVIUS has some remarks to make in this connection, which are of interest, and are to be found in Book IV., Chapter 2.

A few remarks may be devoted to Chiaroscuro, as its influence in producing a pleasing result should not be neglected. For the benefit of those who are ignorant of the meaning and derivation of this word, it may be stated that it is of Italian parentage, and refers to the play of light and shade (*Chiaro*=clear, *oscuro*=obscure). Sciography is not much studied in England, nor perhaps is it necessary, but the general effects of light, shade and projections should be known to all. Care should be exercised that light and shade are effectively regulated and controlled. Also the treatment of ornament or of ornamental features should follow on similar lines: delicate ornament would be most inappropriate in positions set in deep shadows or in high lights; half tones will form its best medium. Where there is strong sunlight there should be provided bold projections, not merely in positions where their provision will give welcome shelter from the heat or annoyance of the sun's rays, but also so as to cast shadows where they will be aesthetically approved. The boldly projecting cornices of Florentine Renaissance buildings are well worthy of imitation or adaptation. Porches, balconies and balconettes, detached columns, &c., all help to heighten the effect of buildings, if properly introduced. It must be remembered that in England the sun is more grudging in display than he is in some happier climes, such as Spain, Italy and elsewhere, where there are broad surfaces of sunlit wall alternating with deep patches of restful gloom. In the most general terms it is to be understood that, on the whole, the sun is to be countenanced in England, instead of being hustled out of the way.

In the undercutting of ornament, too, there is great scope for the display of chiaroscuro, but the claims of contrast and variety must be remembered throughout. Generally speaking, strong contrast and vivid chiaroscuro should be utilised in direct ratio of distance from the eye. Where there are different points of view, the most important should be the first considered: of two equally important standpoints, the one nearer the object should receive prior consideration.

Projections, as above indicated, are important factors in the display of chiaroscuro, but their employment is of

not of such extreme rigour as to preclude the use of projections to a greater or less extent. The house shown in fig. 24 has an elevation that may serve all useful (that is practical) purposes, but it cannot be considered in the slightest degree ornamental. Certainly it satisfies (or at least does not militate against) various principles of design, such as expression, emphasis of plan, economy and balance, but it fails in perspective effects, proportion and individuality, and this constitutes a bad failure.

It may be granted for the immediate purpose that a reasonable mean has to be preserved between *carte blanche* and close-drawn purse-strings in the matter of expenditure. Taking the elevation last shown as a basis, it may be well to consider how possible developments may be effected. A low plinth may be introduced and the eaves may be supported on projecting courses of stone or brick; a string-course may be effectively used to emphasise separate storeys. Segmental, square or canted bays are not very expensive features. The elevation subjected to these improvements would appear very much as shown in fig. 25.



Development of previous Façade.

FIG. 25.

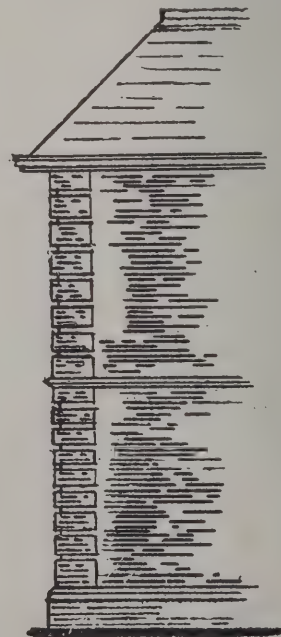
It may be urged here by an architectural Fadladeen that this elevation is of a very ordinary "jerry" type, but the criticism would be more severe in intention than valid in



A severely practical Elevation.

FIG. 24.

value for other purposes also, as they impart a corresponding degree of variety into the elevations. Monotony is a foe that should be strenuously fought and overcome, though there are numerous occasions when financial considerations are necessarily given prior place. Under average conditions, however, the question of economy is



Coursed Quoins.

FIG. 26.

effect. The "jerry" type of building implies that a badly-built house is made more or less attractive externally on the

principle inculcated in that charming poem of "The Spider and the Fly." In passing along a street when a range of buildings—terrace or semi-detached—is noted of one general type of elevation, it is expected that the passer-by will immediately label the collection as jerry-built, not on account of the design, but from an intuitive deduction of probabilities; this, however, is *en parenthèse*. To revert to the elevation which was left in process of improvement. The façade can be made more attractive by the use of projecting quoins, either *en masse* or coursed, as shown in fig. 26. A more pleasing treatment of the eaves would be to let the rafter ends show beneath the gutter (instead of being hidden), or else have a series of brackets (see fig. 27) at *a* and *b* respectively.

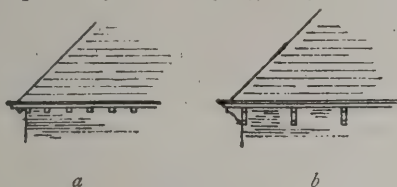


FIG. 27.

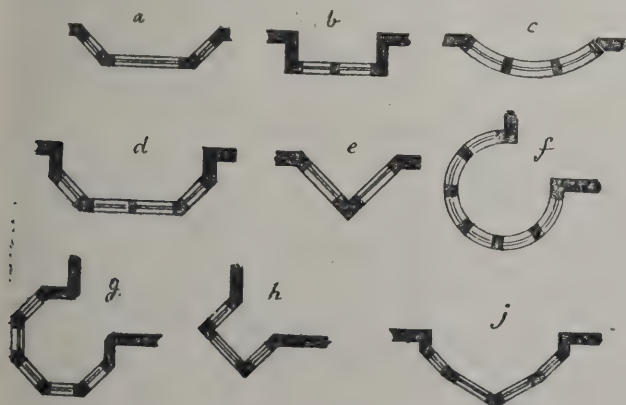
Centrally the eaves might be broken by providing a gablet, or if attics are required, then dormers can be introduced very effectively. As an embodiment of most of these suggested methods of ameliorating an elementary façade



Previous Façade more fully developed.

FIG. 28.

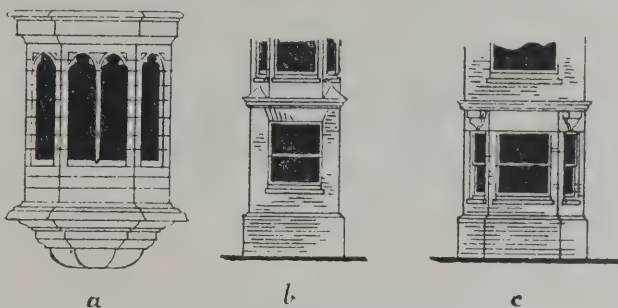
The elevation shown in fig. 28 is most decidedly an improvement on that shown in fig. 24; nor can the latter illustration be styled extravagant in any way. These are simple examples of projections, and only touch the fringe of the



Various Plans of Windows.

FIG. 29.—PLANS OF VARIOUS SHAPED WINDOWS.

for ornamental purposes, and they are capable of very varied treatment. In fig. 29 are given some of the numerous shapes they may be made to assume. Of these, *a*, *b*, *c* and *d* admit of very favourable adaptations; *f* and *g* can be made highly agreeable features, both externally and internally, whilst *e*, *h* and *j* should be condemned by all right-minded folk. The latter shapes are not often met with, fortunately; and even in regard to *f* and *g* a word of caution is due, as it is right to remember that windows at angles tend to give an air of constructive weakness to a building which, though not perhaps justified in fact, is to be deprecated, even if not more than a semblance. Variations on the above forms are possible in many ways, as, for example, the use of oriels in place of continuous bays (see fig. 30 at *a*), or the superposition of one shaped bay over another, such as canted over square (*b*), or square over canted (*c*). The varied effect, too,



Variations & Combinations of Window Outlines

FIG. 30.

on a design, of a one-storeyed or of a multiplied bay is to be borne in mind. A pleasing mode of treatment for the purpose of producing variety is the inset projection; it may sound somewhat contradictory in terms, but this is the effect left on the spectator. This treatment (illustrated in



Inset (or Sunk Bay) Window.

N.B. Sunk into the Room.

FIG. 31.

fig. 31) has been growing in favour of recent years, and has much to recommend it.

Other very effective features in an elevation are balconies, balconettes, verandahs and loggias. Definitions of these terms are at times inconclusive, but the following will best explain them severally (see fig. 32).

A balcony is a landing outside a window, being railed in or balustraded so as to adapt it for use.

A balconette is a balcony front set against a wall merely for adornment.

A verandah is a continuous balcony roofed over.

A loggia is a covered way open in front, and is set back from the face of the wall instead of projecting as a balcony or verandah. To dispose of the *balconette*, in the first place, it may be remarked that it gives an air of freedom from restraint that is sufficiently pleasing; but lacking any utility (or perhaps it should be utilitarianism), it is apt to convey an impression of unreality.

The *balcony*, from the point of view of adaptability to use and ornament, is a welcome feature; care should be exercised that in introducing it it is not only made constructively strong, but is also given the appearance of adequate strength. It may not be out of place to warn against the use of what "Mr. PUNCH" designates as "them handy little balcō-nies"—handy, that is, from the house-breaker's standpoint. Suburbia is often inclined to riot in the use of balconies placed within easy reach from the ground level, and too often inviting their escalade by the brethren of the Appropriation League. It is very different when the balcony is at such a height from the ground as to confine the approach to it from within the house. As regards its ornamental treatment the possibilities are extensive, but it would be out of place here to do more than remark that the design should follow on the lines of the

subject. Though projecting windows have a value for practical purposes, namely, increased light and space, aspect and prospect, yet their main value is undoubtedly

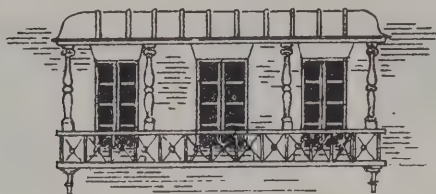
whole elevation, as anything like patchwork ornament is offensive.

Verandahs do not call for detailed mention, but in regard to *loggias* it should be noted that their use should not be tolerated where the rooms in their immediate rear are inadequately lighted.

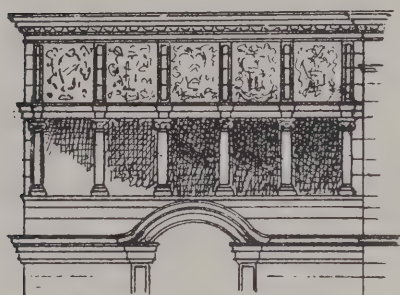


Balcony

Balconette.



Verandah.



Loggia

For London Theatre by M. Huntz

FIG. 32.

Turrets were first employed in the service of staircases, and are appropriate features for similar purposes at the present day. Their use in conjunction with batement windows emphasises most notably this important feature in a building, and they help to break up the surface of a façade in an entirely pleasing and justifiable manner when so used.

Porches, too, whether projecting or set in, are valuable aids to successful design; they are dealt with in greater detail later in this work. In public buildings it would seem too often to be considered essential, when the Classic style is used, to introduce colonnades, stylobates, pediments and other features for the reproduction externally of the appearance of a Grecian or a Roman temple, seemingly oblivious of the fact that the nature of the edifice may (probably must) call for very different treatment. Colonnades and arcades, valuable where strong sunshine and a clear atmosphere alternating with seasons of heavy rainfall are present, are *mal à propos* for the most part in a country such as the United Kingdom. But the root of the evil does not exist in the use of one "style" or another, but more in the mania for reproducing old forms for their own sake, instead of adapting them on logical lines. Occasions arise, however, when colonnades and arcades may be judiciously and effectively used, as, for example, in the Royal Exchange, London, though its *raison d'être* is now destroyed by the roofing-in of the nave.

The varieties of projections are too numerous to justify any attempt in this work to notice them individually in any detail. It will suffice to mention such varieties as *flèches*, buttresses (often merely ornamental), pinnacles, piers, pilasters, attached and detached columns, cornices, rusticated window and door-dressings, and a long list of etcetera. Some of these will be considered later, in the chapter dealing with ornament.

(To be continued.)

SPIRALITY.*

AMONG the books in general literature which have appeared this season we doubt if there is one which will be so interesting to architects and other designers as the volume on spirals by Mr. T. A. Cook. For it raises the important question whether man was indebted to natural forms for inspiration, not only in architecture, but when designing ornament. His own imagination would then be of little importance. On such a subject naturalists take the affirmative side. They point, for example, to the employment of the lotus in Egyptian architecture as conclusive evidence. But they do not seem to realise that although the plant was utilised for decorative purposes, there is no affinity between the massive columns and the slight and fragile lotus. Even if we suppose the column is suggestive of bundles of the plant, there are still differences of character which cannot be surmounted. In the same way a host of writers have described Gothic architecture as no more than a copy in stone of the alleys seen in pine woods. It would appear that one class of students of science are prevented from studying architecture because the indebtedness to nature is not gratefully acknowledged. Thus we have Professor RAY LANKESTER declaring:—"I feel that architecture, if it is to appeal to all of us, as it should do, must, in the end, be based upon some general morphological principles. I have long looked in vain for any architectural handbook that would not merely suggest the foundations on which building and ornament finally rest, but would also lucidly explain to the untechnical observer the reasons, the faults or the virtues of any architectural example with which he might be brought in contact." It would be easy to attain that end if we were to take for granted that architectural forms were in all cases derived from nature. But so far as the history of the art supplies us with information a contrary conclusion should be arrived at.

In the first place, there can be no question that architecture was well established before there was any close study of natural forms. The Corinthian capital, in which the acanthus leaf has been adapted rather than imitated, seems to have been the latest variety of the orders employed by the Greeks. RUSKIN'S indifference to Greek architecture was mainly caused by the absence of such imitations of nature as are to be recognised in Gothic art. We may allow, if necessary, that Greek architecture would have gained if nature had been drawn upon more liberally. But it is now too late to blame the architects for obeying rules of art which were then accepted.

It does not follow that because they were chary of going to vegetation for principles they were oblivious of the spiral. It undoubtedly appears in many ancient examples. But it should not be forgotten that the spiral, taking the word in a generic sense, is very easily created. We may not believe with SEMPER that architecture and decoration are the outcome of needlework or weaving. It was impossible, however, to twist two coarse threads, or even two thin branches of a tree, without forming a perfect spiral of one kind. Interlaced bands were a very easy production. Undulating lines are common on Greek vases, and, indeed, a large variety of spirals could be extracted from Greek as well as from Eastern and Egyptian art. We do not wish to suggest that in all cases they were independent of natural forms. The wave pattern may have been derived from the sea, and some ornamental bands became also reminiscent of creeping plants. But it is more probable they were the issue of geometrical exercises. The number of explanations which have been brought forward in order to account for the origin of the volutes in the Ionic capital is almost sufficient to show how general is the belief that man could be independent of nature in evolving architectural forms. There is, of course, high authority for the belief that "nature is made better by no mean, but nature makes that mean," and in that way, when man creates, the credit is to-

* *Spirals in Nature and Art.* A study of spiral formation based on the manuscripts of Leonardo da Vinci, with special reference to the architecture of the open staircase at Blois, in Touraine, now for the first time shown to be from his designs. By Theodore Andrea Cook, M.A., F.S.A., with a preface by Professor E. Ray Lankester, F.R.S., director of the British Museum of Natural History. (London: John Murray.)

be given to nature that endowed him with the requisite powers.

In the course of time, when more attention was paid to nature in its manifold forms, the prevalence of the spiral could not remain unnoticed. There are enough Renaissance examples to suggest that it was then employed more often than either in Mediæval or Classic periods. We can see representations of helmets, for instance, which must have been derived from ram's horns. In early etchings men are represented with hair and beards as elaborately curled as those of an Assyrian official or one of the guardian bulls. LEONARDO DA VINCI was from time to time fascinated by the form. The seal or mark of his Academy at Milan presents his name surrounded by a series of spirals of which it is difficult to trace the beginning or end. On other occasions he amused himself by allowing his pen to wander in the formation of the most elaborate convolutions. There are grounds enough to justify Mr. Cook in writing a volume to explain, if possible, the power which the form must have exercised over the great artist's mind. He may have imagined that the complicated series which seem to form knots that could never be untied were adapted to be taken as a presentment or symbol of his own tangled life. The straight line, which is the shortest distance between two points, was most unlike what DA VINCI had to pass through, for in everything he did he was unable to come to the end he aimed at directly, but only by a roundabout course, one spiral being, as it were, transformed perpetually into another. His own epitaph suggests that he believed he had never carried out the purpose of his life, and he appealed for the forgiveness of posterity:—

Mirator veterum discipulusque memor,
Defuit una mihi symmetria prisca; peregi
Quod potui. Veniam da mihi, posteritas!

DA VINCI was engaged by FRANCIS I. not merely as a painter but as an architect and engineer. Mr. COOK says that at Blois there is a staircase "built just at a time when LEONARDO'S presence in Touraine might have enabled him to suggest its plan, built with its external lines corresponding to the outside of a shell, while its internal spiral reproduces the helix on the columella of that shell." This is the staircase in the Château de Blois, which is always viewed with delight by architects, and who, regardless of photography, are often pleased to sketch it with the hope of exploring the mysteries of its construction. In our second volume we published a very elaborate drawing of the interior, by Mr. WATERHOUSE, R.A. It would no doubt have been easy for DA VINCI to have taken a suggestion from the *Voluta Vespertilio* for a winding staircase, just as JAMES WATT imitated the tail of a lobster when laying a conduit with flexible joints beneath the Clyde at Glasgow. The Blois staircase is, however, more likely to have been evolved from examples which were to be observed in many a donjon in France. Staircases were sometimes constructed within the thickness of the walls, and the more turnings to be found in them the more satisfactory they became in a military sense, for they were easily defended. Mr. COOK says:—"The designer of this staircase had not merely a quadruple mathematical line in his mind; he was thinking of a shell, and he was not thinking of *Cymbium*, a shell which has four plaits on its columella, but of *Voluta Vespertilio*, which hides its quadruple helix behind an arrangement of sloping lines growing above slender columns, exactly as these sloping balustrades are built." The supposition is ingenious. But in those days we imagine very few architects could have examined the inside of *Voluta Vespertilio*. Mr. COOK believes that RUSKIN, who counselled his pupils to avoid shells in ornament, had never looked inside them. If that was the case with an ardent student of nature in the nineteenth century, there was less likelihood of sections of shells being investigated at the beginning of the sixteenth century. Why should not the spiral tendency, which is so marked in vegetation, be allowed to become one of the powers in art? Nature does not do her work by short cuts or leaps and bounds, unless when destruction is necessary. The stone-cutting at Blois is no wonderful feat to a student of Gothic architecture. He finds in it only a development of the earlier work in ecclesiastical and military buildings. That it happens to

correspond with nature's principles of construction, as seen in shells, enhances the value of the masonry. Men might have earlier attained success in construction if they had studied conchology; but we must take the world as it is, and overlook a fearful waste of time in arriving at inventions. Mr. COOK's book furnishes new arguments for the study of natural history by men who are engaged in construction, and he has revealed another side of DA VINCI's extraordinary versatility. We may not agree with him in acknowledging indebtedness to natural forms for the spiral and its applications. But we must admire his enthusiasm in following out the ramifications of his subject and for demonstrating a closer relation between art and science.

THE GREATER CORK INTERNATIONAL EXHIBITION, 1903.

THE prospectus of the Greater Cork Exhibition, 1903, the object of which, like the successful exhibition of last year, is to promote the industrial resources of Ireland, has been issued. Since the close of the last exhibition it is stated that acknowledgments have come from far and near of the enormous educational benefits which it has conferred on those who visited it, and of the stimulus which it has given to the trade of the manufacturers and others whose machinery and products were exhibited. In view of this remarkable success, the committee of the exhibition feel that the educational process so happily begun ought not to terminate in so short a period as a few months, but that, on the contrary, it ought to be extended and continued, and they have therefore determined to reopen the exhibition in the summer of 1903. This decision has met with the warm approval of commercial men of all classes, and His Excellency the Earl of Dudley has shown his appreciation of the scheme by becoming its patron, and forwarding the generous contribution of 250*l.* towards the expenses of providing additional attractions for this year's exhibition. Whilst the scope of the exhibition will not be in the slightest degree limited, it is the intention of the committee to make Irish manufactures and industries one of its prominent features, and to devote special sections to the display of the products, raw and manufactured, of the country. The exhibition will be opened early in the summer, and will continue open for six months. It is not intended to issue any awards.

EDINBURGH ARCHITECTURAL ASSOCIATION.

AT a meeting of the Edinburgh Architectural Association, held in the Association Rooms, 117 George Street, Edinburgh, on the 21st inst., Mr. A. Hunter Crawford, the president, in the chair, Mr. J. A. Gotch, F.S.A., F.R.I.B.A., Kettering, delivered a lecture on "The Homes of Queen Elizabeth's Courtiers." In the time of Elizabeth, he said, there was a prevalent desire for better homes, partly arising from what people saw abroad and partly arising from an increased desire for comfort, and the presence of considerable wealth derived from the dissolved monasteries. These causes led to an extraordinary amount of building in the sixteenth century, and probably every village in England had some remains of work done in the time of Elizabeth or James. The characteristics of the architecture of the period were largely influenced by what people had seen abroad, and especially in Italy. It was the Italian influence which characterised the work of this time, and the peculiarity of Elizabethan architecture was that English workmen adopted Italian ideas in buildings which really had a Gothic ancestry. The essence of a house was in its plan, and the planning of Elizabethan houses was a matter of great interest. They provided for the increased wants of the time, but they did it, as a rule, in a stately manner and in a manner that was very much influenced by symmetry. In fact, to this quality of symmetry a good deal of what they at present should consider comfort was sacrificed. Another peculiarity of the time was quaintness in design. This quaintness sometimes even affected the plan itself, as in the case of the Triangular Lodge at Rushton, which embodied the idea of the Trinity, and the new building at Lyveden, which embodied the idea of the Passion. There was also a plan extant of a house designed by John Thorpe in the shape of his initials, J. T. The lecturer described the general arrangements of Elizabethan houses, and the methods of design, pointing out that a design was not produced by a single architect as in the present day, but by a number of designers in various trades working in harmony, and proceeded to deal with the external appearance of the houses, their surroundings, their internal appearance, and the treatment of the interior in the various departments of walls, ceilings, staircases, &c. The lecture was illustrated by a number of limelight views.

NOTES AND COMMENTS.

M. EMMANUEL FRÉMIET is a native of Paris, where he was born in 1824. He studied with RUDE. He can claim to have witnessed, if he did not assist in, the revolution of 1830. In his early days his skill as a painter enabled him to obtain employment as an official of the Morgue. His duties were certainly not pleasant, for the principal employment of his pencil was to touch up the bodies which had been drawn from the Seine in order to conceal the stains or bruises, so that they might be more presentable on exhibition to the public. There is a good deal of the *gamin de Paris* in such a work as the *Dénicheur d'Oursons*, which is in the Luxembourg, and represents a juvenile PAN endeavouring to obtain honey from a hive for two young bears. All visitors to Paris know his *Jeanne d'Arc*, which is seen in the Place des Pyramides, and which is the most popular representation of the warrior girl. His *Man of the Stone Age* is in the Jardin des Plantes. There are many animal figures by him, and no one who has gazed on one of his gorilla subjects is ever likely to forget it.

THE decision to remove St. Mark's Library from the hall of the Great Council in the Ducal Palace of Venice to the Zecca, or mint, is an event in an historical sense, and may be regarded as proof of misgiving about the safety of the Palace of the Doges. No books and manuscripts have had more magnificent surroundings. But the great paintings and the sculpture make the collections appear rather unimportant in the eyes of the ordinary visitor. The origin of the library must be ascribed to PETRARCH, the poet, for in return for the hospitality he received in Venice during a plague he presented a number of manuscripts. But the most munificent of the early benefactors was BESSARION, the Patriarch of Constantinople, who in 1468 sent a number of Greek manuscripts copied by himself in his early days, as well as all he could collect when he attained power. During three centuries many collectors imitated, as far as they could, the example of BESSARION, and, in consequence, over 5,000 manuscripts and 65,000 volumes were obtained. Among the manuscripts is a Book of the Gospels about 1,000 years old, a copy of Lombard laws, a part of DANTE'S poems, a fifteenth-century work by RIDEO, with 332 drawings of plants by AMADIO; the manuscripts of CELINI'S treatises on goldsmiths' work and sculpture, &c. Some of the greatest Venetians have acted as librarians, among them being men who afterwards became Doges. The Zecca, to which the collection will be removed, is one of SANSOVINO'S works, and fortunately remains in a sound state. There will be more accommodation for the collections, and although the removal may break a historic chain, it will be an advantage for those who hereafter may have to consult the books and manuscripts.

THE Court of Appeal has given a judgment which we hope will have the effect of preventing allegations of collusion between architects and their clients from being uttered rashly. The plaintiff in the case in question, Mr. CHARLES HOPE, is a builder who sought to recover the balance of an account under a building contract from Mr. E. S. EARDLEY. The plaintiff was not armed with the architect's certificate, which is omnipotent in such claims, and in order to account for its absence he asserted there was collusion between the defendant and Mr. VICTOR SCRUTON, the architect whose plans were to be carried out. At Birmingham the judge, after hearing the opening, suggested that the case should go before the Official Referee as it was merely a matter of account. The defendant, however, appealed on the ground that as he was charged with collusion and fraud he was entitled to a trial before a jury. In the Court of Appeal it was suggested that the plaintiff should withdraw his allegation, when the judge's order could be respected, but his counsel declined. Thereupon the Court allowed the appeal. Lord Justice ROMER said there was a charge of serious misconduct, not to say fraud, on the part of the defendant, because it suggested a want of good faith on his part—in fact, moral fraud. In his lordship's opinion this was a kind of question that the defendant had a right to ask the opinion of a jury upon, so that they might decide it. The appeal would be allowed, but the costs of that appeal and of the first hearing would be left to be decided by the

judge at the next hearing of the action. Lord Justice MATHEW concurred. We cannot, of course, offer any remarks on a case which is before the courts, but it is at least allowable to suggest to future claimants that collusion is always difficult to prove, and a litigant should regard it as a precarious support.

IT is not in London alone the necessity arises for closing churches. A commission was lately appointed in Liverpool to inquire into the subject of church accommodation, and as a result it is recommended that no less than six churches should be removed, and two others sold, in order to obtain funds for the erection of more suitable buildings. The churches proposed to be removed are All Souls, in Eton Street, Vauxhall Road—a modern church, for it was commenced in 1854; Christ Church, Hunter Street, which dates from 1797; St. Mark's, Upper Duke Street, erected in 1803; St. Paul's, in 1769; St. Thomas's, Park Lane, in 1750, and St. Titus's, Portland Street, which was built in 1864. It cannot be said that any of them are remarkable as works of architecture, although some of them cost from 15,000*l.* to 18,000*l.* The principal reason for the removal is that the successors of the congregations which used to worship in the buildings have found residences in other districts. It is proposed by the commission that the proceeds of the sale of the churches and sites shall, after providing for the wants of the parishioners, be carried to a common fund for the erection of churches in other districts of Liverpool.

THE notice to artists respecting the Royal Academy exhibition of this year has been issued. The days fixed for the reception of works are as follows:—Water-colours, miniatures, black and white drawings, engravings, etchings, architectural drawings and all other works under glass, Friday, March 27; oil-paintings, Saturday, March 28, and Monday, March 30; sculpture, Tuesday, March 31. Forms and labels can be procured as usual during the month of March. There is only one slight change in the regulations. It used to be said, "Low reliefs should be framed;" now the rule is, "Reliefs should be framed." No more than eight works will be allowed from any artist. All pictures and drawings must be in gilt frames, but excessive breadth in frames and margins, or projecting mouldings, may prevent pictures or drawings obtaining the situation they otherwise merit.

ILLUSTRATIONS.

CATHEDRAL SERIES: WORCESTER.—THE NAVE.

INCH HOUSE, BATHGATE: NORTH-WEST FRONT, SOUTH-EAST FRONT.

TOWN HALL, COLCHESTER: SIDE OF GREAT HALL FROM STAGE.

THE COURT ROOM, BREWERS' HALL, ADDLE STREET, &c.

BREWING is in our time so important an industry, and the leading representatives of it are so prominent, some may be surprised to learn that the Company of Brewers ranks low among those of London. It is true that the Company was incorporated as far back as the sixteenth year of the reign of HENRY VI., but the operation could be performed in any household. It was recognised as an occupation for women. Indeed, for a long time in England the apprehension of the danger from fire was an obstacle to brewing on even a moderate scale, and, according to Dr. HENRY, shopkeepers were compelled to pay for permission. Not until 1643 was beer made an excisable article in England, and Scotland was exempted until 1695. For several years German beer was imported, but the duty of 15*s.* a barrel which was levied in the time of Queen ANNE was a check on the supply. In the same reign a fine of 50*l.* was imposed on any brewer who lent his utensils. It is remarkable, however, that in 1731 GONZALES, who is thought to have been DANIEL DEFOE, hesitated about recognising brewing and distilling among the London industries, although it was said the various kinds of beer were not to be paralleled elsewhere in the world for quantity or quality.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. H. T. Hare, president, in the chair.

The following were elected as members:—Messrs. G. P. Bowie, H. W. Sefton, E. J. Walters, Herbert Read and R. F. MacDonald.

The HON. SECRETARY announced that the first spring visit was fixed for Saturday, February 7, when members on producing their passes would be allowed on the works of the Victoria and Albert Museum, Kensington, by kind permission of the architect, Mr. Aston Webb, A.R.A.

Mr. J. D. FORSYTH read the following paper:—

The Attitude of the Architect towards the Crafts.

The question we so often omit to put to ourselves by reason of the familiarity of the term "crafts" is, What is the real meaning of the word, and how many of the applied arts are included in it? We may, I think, safely say sculpture, decorative painting, stained glass, mosaics, pottery, carving, plaster-work, enamels, textiles, wrought-ironwork, furniture and, though perhaps not strictly connected with architecture, printing and bookbinding. These are all generally accepted and embodied in the term.

But, in my opinion, the word "craft" is an unfortunate one, inasmuch as it seems so difficult to dissociate its station and consequence from the word "art." A happier term for any of these crafts would be perhaps "applied art," for they all are undoubtedly "art" when conforming to the true principles of decoration, and possessing the qualities of sound technique and beauty of design. It may seem unnecessary to emphasise the point, but all the crafts I have mentioned, with the exception of the last two, printing and bookbinding, are distinctly "applied." I mean they are in direct relationship to the building they adorn—are, in fact, part and parcel of its conception and completion. The fact is constantly forgotten that architecture is the mother of the applied arts, the parent from whom they spring, and not the stalking-horse on which the so-called "decorator" may hang his wares.

The variety and complexity of these applied arts has naturally led to the evolution of the so-called "craftsman." In other words, the producer of these various arts is at the same time a designer and worker. He is therefore differentiated from the architect who, in the multitude of his duties, cannot be a worker in the same sense that a craftsman can. He may take lessons in modelling, and therefore be the better able to direct and control the sculpture he employs on his building, but he does not and cannot take the place of the craftsman.

One mind should dominate every building—I mean the educated eye should be able to discern that the same master mind has subordinated every part, be it large or small, to make up the perfect and complete building. But the actual means of compassing this end is complicated by the fact that it is a physical impossibility for every architect—indeed, for almost any architect—to gain sufficient knowledge of all the varied materials at his disposal to enable him to design in them with that grasp which the craftsman must have. It seems, therefore, that while the architect must know the limitations of the various materials he employs, and must have a general knowledge of the methods of the craftsman in that material, he must perforce leave the actual expression to the craftsman himself.

The multiplicity and variety of materials now at the disposal of both designer and manufacturer seem to invite their free use, and many excuses are found for their adaptation. A supposed opportunity is found for the use of this or that material. The cheapness of its production will permit of a space being decorated which otherwise would have remained bare. The character and style of such decoration is too often misapplied, and instead of securing a refined and pure adornment to that space it is rendered tawdry and incongruous. It would have been much richer in its bareness. Such results strike a harsh note; they disturb the harmony of refined work, and vex the soul of the conscientious student who by his training and gifts knows that if such work and money had been expended with proper direction and knowledge, a far better result could have been obtained. They must surely also exert a harmful influence upon the good judgment and taste of the public, which, ignorant as it is, mistakes elaboration for beauty and misapplied decoration for art. It should be the aim of all of us to eliminate this misapplication, to bring architect and craftsman into more complete harmony, so that each may realise that under the stress of modern conditions each must work conjointly with the other, never forgetting that the part must in all cases be subordinated to the whole. We must "piece out these imperfections in our minds," or to use a less classic quotation, and put it into the words of, say, a foreman mason, we must endeavour to give each crudity "its back day."

Let us briefly review the province of the architect. The study and practice of architecture in this twentieth century may without any hesitation be said to be one of the most intricate and difficult of professions, added to which there is that indefi-

nite, indefinable something, be it ever so simple, which distinguishes architecture from mere building.

There are so many different branches of study, so many different and new materials to gain a knowledge of, so much to be learnt from both past and present, that the architect is really a student all his life. The architect's part in the decoration of a building is a large one, for he must, in my opinion, be able to direct the subjects and their general proportions and styles. He must be able in designing his building to introduce the various arts for its adornment in places where their introduction will materially assist it, supposing such ornament is not merely the enriching of constructional features, such as the way in which sculpture is often employed, but is only to emphasise the meaning and purpose of the building.

The value of an imposing group of sculpture, the use of other carving, the colour schemes and the kind of materials for their production, the value and use of frescoes and the styles and subjects of them, the treatment of glass, must all be under his direction, and he should know how each is to be treated and made one with the architecture of his building. The architect will know that in introducing his group of sculpture the elevation of his building can be either very materially enriched or ruined. He will therefore direct the exact scale of figure, a certain line in its composition, and the breadth of treatment necessary for its value. The sculpture becomes part and parcel of the architecture, and for that purpose must be architecturally treated; it must have no appearance of being foreign to the general scheme, or as if something just modelled and placed there irrespective of architectural proportions. Therefore the architect alone can know what is best required upon these lines for the adornment of his building. These conditions similarly apply to most of the decorative art, which must be considered architectural adornments. In mosaics and painted panels, frescoes and other features, utility, style, scale, line and the proportions of general massing of colour and subject are the fundamental points to be studied, and the direction of them must come within the province of the architect. He should convey his ideas of them to the decorator by means of rough sketches.

Given that an existing building requires decorating, if that building is of considerable consequence because of its purity and refinement of style, and the architect who produced it was a famous man, it should be an architect's province to direct the character and style of the necessary decoration, because only an architect who has made that style his especial study, and whose experience in construction enables him to appreciate and follow the beautiful characteristics in that style, and who has paid particular attention and studied the individuality of that famous man, can be competent to know the best decorations for it. Even then there is danger in touching the building.

Let us now glance over the province of the decorator, and under that name I include the sculptor and painter and all other workers in the applied arts. Like architecture, decoration covers a very wide field; a field which should have a boundary line marked by an architectural wall to prevent decorators straying from within its precincts into unknown spheres. The decorator usually commences his career by serving a term of years at a special craft in which he obtains a thorough technical grounding. As a sculptor he becomes an expert in modelling and carving, and is able to execute commissions for figures in various materials including bronze. His province in this art allows him considerable scope and freedom, but in carrying out his commission too much freedom cannot be allowed, for he would doubtless be running amok with the architect for whom the figures are being carried out. He will receive general instructions as to scale, breadth of treatment and other views of the architect, all of which are necessary to render his work strictly architectural and to be in harmony with the building. It is the decorator's province to execute the commission on these lines. Experience and efficiency in his own particular material aid him in actually producing the work, and here the architect will not presume to direct. The decorator—if he be a painter—will receive similar directions from the architect, and to him are allotted conditions comprising subject, scale and general scheme of colouring. It is not his province to choose these, because he cannot possess another man's individuality, and cannot, therefore, be competent to know the character and style for the decoration such as were originally intended by the architect. In a case where, given a free hand to decorate a Renaissance building, good or bad as it might be, the decorator is very apt, for many reasons, to go wrong. It may happen that his experiences as a painter of architectural decorations have been mainly confined to the Gothic school, and, no matter how skilful he might be as a draughtsman or colourist, the influence of the Gothic is bound to make itself manifest in his work, and even the rudiments of subject, scale and general scheme of colouring in a Renaissance decoration will not be grasped by him, and a poor scheme will result unless he independently seeks the advice of a competent architect. The

painter may be a man who prefers to ignore character and style, and go for something which is quite the outcome of his own invention and fanciful ideas. Then, provided the building he is to decorate be one which glories in the beauties of a pure order, and as such is a representative example, the result of his labour is deplorable and the building spoilt. The decorator here who is inexperienced in architecture, as is so often the case, will do many foolish things, and unwittingly quite disregard obvious conditions existing in the main and various details in the construction of the building.

Invention of style and fanciful ideas of colour and material cannot lend themselves to be in perfect harmony with this beautiful building. Some of the most delicate features in its architecture, characteristic mouldings, valuable flat surfaces—which were probably never intended to receive much if any colour—will all come in for their share of his paint-brush, or be chiselled away to receive some incongruous and foreign material. A free hand in a case of this kind should not come within the province of the decorator, even though his knowledge of, and respect for, architecture be recognised as experienced. An architect should supervise, but only the united and harmonious endeavours of both will produce true results.

Let us now review examples where the architect collaborates with the decorator. The one who has conceived the main and grand construction confers with the other, from whom is required the actual production of his art for its adornment.

Let me then firstly deal with sculpture, for I consider that art, when applied to architecture, the most difficult to treat. For example, a commission for a group of figures upon a pediment is placed with the sculptor by the architect for execution. The architect will, in conferring with the sculptor, show him the elevation of the building it is proposed to adorn, direct the dimensions and scale of the group, and give the subject for it; and together they will discuss points on treatment in technique and manner of style, and cost. Having clearly understood the views of the architect, and having grasped the necessary architectural requirements, the sculptor proceeds to make rough sketches, to about 1-inch scale, for the composition of his group, which he is often pleased to do in various materials. He may elect at first to sketch in different media upon paper the general lines of his group, or he may—as in my opinion he should—commence right away with a small scale sketch in clay or wax. In this group the most important point which will tax the sculptor's skill is that of composition, and in that particular alone he will find it necessary to make and experiment with many rough sketches for his group of figures. These rough sketches are made to arrive at correct positions and pose of the figures, and they are put in in a very broad manner. In them detail is not considered. The sculptor is mindful of the fact that the group is to adorn a pediment, an architectural feature in the elevation which will require his every consideration. It might be a great distance from the ground, and have much or little projection, conditions which will greatly influence and govern the treatment of the group which is to surmount it. Difficulties of conceiving proportions as affected by foreshortening have to be overcome, and they can be studied in the initial stages of rough sketches together with the composition. A templet is prepared to 1-inch scale to show the general lines of the architectural elevation, the pediment under consideration and a slight indication of the character of detail surrounding.

The object of preparing this templet is, firstly, to be of material assistance to the sculptor in modelling his sketches; secondly, to keep the elevation of the building vividly before his mind, so that he can well realise the conditions and be directed by them.

The rough studies as they progress will be repeatedly placed upon the pediment, and the points of composition, proportion and foreshortening of the figures in them thoroughly considered until they are decided upon. During this stage of his work the sculptor is resorting to the use of the living model, for in modelling the human form, no matter how naturalistic or conventional it is to be, the use of nature cannot be dispensed with. The actual presence and the movement of a limb of the living model will suggest ideas in composition which the most practised mind cannot always conceive, so that in the rough sketches for the composition of the figures in his group, and at every other stage during the process of modelling, the sculptor should always have nature before him.

From the rough composition study the sketch is advanced, and subject, character of costume and other attributes are thought out and designed. The sketch having been carefully worked up and having reached a more finished stage, and being satisfactory to the sculptor, should be placed upon the templet for the architect's inspection. Indeed, the architect should frequently visit the studio and carefully watch the progress of the work, show interest in the sculptor's efforts, and free expression of opinion should be indulged in. The architect must be satisfied with the design at this stage because the group is about to be modelled to the actual size required, and any necessary and important alterations had better be made in

the small sketch. In modelling the large group the sculptor naturally selects the medium of clay because of its pliability and softness. The setting up of a large group for modelling requires considerable skill, for each figure requires to be supported by irons, stout wire and other hard materials which are built up on the stand, and which more or less represent the skeleton of the human body. The vertebral column is set in stout iron, supported by a stronger piece which is fixed to the stand, and to it is attached the cross pieces and angular pieces made to represent the bones of the legs, arms and phalanges of the hands and feet. The utmost care and skill is wanted to build these up so that the pose of each skeleton shall be in its proper place, for it cannot be altered afterwards. The sculptor is able to build this up from the measurement and positions of the figures in his careful sketch. Thus he does not only have technical points been studied, but the general lines of utility and character, in so far as the application to the building is concerned, have guided the artist in his ingenious creation. As yet, however, he has only a fair start and a good and sound basis to work upon; the finished piece from his hands has yet to come. The applicability of his studies and careful sketch, although appearing to the architect and himself as satisfactory, does not obviate the necessity of its more careful study in the full-size model, and no matter how appropriate his work thus far seems, the sculptor in entering upon his next task is, for many reasons, apt to go astray. The style of treatment best suited to its architectural character, the manner of technique most practical and artistic for the material, expression, detail, grace of line and finish, have all to be managed and executed by him upon the large model, and the advice and suggestions of the architect in some of these points will be very necessary. Regarding the style of treatment necessary, the architect previously conveyed in a measure his wishes and ideas, but now, with the full modelling in course of execution, he is better able to define them. He will now find it much easier to express his views upon the kind of conventionality he might require, and how he would like the sculpture kept in the key of bold shadows and otherwise, for the large group is approaching its more definite form, and these points are easier of discernment.

Concerning the manner of technique most suitable for material, much might be said, but to briefly illustrate its importance let it be known that the treatment of modelling for one material will not suit another. For instance, delicate detail of very slender proportions which is practicable in the material of bronze would not be sound in marble and still less so in stone. It would be misplaced labour in either of the two latter materials, because not only might be extremely difficult to carve, but it would be susceptible of damage or soon destroyed by climatic agencies. Again, the texture of surface modelling in the one material must be quite different in the other. The dulness and density of stone allow it to hold shadow which cannot be felt in the more transparent quality of marble. The contrast between both of the materials and bronze is of course very considerable. The colour and strength of the latter are such that a freedom of boldness can be practised in the modelling which would be quite impracticable in either of the former materials. Moreover, expression and effect can be facilitated in this by use of acids, which produce additional colour. It will be seen that the sculptor has to study these materials and model them by executing in his modelling technique and texture which he will require to be carved or cast. It will also be seen that the architect will require to possess a general grasp of these points so that he should be competent to select suitable material for the enrichment of his architecture. I repeat, the sculptor is very apt to go astray when executing his full-size model. Let me suggest where. In the creation of expression, grace of line, detail and finish, the temptation to lose sight of architectural conditions is very strong. With the living model before him, draped in the costume which has been difficult to arrange, attended with splendid detail, attributes of symmetry and trophies and other matter inherent to the subject, the sculptor will see so much that is beautiful and artistic that impulse is to copy it all. He is so fascinated by all expression, detail and grace of line which appear before him that the applicability of his group to the pediment it has to adorn is very apt to be forgotten. He is greatly inclined to introduce too much rather than tax his ingenuity to realise what much can be left out, and in modelling a large subject which is to be applied to architecture these errors are too easily fallen into. The difficulty lies in the distinction that architectural work is vastly different from modelling for the pedestal in a gallery.

It is the architect's province to see that these errors do not fall into, and criticise accordingly, and he and the sculptor must be agreed that the model when finished and cast into plaster will be suitable to be carried out in its final material. But before the final stage is entered upon, the model should be temporarily placed in its position on the building and it should be tinted to resemble as near as possible

material it is to be worked in, so that the architect and sculptor can see the effect. This is a very necessary precaution, and one which should in all cases of the kind be exercised. If the group is to be in bronze, the sculptor has comparatively little more to do with it, having only to touch up the wax impression prepared for him previous to casting in the metal by the foundry. But if the work is to be carved in stone or marble, there will be a great deal that requires his supervision and the personal application of his skill. Commencing the cutting of the block of stone or marble, the first process is that of pointing, and this is usually done by an assistant, who as a rule does little else. Pointing is a process which enables the painter to cut away the material until very nearly within the surfaces required, and it is done by the aid of an instrument which is so constructed with a gauge that any point on the model can be accurately found in the material. Points all over the model are taken and closely put in the material, so that accuracy of measurement is obtained and a guide found for the carver who now follows. For convenience and care this is done in the studio, where the group is generally finished. The technique in carving will require considerable direction. In marble or stone the use of the file or rasp should be avoided, because they are apt to render the work hard. The finest and most artistic effects are obtained by a dexterous use and clean cut of the chisel and clawtool; the latter, for large and bold work, should be very freely used. The architect should have a general knowledge of the methods of carving and ideas concerning them.

I have dealt somewhat freely and at length with sculpture because I feel it necessary to emphasise how intimate must be the relation between the sculptor or decorator and the architect; and it will be seen also how important it is that the architect should have a very definite conception of the methods and difficulties in sculpture, and how impossible it really is for him to design with freedom in a material of which he can but gain general knowledge.

The principles in the application of the art I have attempted to describe are involved in most of the other decorative arts, but in my opinion in a less important manner, for the application of figures in form requires far more skill and study than is necessary in applying figures in colour. The latter has only one aspect in its composition, whilst the former must be correct from every conceivable point of view.

Proportion, scale and disposition of wall-paintings, mosaics,opus sectile, stained glass, carving of ornament, plasterwork, pottery, &c., must be directed by the architect, who should have a general knowledge of the technique of each separate treatment. He should be the better judge in placing these decorations, for he, having designed the building, will know the value of enrichment in his architecture, whether it be in form or colour.

There are probably no two arts more commonly used in architecture than those of the more ornamental carving or stained glass in their elaborate or modified ways. With reference to the former, there are so many good examples to be seen, so much that is ancient and modern which the student-architect can revel in, that the study of it becomes a standard one, and is one of the first which he takes to in his early career. I do not know why he should be set to model or draw from the cast for any other purpose than to obtain facility for freehand drawing, a knowledge of what carving is, how it should be applied, and to become versed in the various styles and orders; but I do suggest that there is an influence attending the study of this art which is acquired thereby, and usually unnoticed by him. It lies in the assumption that, provided the student attains excellence in this art he develops readiness for grasping more easily and freely the general principles of the applied arts. His quickness of perception is, in my opinion, trained more by this influence than any other course of study. The same agent is at work with the professional carver. A carver who is at first trained as a wood-carver very often develops an especial aptitude for doing other things. He possesses an expert and dexterous touch derived from the nature of the material and the use of the great variety of tools necessary. A carver whose early training is on stone or marble does not acquire this facility. There are many men, competent workers in several of the decorative arts, who were in their early days trained as wood-carvers.

There is probably no applied art which, in its manufacture, has more processes and technical stages to go through than that of stained glass, and a word as to its application may not be out of place. Stained glass is the most vivid kind of coloured decoration. In the ever-changing light of day the luminous quality of stained glass powerfully affects the lighting of the interior and its coloured decoration. This should be borne in mind by the architect, who will or should direct that coloured glass upon the south side of his building must not be treated too warm a scheme of colour. In a window the massing of colour and of figure subjects makes very important architectural features in the building; the distribution of coloured masses conveys proportion and the dimensions of figures scale, and a

window might not only in itself be ruined, but the whole interior seriously affected by the want of care and study of these points. It is most essential that the designer of a window should visit the building, carefully study the architecture and architectural conditions attaching, and make rough sketches on the spot. The architect should insist upon these precautions being taken, for a happy coloured scheme cannot be conceived without them. The habit of adapting a figure to a space just because it fits should not be encouraged, because it is invariably found to be a faulty one. The adaptation of a figure designed for one window cannot comply with the conditions of a similar window in a different building.

Throughout the various stages of stained-glass manufacture the worker himself is often perplexed about his results. He is continually experiencing the feeling of uncertainty for the effects he is striving for. So many points in the material and process are apt to play him false. It is also sometimes bewildering to him to know and to gauge the key of coloured glass to use, the strength of painting, and its breadth of treatment most suitable for the building. Experiments and trials are inevitable. A stained-glass window, or a portion of it, should always be temporarily placed in its final position so that its effect and value can be truly realised. To give a thorough description of the art of stained glass would mean an extremely long paper; hence my brief reference to it, for it was only my intention to touch lightly upon the descriptive side of one or two arts, my motive being to point out the difficulties of technique and design in the applied arts, and to endeavour to show how hard the architect's position must be concerning them. Reference to all the arts mentioned is quite unnecessary, because the principles I have tried to mark out which apply to one apply to another.

The attitude of the architect towards the craft is a difficult one. He in turn is apt to stray in the utilisation of this or that craft for the want of technical information. Therefore I think his study of decorative arts should not be neglected, for it is very necessary; also that his studies ought to be confined more to the technical side of them rather than contriving to excel in the artistic productions of draughtsmanship, and I venture to express the hope that such technical studies will be set the students in the Architectural Association's new school. On the other hand, I suggest that the decorator in his early studentship and in later life does not give that thought and study he should to architecture, which is so important for his work. The attitude of the architect should be one of collaboration with the decorator. He cannot possess the sound grasp of technicalities of all the decorative arts which he should have, as I have attempted to show, for the complexity of work of all kinds in his profession renders it impossible. He must have confidence in his decorative artist. I would plead for the more intimate relationship between them, that one shall become used to the methods and feelings of the other. In the production of a noble conception in the art of architecture, harmony and goodwill must pervade the minds of the producers. Each must be familiar with the taste and ideas of the other. The architect who conceives the noble idea must extend personal feelings of consideration to the workers who are to build it up, so that they feel their efforts encouraged and their labours appreciated. Their mutual and friendly efforts will produce happy results, and the structure in stability will be established and in the refinement of beauty adorned.

Mr. Halsey Ricardo, who proposed a vote of thanks to Mr. Forsyth, said he was to some extent out of sympathy with the paper.

Mr. R. H. Weymouth seconded the motion, supported by Messrs. Gregory Collins, W. A. Pite and C. Tucker.

WELLINGTON MONUMENT, ST. PAUL'S.

THE following statement has appeared from the committee:—

Efforts for the completion of the monument had been in abeyance since the death of Lord Leighton, who was the chief subscriber to a fund for moving and completing the monument. On March 18, 1899, Mr. D. S. MacColl, by an article in the *Saturday Review*, attempted to revive interest in the scheme, and draw attention to the danger of further dilapidation to which Stevens's model was exposed. This led to Lord Hardwicke taking active steps in the matter. He questioned the then premier, Lord Salisbury, in the House of Lords, but received no encouragement to the hope that the Government might take action. It was then determined to rely on private effort. It was ascertained that the model was available, that the Dean and Chapter of St. Paul's, whose permission was necessary, were willing to consider a proposal for the completion of the monument, and that funds sufficient to cover an estimate made after careful inquiry would be forthcoming from a body of private subscribers.

The promoters then formed a committee, of which the

Bishop of Stepney consented to be chairman, with Lord Hardwicke as treasurer, Mr. Harold Hodge, hon. secretary, Mr. D. S. MacColl, and Mr. Herbert Trench, who had been independently interesting himself in the matter. At a later period Mr. J. R. Clayton, who had been intimately associated with Lord Leighton in the previous movement, brought valuable help.

The committee then approached the Dean and Chapter and obtained their assent to the scheme on the conditions already enumerated by the Bishop of Stepney, viz. that all indications of Stevens's intentions were to be followed as strictly as possible, that the sculptor proposed should be approved by them, and that he should submit a model and a statement showing what he proposed to do by way of preparing Stevens's group for the bronze-founder. The committee accepted these conditions, which entirely met their views.

They then bought from Mr. Stannus, who had loyally guarded it since the death of its designer, Stevens's plaster model, and proposed to the Chapter the name of Mr. John Tweed, whose ability had been vouched for by high artistic authority, and whose zeal for Stevens's fame was known to them. He prepared a reduced model and drew up the required statement, acting in close co-operation with Mr. Somers Clarke, surveyor of the cathedral, who had been actively interested in the previous efforts to complete the monument and whom the Dean and Chapter consult in all matters pertaining to the cathedral monuments. The Dean and Chapter then declared themselves satisfied and Mr. Tweed was commissioned to proceed with the work.

It cannot be too clearly understood that Stevens's design is in all essentials complete, and that its general effect will in no way be altered by the work that has to be done with a view to preparing it for casting. Several broken or missing details have to be supplied, but ample authority exists for them in the original sketch-model at Kensington. In other details the indication of surface modelling is left in the rough but sufficiently defined, and a competent sculptor will be able to get the surface into a condition congruous with the bronze of the existing groups by faithfully following existing indications. There is therefore no question of a new designer being called in or another sculptor glorified at the expense of Stevens. The criticisms that have already appeared are apparently based on a slight photograph of the model published without the knowledge of the committee in an illustrated paper. It may perhaps be mentioned, as there appears to be a good deal of ignorance as to the facts, that the head of the Duke, which Stevens had carefully finished, does not appear in this photograph, because it had been detached by Mr. Stannus for greater safety. It is now in the possession of the committee.

The committee have throughout desired that all should be done in such a way that the public will be able to judge of the result of their sculptor's work before the model is finally cast, and that he should have the advantage, at that stage, of the criticism of his brother artists; and further, that full evidence should remain of Stevens's design as he left it. The plaster model will be preserved, untouched, for comparison and verification. A duplicate of the cast of it, made for Mr. Tweed's use, may, it is hoped, find a place in some national museum; and Mr. Tweed's model, when his work has been done upon it, will be tried in position before it is handed over to the bronze-founder. Then, in our opinion, when the project is actually before the eyes of the public side by side with Stevens's models and drawings, will be the moment for useful criticism.

The committee were quite unaware that Sir Edward Poynter had made a renewed appeal to the Government in the year following Lord Hardwicke's, and had repeated it since. As he did not approach the Dean and Chapter, the committee had no means of knowing of his action, and regret that his spirited efforts were consequently made in ignorance of their own.

ART A NECESSITY.

AN address was delivered on Saturday by Alderman the Right Hon. William Kenrick at the Central School of Art, Birmingham. He described art as a thing expressed in terms of form and colour. As our common speech was to communicate thoughts, to convey knowledge, to appeal to the emotions and thereby to give pleasure, so it was in art. It instructed and gave delight, and if it were good and healthy art it called forth the best feelings and emotions and gave the purest pleasures. The alphabet of art was borrowed from nature, whose inexhaustible storehouse of beauty in form and colour had been the artist's great source of inspiration from the beginning. Hence it followed that the natural forms and colours of flowers, plants, birds, beasts and of man himself must be studied, and the knowledge gained stored in the mind. How were they to be studied? With the power to draw came the power to observe accurately; it was doubtful whether it could come in any other way. Besides

the assistance which the power to draw would give them in the study of nature they would find it of great service in their business, for a sketch would often explain perfectly what long word descriptions would fail to make clear. But even if it were of no further use it ought to bring great pleasure to them. In these days everyone rode a bicycle. Let them mount their bicycles and get into the country; not with the object of scorching on a dusty highway, but of finding out a cool, retired, pleasant country lane wherein to study the flowers and foliage, to make sketches, perhaps to try a little landscape work. If they did they would never find nature dull or uninteresting, or be at a loss how to employ their holidays innocently and delightfully. If they could not get into the country they might do worse than take to window gardening. If all boys and girls were true art students what a different world this might be. Bank holidays, instead of being the terror of quiet dwellers in the country, and indeed to everybody except the public-house keeper, would be a joy festival in which the most refined and cultivated would delight to take part. Green fields would not be desecrated by streams polluted by the refuse of the villages and towns; even the picnic party would gather up their waste paper and broken bottles, and 'Arry's and 'Arriets would be gentlemen and ladies. How far, alas! were they removed from this Utopia. From their art studies they would also learn what to admire—what was in good taste and what was in bad taste. There was no greater mistake than to suppose that a correct judgment in matters of art came naturally to civilised man and that the faculty did not require cultivation. Of no branch was this more true than of decorative art, in following which it was necessary first to remember the use of the article upon which they were engaged. The ornament should always be subordinated to that. Work became extravagant and offensive when pride and ostentation were dominant. In the present day they were surrounded by so many examples of bad ornamentation of the advertising tradesman order that they might be excused if at times they lost their heads and were led astray. In spite of all the difficulties and drawbacks they must resolutely keep to the right path—the way of simplicity, reverence and humility; though even in that there were pitfalls to be avoided. Though art must be founded on the knowledge and study of nature it was not nature. It was distinct from nature and an exact copy of nature even if it was possible was not art. What the artist had to express in his work were the impressions made upon his mind, the emotions awakened in his heart by the beauties of nature; the tenderness, delicacy and refinement which he saw in natural objects. These must find expression in his work, and the remarks were true even in landscape-painting. The landscape-painter selected, grouped, modified, emphasised as the idea in his own mind prompted him to do. Exact imitation with the intention of fascinating the senses he knew to be a poor and contemptible trial, and he discarded it for the more worthy ambition of uplifting their feelings. The work of the true artist was a creation which he embodied the spirit but not the exact letter of nature's lesson to him. Turning to the Municipal School of Art the right hon. gentleman remarked that the student who went there had opportunities of completing his training whatever branch of art he selected, an advantage which a generation ago did not exist. He urged his hearers to avail themselves of the advantages provided for them by the public spirited founders of the school and the wise liberality of the City Council. Art was difficult—most difficult—and demanded the wholehearted devotion of those who looked to succeed in it. But to his mind success in the production of beautiful things was like wisdom, which they were told was more precious than rubies or much fine gold. To crown them with this exceeding great reward talent and unremitting energy were needed, but he had confidence that in the sons and daughters of this great city neither of these virtues would be wanting.

Mr. Jonathan Pratt said there was a time when it was thought that art could only be included within a gilt frame, but he was glad to find an increasing acknowledgment that art could take all kinds of forms, be introduced into all kinds of articles, and into the most remote corners of the house.

Mr. E. R. Taylor stated that Alderman Kenrick's quart of a century's work on behalf of art had certainly borne fruit and fruit which would be good for the city. A few years ago a number of the certificates distributed that evening would have been prizes, and it was interesting that one of the small branch schools—Cowper Street—had secured fifty-two certificates, a larger number than would be obtained by many schools equipped almost as well as the Central School. Alluding to Alderman Kenrick's bank holiday reference, he said it occurred to him that few art students became rowdy or were seen in the police-court.

Alderman Kenrick, in reply, said he heard among the fathers that art was a luxury, that the extension of the Art Gallery was a luxury that could be postponed. He ventured to say that it was not a luxury. It was no more a luxury than breathing and seeing were luxuries. Wherever they had to

fragmentary record of him, prehistoric man was an artist. Wherever they would find that as soon as man satisfied the wants of his nature he became an artist, and if that were the love of the beautiful were inherent, it was as much a part of his nature as the power to see and breathe. Therefore he thought that art was not a luxury but an essential to the true development of man.

THE GOTHIC REVIVAL.

LECTURE to the members of the Ruskin Society of Birmingham was delivered by Professor C. H. Herford "The Gothic Revival and its Place among the Nineteenth-century Ideals." He said the forces of the revival were at work in the middle of the eighteenth century. At an earlier date Milton, who was regarded as the great classical poet, was not recognised as the great master and head of the English Romantic movement, did a little in his poetry to promote the revival, and his influence, early in the eighteenth century, was one of the most potent literary forces which checked the Augustine ideal. After referring to Gray's "Elegy" as another step in the direction of the Gothic revival, he said that Horace Walpole's Strawberry Hill created Gothic interest in walls, and Scott appreciated it, not on the side of the mysterious, but the picturesque, whilst Keats was more sympathetic to the richness of Gothic colouring. For the non-profound interpretation of Gothic architecture, however, they had to go to Germany. In 1770 Goethe arrived at Strasburg, and his visit published by him forty years later of the month spent at that city was one of the most kindling things in modern biography. He was introduced to Ossian and the "Vicar of Wakefield," and he was greatly impressed with the charm of the smith's ideals, whilst his eyes were opened to the glory of the resplendent. But the glories of Gothic architecture were open to his own observation. In one of his masterpieces the poet immortalised the builder of the cathedral of Strasburg, and the indication of German building craft and German rationalism was firmly aggressive. Goethe, however, opened a page of the Gothic revival which gave it a new and richer development. The lecturer then referred to the inspiration evoked by Ruskin's "Stones of Venice" and his "Seven Lamps of Architecture." Ruskin, like Goethe, was a man of intuition, but he led into his writings an expression of brotherhood. There was to him true brotherhood expressed in the masonry of the Palace. The effect of the new school was the emancipation of the Gothic architect from the sordid builder.

LECTURES ON SCULPTURE AND OTHER ARTS.

THE course of lectures by Mr. Alfred Gilbert at the Royal Academy began on Monday. He said that he had carefully refrained from publishing the customary syllabus of lectures, firstly because he preferred to be free, and secondly because of the great difficulty he had experienced on other occasions in carrying out a previously-arranged programme. They were there that night to discuss the subject of sculpture, and to consider its work, methods and relations to other arts. It was needless for him to define sculpture—all knew what it was—and he would proceed to speak of its relations to other arts. He considered that no form of expression gives the artist a medium so complete and so free as the art of the sculptor. Painters had many advantages over sculptors. But the painter—with all reverence to a painter—though beset with manifold pitfalls in his expression, not one iota of the difficulties of the sculptor. The painter's surface, he has colour and atmosphere to aid him, and he works with the sympathy of those who know nothing. The sculptor a work of art was a tangible work, a blind man could find pleasure in it by touch, and if handed round a blind man it would appeal without words far more than a verbal description of a beautiful picture. Recapitulating what he had said in some of his earlier addresses, Mr. Gilbert sketched the position of the sculptor in the time of the Greeks. The ideals and objects of the artists of that golden period. There was no Greek portraiture, strictly speaking, for to the Greeks it was profane to sit for a portrait. But when the Romans, who had seen other countries and had become conscious of the hideousness of their own surroundings, introduced Greek artists into Southern Italy, we got those portrait busts, wonderful as they were, always showed the sitter's worst features. The Romans lived much as we do, and as we do artists had to depend for a livelihood on personal patronage in portraiture. Hence the decline of the great Greek art of the decline of ours too, because though a hundred years ago we had men possessed of every quality necessary for the making of great artists, they had never seen the work of the

mighty Phidias, but were influenced instead by the marvelous realism of the Græco-Roman portraits. Portraiture, said the lecturer, means pandering to the vanities of often ill-shaped and ill-ordered individuals, who think that because their portraits are made they are patrons of art. This or that detail must be exactly right in their eyes, and such portraiture belonged to realism of the meanest nature. When a Greek made a portrait, as far as he was free to do so, it was the highest expression according to his lights of what his sitter should be, not what he was. Mr. Gilbert drew on the blackboard a design roughly representing a lamp with branches on one side labelled natural inspiration, convention, idealism, archaicism, and near the summit portraiture. This side represented ancient art. On the modern side the corresponding labels were anachronism, affectation, realism, imitation and portraiture. The qualities and aims of ancient art were compared with those of modern times, much to the disadvantage of the latter, and then taking realism as his text, Mr. Gilbert urged the students, when working in the schools, to make their models as realistic as they could. Let them be true so that they should see how ugly truth could be. He wanted them to learn by their studies how to tell a beautiful thing from an ugly one when they saw it. Technique had its uses, but it was only elementary, and its abuse made the student a mannerist. This was a strong argument against over-training in schools. It was bad for students to go on working together for prizes and so forth, all practising the same manner from which in the end they never escaped. Individuality was the thing, and the more inapt the artist's hand, as long as he could realise his ideals, the more charming his work would be.

TWENTIETH-CENTURY ART.

IN his final lecture of the session Mr. Prinsep began by giving the gist of his lectures to students in the Academy schools for the past three years, touching on the influences and styles at different periods in Greece, Italy, Spain, Holland, France and England. He pointed out, says the *Standard*, the patronage of the Church in Italy, of nobles in Spain and of honest citizens of Holland. Then he referred to the forced position of English art in Johnson's time; and after cursory allusion to his two preceding lectures, which dealt with the nineteenth century, he passed to the present one, saying, however, that as he was debarred from alluding to living painters he would leave his hearers to think out what little he could say. He did not believe in schools, but men of the time were striking out their own line as surely as did those of last century, but the influence of an age must in some measure be a continuation of that just past, though the echo got weaker and weaker as its sounds travelled from the starting-point. He saw that execution was higher, there was less feebleness, but he sadly noted a greater display of self work which cried aloud "See how cleverly I express myself," but the mirror held up by such pictures was not one that reflected nature, but the artist. Smart passages in a work that was not good as a whole were like the modern plays, full of quick repartee which would be intolerable as conversation in real life. There should never be personal display. It was better to labour than to affect the freedom of Velasquez. There should be no slurring; it was better to leave out than to slur, letting what was done be done with care and honesty. Slur and want of care were proofs of being bored, and how could the public be expected to like what had bored its author? Achievement and knowledge should be seen but not boasted of, for to show too much knowledge denoted want of balance. Technique, said the lecturer, was of the first importance to a painter, and it could be learnt, but imagination could never be taught, and there was danger in taking subjects from writings, as a man might not then depend enough upon himself. An axiom was that poetry should always be present, but more in treatment than by subject. Great determination should be exercised in selection. There was, however, a saying that a painter was hardest at work when his hands were idle, and he feared this saying was responsible for a great amount of idleness. Referring to prettiness—which he explained as being "beauty without nobleness"—he said it was the most popular, because the most easily understood. It was never original, but came from tradition, and the acme of its feebleness was reached by the female beauties, without life or individuality, in the old "Keepsake," but to this day the French speak of the "beauté kipsake." One form of popularity had always been common, namely, the glorification of the young lady. The high prices attending this cult caused it, and would always be so while the male was the purchaser of art. He warned the students not to fall into the easy convention of the "Keepsake" order, but to give rein to the joys of life, never pandering to pruriency, as was sometimes found in France, and which lowered art and artists. Prettiness came to-day in a thousand ways, by repetition of a successful line, although he knew

painters who groaned at being compelled to repeat themselves, for the treadmill did not tend to nobleness of thought. *Genre* had taken so great a hold it was almost a necessity; and even in history or allegory there was much *genre* introduced. First efforts often had a success due somewhat, perhaps, to generous feelings on the part of other artists, but they must remember it was as difficult to reach the applause of the public as to reach a man's own ideal. They should create their own ideals, not being led by fashion or bowing to false gods, but paint from the heart and without eccentricity, and there would be no fear for the art of England in the twentieth century. Hesitation should be felt to pronounce infallible judgment on contemporary work, for time alone could determine it; but press criticism should do much good, as it helped to popularise art and to make the people think.

ARCHITECTURAL ASSOCIATION OF IRELAND.

THE eighth general meeting of the session was held on Tuesday evening, the 20th inst., in the Grosvenor Hotel, Dublin. Mr. C. J. McCarthy (city architect) presided. A lecture was delivered by Mr. A. E. Child, who has recently been appointed teacher in the School of Art, Kildare Street, on "Stained-glass Work." The lecturer dealt with his subject from the point of view of a craftsman thoroughly imbued with the higher principles of design, and in sympathy with that school of thought which, avoiding mere copyism of past accomplishments in art, seeks inspiration from the best elements of such, and goes to nature's boundless garden for the rest. The pictures thrown on the screen included a number of windows recently put up in Gloucester Cathedral, illustrating the best principle which should influence stained-glass work. The lecturer explained in detail the method of painting glass, and advocated the doing of the whole window together rather than in separate bits, as often in commercial work. He showed that the use of enamel as a colouring medium was bad because of the difference between the power of contraction and expansion between the glass base and the superimposed enamel; the pigment should fuse at a slightly lower temperature than the glass so as to become part of it during the burning. It is often necessary to subject the glass to two or three burnings before the right effect is gained. The usual course is to use tinted or white glasses, and by shading them with a preparation of oxide of iron and manganese to obtain the required effects and outlines. The lecturer indicated on one picture a form of Celtic decoration which is at present being taught to the students in the School of Art. He spoke very strongly against the popular way of cutting down the prices allowed for stained glass below that at which it was possible to get good work, and advocated concentrating the effort and expense on one part of the work in preference to carrying out a large quantity of mediocre design and workmanship, and to leave everything else quite plain until it is possible to complete all in harmony with the first.

A hearty vote of thanks was proposed by Mr. Harry Albergy, seconded by Mr. Beckett, and passed with acclamation. Mr. Sykes also spoke.

The lecturer having replied and explained the few points which had been raised, the proceedings terminated.

CRETAN PICTURE PAINTING.

AT the Royal Institution, on Thursday, the 22nd inst., Mr. Arthur Evans gave his second lecture on "Pre-Phoenician writing in Crete and its Bearings on the History of the Alphabet." The first lecture was delivered on January 15. The lecturer said that his investigations from 1894 onwards led to the discovery of early forms of writing, mainly on small objects. But he had always hoped that Knossos would furnish ampler materials; his work, however, was interrupted by the insurrection. In 1902, however, he had found the site of the Minoan palace, and the results of his labours might now be seen in the rooms of the Royal Academy. Before dealing with the script he would illustrate the character of the civilisation, which 2,000 years before the earliest Greek literature had attained high level. The plan of the palace was then shown on the screen, and disclosed great complexity of design and massiveness of structure. The sculpture, in marble and hard plaster, like *gesso duro*—notably in a lion's and an ox's head—was of marvellous vigour and finish. Like excellence was shown in the human frame. In the offices and magazines were found clay tablets with clearly developed linear script. This system presented analogies to what was found in Babylonia, though the writing was widely different. One was struck with the extraordinary method shown in the arrangement of these deposits. The seals placed on the several classified collections bore the signatures of the various officials. Some of these clay tablets were carried off, by a workman probably, to Athens, where he recognised by the formula that they had come from

Knossos, and he was able to assign their proper position. In the reign of Nero, after an earthquake, it would appear that a discovery had been made of tablets which were taken to be Greek, though the letters were not Greek. Hence arose the story of Dictys Cretensis and his history of the Trojan war. These, however, had not been interpreted. To many of the inscriptions pictorial designs were added. The inscriptions, many of which referred to inventories and accounts, disclosed a numerical system which might without great difficulty be deciphered, and showed how deeply rooted the principle of decimals was implanted in the human mind. There were great varieties of the same script in the same temple. Besides the inscriptions on tablets there were others on pictured vases, reminding one of the vases of classical times. There were, too, inscriptions in ink, on perishable materials were sometimes employed, and there have been in Minos's day a larger literature than would have been expected at that early period. Some of the signs had a double signification—in the first instance a sign would indicate a whole word; in other cases the same sign meant only a syllable. The pictorial origin was in some cases shown by these signs and the more lately developed letters pretty clearly in others more obscurely. Some of these inscriptions were of persons, whether of officials or slaves. The personal names were of great importance and showed an interesting variety of termination, indicating sex and also declension. An inference was that the language was not Semitic and may have belonged to the Indo-Germanic family. There were several systems of writing, the pictographic being much earlier than the linear, but existing concurrently with the latter to a comparatively late date. It might, indeed, be found that the systems had a common origin. But it was probable that the time of the later palace—about 1800 B.C.—the linear system was the usual one. There was evidence of the influence of an alien influence from which, perhaps, the linear script was derived. Considering what had been discovered in Egypt and Babylonia, one might well believe that a literature of considerable development existed at this early period, and that much which had hitherto been regarded as legendary might be an historic basis.

THE CARPENTERS' COMPANY.

THE Carpenters' Company, following their action in previous years, have arranged for a series of lectures on matters connected with building to be delivered in their hall, in Lombard Wall, on Thursday, February 19, and the four succeeding Thursdays, at 8 P.M. The subjects will be as follows: February 19, "Ancient Rome in 1903," by Professor R. I. Smith; February 26, "Where Town and Country Meet," by Dr. G. V. Poore; March 5, "Modern Furniture, Movable and Fixed," by Mr. J. Alfred Gotch, F.S.A.; March 12, "Canterbury Cathedral," by Professor T. Roger Smith; and March 19, "The Nile Dam, Assouan, and Egyptian Irrigation," by Maurice Fitzmaurice, C.M.G. The lectures will be illustrated by lantern photographs and in other ways. The Carpenters' Company have recently appointed Mr. J. Hutton Freeman as their clerk, in the room of Mr. Stanton W. Preston, who retires after 25 years' service.

THE ART OF DANTE GABRIEL ROSSETTI.

AN illustrated lecture on "The Art of Dante Gabriel Rossetti" was given in the Midland Institute, Birmingham, by Mr. Whitworth Wallis. He sketched Rossetti's life, his close association with Ford Madox Brown, his intimacy with Holman Hunt and John Millais, and the foundation of the pre-Raphaelite Brotherhood, which particular part of English art he illustrated by the simplicity of the pictures, "The Girlhood of the Mary Virgin" and "Ancilla Domini." The latter, he said, was the most important outcome of the pre-Raphaelite movement. Mr. Wallis described the salient characteristics of many of Rossetti's pictures, drawing special attention to the unfinished "Fanny" the artist's solitary picture of modern life, the "Beloved," the "Bride," the "Loving Cup," "Lady Lilith," "Rosa Triquetra," the "Llandaff Triptych," the "Blue Bower," the "Christ and Carol," "La Bella Mano," together with the "Beata Beatrix" of the National Gallery, painted after the death of his wife, of several drawings were shown. The lecturer also referred to the splendid "Proserpine," which was, as the artist considered, the "very flower of his work," his portraits of Mrs. W. Morris and other ladies who sat to him (dismissing the statement that he always painted from one model, from one type of womanhood), the "Blessed Damsels," which several studies were shown, and finally "The Dream," which a famous artist truthfully said "would be among the half-dozen supreme pictures in the world."

allis also touched upon Rossetti's skill as a designer, notably the drawings for Moxon's Tennyson and the stained-glass windows, the cartoons for which had been lent some time ago to the Art Gallery by Mr. Charles Fairfax Murray, whose selection of Rossetti's work was unequalled, and who had presented to the museum the fine series of Burne-Jones cartoons. The lecturer said that Rossetti would always be regarded as one of the chief intellectual forces in the establishment of the modern decorative school in England. His work possessed a magnetic quality which irresistibly attracted the cultured mind. Rossetti had but one aim in art—to find out something to say, and to say it beautifully. From a popular point of view his types of noble beauty and the treatment of his subjects might often be foreign to common sympathies, but this was the old story of the idealist and the realist, and the latter was often unable to dispense with such symbolism, and scarcely Rossetti's work, without the aid of a printed catalogue. Future generations would understand his work better than the people of to-day. Many of his examples were passionate poems in colour, and the lecturer begged the audience not to judge Rossetti by his later work, with which they were more likely to be familiar, when his drawing was often defective and his colour crude, and which was produced when he was suffering from insomnia, failing sight, and the joy of living was becoming less and less, but rather by those earlier works which would ever secure for him analted rank in the history of English art.

At the close a hearty vote of thanks was accorded Mr. Wallis for his address.

TESSERÆ.

Twelfth-Century Building in France.

THE monastic establishments, so wealthy in the twelfth century, set the example of civil constructions in stone, and the example was followed by private individuals. It must be said to the honour of the builders of this epoch that in adopting ashlar or rubble in place of wood they very frankly took a mode of construction suitable for these materials, and did not attempt while using them to reproduce forms or arrangements which were suitable for timber construction. They were disposed to preserve its real function and the appearance befitting it for the material employed, they did not attempt in the least to dissimulate the nature of the materials. The means employed were, nevertheless, of an extreme simplicity, and those artists who, in their ecclesiastical constructions, from the twelfth century onwards, showed a singular ability, research, and used such complicated methods, contented themselves in civil buildings with the most natural and the least complicated. Economical of materials, which then cost comparatively more than to-day, their dwellings are during the twelfth and thirteenth centuries reduced to what is strictly necessary, without pretending to appear anything more or different from what they really are; that is to say, walls pierced with openings, carrying floors formed of exposed beams and posts, well sheltered on the street and courtyard fronts by projecting roofs, throwing the water well away from the faces. Very rarely, unless it may be in a few towns of the south and centre of France, the ground floors were vaulted, consequently there were no buttresses, no projections on the exterior, most frequently the walls are in exposed scabbled rubble-work with the occasional belt-courses, the jambs and lintels of doors and windows of cut stone; still, these lintels and these jambs are not bonded, but are simply facings on the outside—the belt-courses alone bond together the interior and exterior faces of the walls.

Babylonian Sixties.

While we are lost in admiration before the stone tapestry of the palaces of Nineveh, and surprised at the ingenuity of a Moush, Lassen, Rawlinson, Hincks, Norris and Oppert, who had discovered in these cuneiform inscriptions the real language of Sennacherib and Darius, we are not aware that, to a certain extent, we are all still Babylonians, and that we carry about with us and read every day what is, to all intents and purposes, a Babylonian inscription, namely, the dial-plate of our watches. Why is our hour divided into sixty minutes, each minute into sixty seconds, and so forth? For the same reason, it would appear, for which the Greek talent was divided into sixty minæ, originally each mina into sixty shekels—a Babylonian word, literally translated by the Greek *stater*. It was in Babylonia—and at first in Babylonia only—where, in addition to the decimal notation, there existed for all practical purposes a sexagesimal system. Why the number sixty was fixed upon instead of ten, or twelve, or twenty or a hundred, it is not difficult to see, for no number has so many divisors as sixty. What is important is this, that while even the French, when revolutionising weights, measures, coins, dates and everything, rejected our clocks and watches, the Babylonians, those cautious conservatives of the East, carried their sexagesimal system right through everything, not excepting the high-roads

on earth or the high-roads in heaven, but dividing the sun's passage into 24 parasangs or 720 stadia, and subdividing each hour into 60 minutes, each minute into 60 seconds. Hipparchus, the great Greek astronomer, about 150 B.C., availing himself of the observations of Babylonian astronomers, introduced the hour, with its 60 minutes and 3,600 seconds, into Greece. Ptolemy about 150 A.D. adopted and thus gave still wider currency to the same system. With Ptolemy's work it was carried down the stream of traditional knowledge through the Middle Ages to the cataract of the French Revolution, and after passing safe and sound through that fearful crisis, it will probably be the last remnant of Babylonian antiquity hereafter to be swept away by the decimal system which, revolutionary as it may seem, is nevertheless the most rational, the most natural and the most ancient numerical system of the world. It was known from Greek astronomers that the Babylonians divided the circle into 360 degrees, and the degree into 60 minutes. It was also known, from the fragments of the Babylonian history of Berosus, that their political and mythological chronology was based on a sexagesimal system. They counted by *sossi* and *sari*, the *sossos* representing 60, the *saros* 60 × 60, or 3,600 years. The *neros*, which is mentioned by Berosus as consisting of 10 × 60 or 600 years, might well have been dispensed with, at least for arithmetical purposes, for whenever there are two figures in the row of *sossi*, the former would necessarily represent the so-called *neri*. According to this system Berosus says that the Babylonians counted 120 *sari* from the creation of the world to the Deluge—i.e. 120 × 60 × 60, i.e. 432,000 years. This is an important period in the historical traditions, or rather in the astronomical and chronological fictions, of the ancient world, and it was adopted, for instance, as the duration of the Kaliyuga by the Hindus, who, like the Greeks, became in later times the pupils of the Babylonians.

Sculpture and Painting.

The art of sculpture is a much fairer and more impartial representer of beauty of form than that of painting; for, as it exhibits form only, it can employ no tricks of light and shade to give preternatural distinctness to one part, or preternatural obscurity to another; and, as its imitations are complete as far as they extend, it can leave nothing to the imagination, nor employ any of that loose and sketchy brilliancy of execution by which painting gives an artificial appearance of lightness to forms which, in nature, always appear heavy. The forms, therefore, both of the human figure and countenance, which are peculiarly appropriate to sculpture, require exact symmetry in limb and body, muscles and joints strongly indicated, regular and distinct features, full lips, prominent brows and curly elastic hair, more accurately divided into masses than it ever is by the unassisted hand of nature. Even the most regular arrangement of it into locks and ringlets has been employed, by the great sculptors of antiquity, with the happiest effect, which it never could be in painting. This character, though very different from any that is commonly esteemed beautiful, has, nevertheless, peculiar beauties for eyes conversant with the fine productions of ancient sculpture; whence we may reasonably infer that, had this art been as generally and familiarly understood, and as universally practised, as that of painting, we should probably have heard of a sculpturesque as well as a picturesque, since the one exists in nature just as much as the other. But the imitations of sculpture being less mannered and more confined than those of painting, its process more slow and laborious, and its materials either costly, ponderous, or cumbersome, the taste for it has never been sufficiently diffused among the mass of mankind to give rise to a familiar metaphor.

Remains in Herefordshire.

Herefordshire is a region which has its own very great merits, but in Celtic and other primeval relics it is certainly not rich. And it is singular, especially considering the contrast with the neighbouring county of Monmouth, how poor Herefordshire is in castles. Most of the Herefordshire castles are to be traced in little more than their mounds and a few shapeless ruins. This is as much as is left of Richard's Castle, in the north-east corner of the county, the earliest Norman castle built in England, and whose building helped in 1051 to set all England in a blaze. Nor does the county seem rich in Domestic architecture. The truth is that Herefordshire is one of the timber-building counties, and therefore cannot, in the nature of things, compete in the matter of ancient houses with stone districts like Northamptonshire and Somersetshire. But in this particular department of Domestic architecture Herefordshire contains one precious treasure, though its existence has become almost a matter to be taken on trust. The Bishop's Palace at Hereford consists mainly of a great timber hall of the end of the twelfth century, though so altered by modern casings and divisions as to be pretty well invisible. It is built on the same type as halls like Winchester, Oakham or Westminster itself before the changes of Richard II. That is to say, it is divided by pillars and arches, only of wood and not of stone. But unlike many other buildings which are thus divided

by timberwork, the Hereford pillars and arches are stonework reproduced in timber, and present good examples of the characteristic details of the date and district.



Chipping Wycombe Municipal Buildings Competition.

SIR,—Why do architects enter for such a competition?

Why do corporations, boroughs, town councils, &c., offer such stupid conditions?

And, lastly, why, oh why! does not our respectable Institute institute some safeguard for us poor weak-minded, irresponsible architects?—Your obedient servant, ONE OF THEM.

The Colney Hatch Fire.

SIR,—The fire which took place at Colney Hatch during this week, and the terrible loss of life involved, should surely be a warning once more as to the inadequate means taken by the profession which your journal represents for the prevention of fire. We constantly see fires breaking out in various parts of the country, which are only stopped by the assistance of our brave firemen; but still architects and building owners go on erecting large blocks of buildings, and no adequate means are taken to insure the use of fireproof materials throughout. Surely an Act should be passed by the legislature to insist that in every building, whether public or private, all floors and partitions should be of a fireproof material. I hold no brief for any particular system; there are many excellent ones, and the time has surely come when they should be universally used. We have made great strides in the matter of sanitation; surely it is time we paid more attention to the question of fire prevention. Apologising for encroaching on your space, but pleading the importance of the subject as my excuse,—I am, &c.,

A COUNTRY PARSON.

SIR,—Surely the Colney Hatch disaster will sufficiently stir up public opinion, and impress upon those in authority the great danger of building these hospital annexes and temporary structures in such a flimsy way, especially as fireproof materials can now be obtained eminently suitable for such structures. Can you inform your readers of the address of the makers of such materials, and say where buildings can be seen? It is a matter of national importance.—Yours, &c.,

PRO BONO PUBLICO.

[In our advertisement pages week by week many excellent systems will be found, as, for example, the back page this week.—ED.]

GENERAL.

The Home Office has this week informed the hon. secretary, Mr. Maurice B. Adams, that the King has graciously consented to the continued use of the term "Royal" in the name of the Royal Architectural Museum after its transfer to the Architectural Association. The original consent to use this style was granted by the late Queen in 1869, through the influence of the late Right Hon. A. J. B. Beresford Hope, M.P., then president of the museum.

The Liverpool Academy of Arts has elected the following members:—Full members—Messrs. J. C. Balmer, R. G. Hinchliffe, Alison Martin and Herbert Royle. Associates—Messrs. S. J. Brown, Alfred R. Martin, G. E. H. Rawlins and G. O. Work; Misses May L. G. Cooksey, Lily Day, Aniza McGeeham and Anna Thompson. The executive for the current year is as follows:—President, Mr. R. E. Morrison; hon. secretary, Mr. J. V. R. Parsons; hon. treasurer, Mr. R. G. Hinchliffe; hon. curator, Mr. J. Y. Dawbarn.

Mr. Cherubino Kirchmayr, who last year was elected a member of the Royal Society of British Artists, died last week.

The Hill of Tara is to be sold by auction in Dublin on February 5.

The Swiss Federal Council has issued the programme of a competition, open to the world, for the erection of a monument at Berne to commemorate the foundation of the Universal Postal Union. Copies of the programme may be had at the General Post Office, St. Martin's-le-Grand.

Mr. T. G. Jackson, R.A., has been requested by the Old Radleyn war memorial committee to submit for their consideration a scheme for a memorial at the east end of the college chapel, in addition to the plans for a canopy over the stalls which had been put before them.

Mr. J. Churton Collins will lecture to the Ruskin Union on Saturday, February 14, at 8.30 P.M., at the Dudley Gallery, Egyptian Hall, Piccadilly, on "Ruskin as an Educational Reformer."

The Chancellor of the Exchequer will, on Tuesday next, open the new Stanley Hall, South Northwood. The building has an interest for architects, engineers and men of science for it has been constructed at the expense of Mr. W. Stanley, the inventor of many philosophical and drawing instruments, in order to be presented to the people of the district.

An Order was made on Wednesday that the dispute between Sir Charles Wyndham and Messrs. Kirk & Rann should be referred to an architect and surveyor to be agreed on, or, in default, one to be nominated by the Court.

The British Archaeological Association recently passed a resolution stating that they hear with deep regret of the proposed demolition of All Hallows, Lombard Street. They add: "The richness of the carved woodwork and the subordination of ornament to structural needs render it specially worthy of preservation in the estimation of all who value the products of the master-mind of its architect, and desire to retain the remaining links between past and present times."

The Frinton Urban District Council have decided to promote a Bill in Parliament to enable them to carry out a comprehensive scheme of sea defence work at a cost of 20,000/. The sea has been encroaching on land in this part of Essex at the rate of nine feet a year.

The London County Council have granted an application from the Battersea Borough Council for a loan of 15,000/ for the erection of working-class dwellings on the Latchford allotments. The estimated cost of the scheme was 105,600/ and the present advance was asked for in order that the building might be proceeded with.

Dame Mary Anne Amcotts Ingilby has bequeathed to the National Gallery the portrait by Sir Godfrey Kneller of her great-grandmother, Mrs. Clarke.

Mr. Lorimer, the Scottish painter, and Mr. Goscor John, the sculptor, have been elected corresponding members of the French Académie des Beaux-Arts.

The Royal School of Art Needlework will shortly be removed to the new building at the corner of Imperial Institute and Exhibition roads, the funds for which have been collected by its founder, Princess Christian.

M. Jusserand, the new Ambassador from France to Washington, will bring with him some pieces of Gobelin tapestry for the decoration of the Embassy. Among them will be panels representing Summer and Autumn, which were designed by Audran.

The New Gaiety Theatre in the Strand is not likely to be opened before September owing to the demands imposed on the London County Council.

Mr. A. P. Trotter has reported to the Board of Trade the fatal accidents in the Fulham Baths, and it is expected that the report will soon be published.

The Twenty-first Congress and Exhibition of the Sanitary Institute will be held at Bradford, commencing July 7.

The Bishop of Liverpool stated at the annual meeting of the Diocesan Church Building Society that they required at least twenty new churches at present or in the near future, each with a vicarage and a parochial hall. Reckoning that each church would cost 15,000/., they had before them the prospect of raising 300,000/.

The Proposal submitted by the Architectural Association of Ireland that a qualifying examination should be required for admission into the Irish Institute of Architects has been referred to the Royal Institute of British Architects.

A Special General Meeting of the Liverpool Architectural Society will be held at 13 Harrington Street, Liverpool, on Monday next, February 2, at 6 P.M., and the fifth ordinary meeting will be held at the conclusion of the special general meeting, when a paper will be read by Mr. James Smithies on "Decorated Metalwork."

A Meeting of the Northern Architectural Association will be held at 36 Northumberland Street, Newcastle-on-Tyne, at 7.30 P.M., on Wednesday next, February 4, when Mr. A. Greenwell, F.G.S., A.M.I.C.E., M.S.I., of Westminster, will lecture on "Bitumen: its Application in Architecture and Engineering," with lantern illustrations.

At next Tuesday's meeting of the Institution of Civil Engineers, there will be a discussion on the papers, "The Nile Reservoir, Assouan," by Maurice Fitzmaurice, C.B., B.A.I., M.Inst.C.E.; and on the "Sluices and Lock-Gate at the Nile Reservoir, Assouan," by Frederick Wilfrid Stokes, M.Inst.C.E.

The Agent-General for the Cape of Good Hope, 100 Victoria Street, S.W., has been instructed to notify competitors regarding new Cape University Buildings that the time for sending in their plans, &c., has been extended to the last day of February next.





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The Architect, Jan 30th 1903.





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CATHEDRAL SERIES, No. 430.—WORCESTER: THE NAVE.

THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 15,000*l.* Premiums of 60*l.*, 25*l.* and 15*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Parrett. Mr. W. T. Baker, town clerk, King Square, Bridgewater.

BRISTOL.—Feb. 9.—The Bristol School Board invite designs for school premises at Moorfields, St. George, Bristol. The competition will be restricted to Bristol architects. Mr. W. Avery Adams, clerk to the School Board, Guildhall.

CASTLEFORD, YORKS.—Mar. 31.—Designs are invited for a free library. Premiums 15*l.* and 10*l.* respectively. Mr. H. I. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—March 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60*l.* and 30*l.* are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—Mar. 31.—Designs in competition are invited for the extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100*l.*, 50*l.* and 25*l.* will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

SUTTON COLDFIELD.—Feb. 20.—Designs are invited for the erection of a town hall adjoining the council house, the total expenditure to be limited to 7,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* respectively will be awarded for the three best designs in order of merit. Mr. W. A. Clarry, C.E., borough surveyor, Council House, Sutton Coldfield.

CONTRACTS OPEN.

BARNESLEY.—Feb. 2.—For erection of stone boundary fence wall with piers, adjoining the Barnesley Cemetery. Mr. J. Henry Taylor, borough surveyor, Manor House, Barnesley.

BARNESLEY.—Feb. 3.—For erection of seven dwelling-houses and outworks in Grafton Street, Barnesley. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnesley.

BIGGLESWADE.—Feb. 16.—For erection of a boys' National school at Biggleswade. Messrs. Townsend & Fordham, architects, Cross Street, Peterborough.

BIRKENHEAD.—Feb. 2.—For erection of iron fire-escapes and alteration to the offices at the union workhouse, Birkenhead. Mr. Edmund Kirby, architect, 5 Cook Street, Liverpool.

BIRKBY.—Feb. 3.—For erection of house, St. John's Road, Birkby. Mr. James H. Hall, architect, Milton Place, Fartown.

BISHOP AUCKLAND.—Feb. 14.—For erection of a laundry and laundry-maids' house at Raby Castle. Mr. F. H. Livesay, architect, 107 Newgate Street, Bishop Auckland.

BLACKBURN.—For the reconstruction of the children's ward at the Blackburn and East Lancashire Infirmary. Messrs. Simpson & Duckworth, architects, Richmond Chambers, Blackburn.

BLACKPOOL.—For the reconstruction of the Abingdon Street Baptist church, Blackpool. Messrs. Oldrieve & Hindle, architects, 11 Bridge Street, Manchester.

BROMLEY.—Feb. 2.—For erection of two shops, High Street. Messrs. F. & W. Stocker, architects, 90 and 91 Queen Street, E.C.

CHELMSFORD.—Feb. 7.—For erection of a building in connection with the isolation hospital, Baddow Road. Mr. Arthur S. Duffield, clerk, 96 High Street, Chelmsford.

CHISWICK.—Feb. 11.—For erection of a school for girls and infants. Mr. George Saunders, architect, 111 King Street, Hammersmith.

COLNE.—Feb. 14.—For alterations and extensions to tanks, detritus chambers and roads at Swinden sewage farm. Mr. T. H. Hartley, borough surveyor, Town Hall, Colne.

DARLINGTON.—Feb. 2.—For erection of infants' school and alterations to the old school buildings at Brunswick Street, Darlington. Messrs. Clark & Moscrop, architects, Feethams, Darlington.

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DARLINGTON.—Feb. 3.—For enlarging the electric-power station. Mr. Hy. G. Steavenson, town clerk, Town Hall, Darlington.

DENBY DALE.—Feb. 5.—For erection of the Victoria Memorial Hall and Sunday schools, Denby Dale, Yorks. Mr. G. Moxon, architect, Central Chambers, 26 Church Street, Barnsley.

DERBY.—Feb. 3.—For erection of boys, girls and infants' schools, teachers' residences, fence, walls and conveniences at New Heath, in the county of Derby. Messrs. Rollinson & Son, architects, 13 Corporation Street, Chesterfield.

DEVONPORT.—Feb. 3.—For additions and alterations to the Stoke Board school. Messrs. Hine & Odgers, architects, Lockyer Street, Plymouth.

EAST DULWICH.—Feb. 4.—For erection of eighty-five houses upon the Grove Vale Estate. Mr. William Oxtoby, borough engineer.

HALIFAX.—Feb. 5.—For conversion of Clare Hall into two residences. Messrs. Richard Horsfall & Son, architects, &c., 22A Commercial Street, Halifax.

HALIFAX.—Feb. 11.—For erection of works at Kingston, Hopwood Lane, Halifax, for Messrs. John Whittaker & Sons, comprising bakeries, store and packing-rooms, offices, stabling for eight horses, van shed, joiners' shop, loading-sheds, engine and boiler-house, chimney and appurtenances. Messrs. Geo. Buckley & Son, architects, Tower Chambers, Halifax.

HAMPTON.—For erection of a detached dwelling-house and pair of houses on the Manor Park Estate, Hampton, Middlesex. Mr. Fredk. G. Hughes, architect, Estate Office, Hampton-on-Thames.

HANDSWORTH.—Feb. 4.—For additions and alterations to the Birchfield branch library, Handsworth, Staffs. Particulars may be obtained on application to the Surveyor, Council House, Handsworth.

HARROW.—Feb. 10.—For erection of a classroom, &c., at the infants' school at Alperton, Harrow. Messrs. Houston & Houston, architects, 1 Long Acre, W.C.

HAWORTH.—Feb. 5.—For erection of a church Sunday school at Haworth, Yorks. Mr. Thomas W. Bottomley, architect, 16 Prince Street, Haworth.

HINDLEY.—Feb. 2.—For erection of public offices in Wigan Road, Hindley, Lancs. Messrs. Heaton, Ralph & Heaton, architects, Wigan.

HUDDERSFIELD.—Feb. 6.—For erection of a dwelling-house and stabling, &c., in Albert Street, Lockwood. Messrs. J. B. Abbey & Son, architects, 34A New Street, Huddersfield.

HUDDERSFIELD.—Feb. 12.—For alterations and additions to Ravensdeane, Edgerton. Messrs. John Kirk & Sons, architects, Huddersfield.

HULL.—Feb. 4.—For erection of a workshop in the goods yard of the Hull and Barnsley railway at Sculcoates. Mr. T. B. Simpson, architect, Custom House Buildings, Hull.

HULL.—For erection of two villas, Beverley Road, Hull. Messrs. Freeman, Son & Gaskell, architects, 11 Carr Lane, Hull.

ILFORD.—Feb. 9.—For erection of a boys and girls' school for 960 children and an infants' school for 480 children, with latrines, playsheds, fencing and schoolkeeper's house, &c., on the Highlands site, Cranbrook Park, Ilford. Mr. C. J. Dawson, architect, 7 Bank Buildings, High Street, Ilford.

ISLE OF WIGHT.—Feb. 6.—For erection of new coastguard buildings at the Needles, Isle of Wight, consisting of houses for four men, watch-room, outbuildings, &c. Specifications, &c., can be seen at the Director of Works Office, at the Alum Bay coastguard station, or at the office of the Superintending Engineer, Portsmouth Dockyard.

KEIGHLEY.—Feb. 2.—For alterations at the slipper baths in Albert Street. Mr. W. H. Hopkinson, borough engineer, Town Hall.

LANCASTER.—Feb. 2.—For erection of business premises in North Road, Lancaster. Messrs. Austin & Paley, architects, Lancaster.

LEICESTER.—Feb. 2.—For erection of temporary corrugated iron sheds, with concrete floors, &c., in the Abbey Park Road. Mr. E. George Mawbey, engineer, Town Hall, Leicester.

LEICESTER.—Feb. 3.—For supply of 1,000,000 Jarrah or Karri wood-paving blocks. Mr. E. George Mawbey, borough surveyor, Town Hall, Leicester.

LEICESTER.—Feb. 13.—For erection of generating station, stores, offices and other buildings, for the tramways committee. Mr. E. George Mawbey, engineer, Town Hall, Leicester.

LISCARD.—Feb. 19.—For erection of a chimney and main flue at the electric supply works, Seaview Road, Liscard, Cheshire. Mr. J. H. Crowther, engineer, Great Float, near Birkenhead.

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LONDON.—Feb. 10.—For repairs and decorations at 834 Old Kent Road, and drainage works at 844 Old Kent Road Mr. T. H. Cole, surveyor, 858 Old Kent Road, S.E.

MORLEY.—For additions to bakery, Mitchell Street, Morley, Yorks. Messrs. R. Castle & Son, architects, London City and Midland Bank Chambers, Cleckheaton.

MORPETH.—Feb. 16.—For work in connection with the new cattle market, comprising the erection of offices, iron-bar division fences, cement concreting, forming entrance to market, gates and fencing, &c.; also for the formation and paving of roads from Oldgate Street to the market. Mr. F. Brumell, town clerk, Town Hall, Morpeth.

NEWCASTLE-ON-TYNE.—Feb. 4.—For erection of the masonry of a new bridge at North Farm Ford, Long Benton. Mr. John Waters, district surveyor, Long Benton.

NEW HEATH.—Feb. 3.—For erection of boys, girls and infants' schools, teachers' residences, fence walls and conveniences. Messrs. Rollinson & Son, architects, 13 Corporation Street, Chesterfield.

NEWSHAM.—Feb. 3.—For erection of a workmen's club at Warwick Street, Newsham, Northumberland. Mr. John Goulding, architect, Blyth.

NEWTON ABBOT.—Feb. 10.—For erection of casual wards &c., at the workhouse. Mr. S. Segar, architect, Union Street, Newton Abbot.

OVDEN.—Feb. 4.—For erection of ten dwelling-houses at Friendly, Ovenden, Yorks. Mr. Medley Hall, architect, 29 Northgate, Halifax.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

ROTHERHITHE.—Feb. 5.—For repairs to the floor, &c., of the kitchen at the infirmary, Lower Road, Rotherhithe. Messrs. Newman & Newman, architects, 31 Tooley Street.

ST. GERMANS.—Feb. 2.—For erection of a Sunday school, organ chamber, &c., at the Wesleyan chapel, St. Germans, Cornwall. Mr. J. Sansom, architect, Greenbank Lane, Liskeard.

SCOTLAND.—Feb. 4.—For enlargement of Leith Walk school, Edinburgh. Mr. Carfrae, architect, 3 Queen Street, Edinburgh.

SCOTLAND.—Feb. 6.—For erection of a new coastguard boathouse and alterations to existing slipway at Stornoway, in

the Island of Lewis, Scotland. Particulars will be supplied on application to the Director of Works Department, Admiralty.

SEELY OAK.—Feb. 2.—For construction and fixing of woodwork fittings for the general stores and receiving wards at the workhouse, King's Norton, Birmingham. Mr. Edwin Docker, clerk to Guardians, 10 Newhall Street, Birmingham.

TIPTON.—Feb. 5.—For erection of a block of schools at Park Lane, Tipton. Mr. Alfred Long, architect, 21 New Street, West Bromwich.

WALES.—For erection of the Blaenavon hotel and the rebuilding of the Railway inn, Ton Mawr, near Neath. Messrs. James & Upham, architects, 48 Quay Street, Cardiff.

WALES.—Feb. 4.—For erection of a vestry at Pricetown, Nantymoel. Mr. H. B. Davies, 12 Commercial Street, Nantymoel.

WALES.—Feb. 6.—For erection of a police and fire-brigade station in Pleasant Street and Orchard Street, Swansea. Mr. Jno. Thomas, town clerk, Guildhall, Swansea.

WALES.—Feb. 7.—For erection of a colliery manager's house and out-offices at Reynolton, Pembrokeshire. Mr. J. Preece James, architect and sanitary engineer, Tenby.

WALES.—Feb. 7.—For erection of a police-station and court-house at Caergwile, Flintshire. Messrs. John H. Davies & Sons, architects, 14 Newgate Street, Chester.

WALES.—Feb. 7.—For erection of twenty houses at Cefn Cribbwr, near Bridgend. Messrs. J. & F. J. Hurley, architects, 10 Bridgend Road, Tondur.

WALES.—Feb. 11.—For erection of a schoolroom in Pottery Row, Merthyr. Mr. T. Roderick, architect, 50 Glebeland Street, Merthyr.

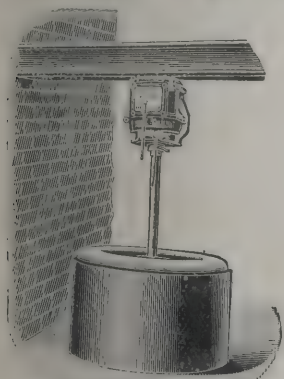
WALES.—Feb. 12.—For erection of an infants' school and additions and alterations to the existing boys and infants' departments of Barry school, in High Street, Barry. Mr. George Thomas, Queen's Chambers, Cardiff.

WALES.—Feb. 14.—For erection of sixty houses on the Nantffyllon estate, Maesteg. Mr. W. W. Paddison, architect, Llwyni Offices, Maesteg.

WALSALL.—Feb. 9.—For erection of a school to accommodate 1,000 children, and a cookery centre and caretaker's house at the Chuckery, Walsall. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WEST HARTLEPOOL.—Feb. 4.—For alterations to pavilions at the workhouse. Mr. John J. Wilson, architect, West Hartlepool.

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R. & G. BROWN, Amble (*accepted*) . . . £261 17 10

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For erection of shops and extension of premises, Manningham Lane. Messrs. MORLEY & SON, architects, 269 Swan Arcade, Bradford.
W. FARNISH, 26 Northfield Place, Manningham, Bradford (*accepted*).

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For erection of three dwelling-houses, fence walls, &c., at Dewsbury Moor. Mr. HENRY STEAD, architect, Heckmondwike.
Accepted tenders.

B. Blackburn, Heckmondwike, mason and bricklayer.
J. Richardson & Sons, Dewsbury, joiner.
J. Gledhill, Heckmondwike, plumber and glazier.
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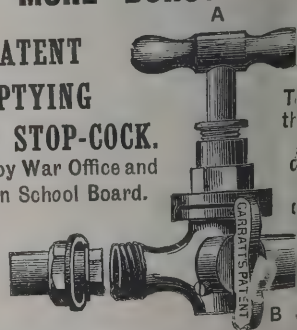
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Hamilton & Titterton 4,400 0 0

J. Hemmingway 4,178 0 0

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J. Hearne 3,803 2 1

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For the extension of the main sewerage system to the Williams-town district at Youghal. Mr. W. H. HILL, jun., engineer, 28 South Mall, Cork.

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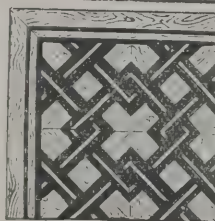
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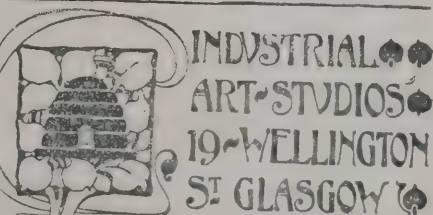
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A. Fasey & Son	3,981	8	11
W. Gradwell & Co.	3,602	2	0
E. R. LESTER, Plymouth (accepted)	3,500	0	0

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For sewerage works for the Blyth and Cowpen Urban District Councils. Mr. ROBERT GRIEVES, surveyor.

Glen & Moffitt	£847	11	4
G. Thornton	844	3	0
J. Thompson	775	4	0
J. Coxon & Co.	757	15	3
J. Hollins	739	18	8
J. McLaren & Sons	739	4	6
S. Miller	727	19	6
McLaren & Co.	711	13	3
J. Robson	692	18	0
D. D. Hall	684	6	0
G. E. SIMPSON, Newcastle-on-Tyne (accepted)	634	15	9
J. McLaren	625	5	0
J. Spark	515	6	6

NORTHAM.

For erection of a wall in masonry along the widened portion of Silford Rayleigh Road, Northam, Devon. Mr. W. H. THORNTON, resident engineer.

R. MOULTON, Northam (accepted), 4s 9d. per perch run.

POPLAR.

For making-up the carriageway and kerbing and paving the footways of Beach Road, Bow.

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G. J. ANDREWS, Poplar (accepted)	830	0	0

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For street works in Ashworth Road and Grantully Road. Mr. E. B. B. NEWTON, borough surveyor.

Ashworth Road.

J. Meston	£694	13	0
Lawrence & Thacker	632	0	10
W. Pearce	606	13	6
B. Nowell & Co.	598	11	3
E. Parry & Co.	593	14	0
W. Neave & Son	585	0	0
J. Mowlem & Co.	578	0	0
T. Adams	575	16	6
D. R. Paterson	536	17	11
R. Ballard	467	0	0
H. BOYER, Terminus Wharf, Paddington (accepted)	399	0	0

Grantully Road.

J. Meston	2,209	7	6
Lawrence & Thacker	1,889	12	8
B. Nowell & Co.	1,805	17	7
W. Pearce	1,772	10	6
W. Neave & Son	1,768	0	0
E. Parry & Co.	1,749	16	0
T. Adams	1,731	15	2
J. Mowlem & Co.	1,728	0	0
D. R. Paterson	1,695	8	0
H. BOYER (accepted)	1,449	0	0
R. Ballard	1,397	0	0

ROCHDALE.

For supply and fixing of new pitch-pine dressing-boxes, concrete flooring, &c., in the first-class swimming-baths, Smith Street. Mr. S. S. PLATT, borough surveyor.

T. CRABTREE, Sheriff Street (accepted).

For sewerage works in Bury Road, Marland, through private lands, and Kingsland Road to Manchester Road, in the Castleton Moor district. Mr. S. S. PLATT, borough surveyor.

R. & T. HOWARTH, 150 Royd Street (accepted).

SALE.

For street works in Baxter Road, Oldfield Road, Lynwood Grove, Stanley Grove. Mr. W. HOLT, surveyor.

G. BETHELL & SONS, Oldfield Road, Sale (accepted).

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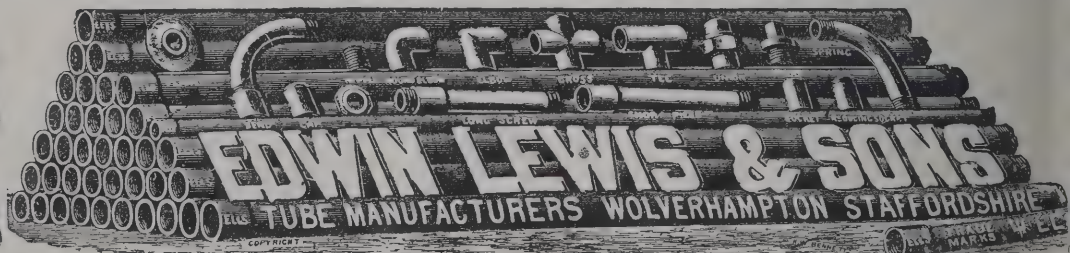
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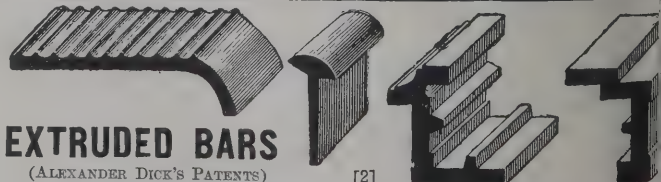
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[2]

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SCOTLAND.

For construction of a fireclay pipe sewer in Balgreen Road, Edinburgh.		
W. Beattie & Son	£542	15 0
J. Cowie & Son	498	0 0
Henderson & Duncan	468	6 2
T. Davidson	440	11 6
Ludham Bros.	408	2 10
R. Wallace	374	4 7
D. Stratton	370	0 0
P. & J. Gilhooly	360	0 0
J. Mantin	341	9 7
L. Kelly	337	10 7
W. Morris	333	10 0
A. WADDELL & SON (accepted)	293	9 3

SEVENOAKS.

For erection of a residence in Hitchen Hatch Lane. Mr. W. A. FINCH, architect, 76 Finsbury Pavement, E.C.		
Patman & Fotheringham	£4,200	0 0
BARRETT & POWER (accepted)	3,875	0 0
T. L. Fearon (withdrawn)	3,438	0 0

SOUTHWARK.

For heating and ventilation of the town hall and the new extension, Walworth Road, S.E. Mr. A. HARRISON, borough engineer.		
Tamplin & Makovski, Ltd.	£1,382	0 0
Vaughan & Brown, Ltd.	1,153	0 0
Z. D. Berry & Sons	1,082	0 0
J. Stott & Sons	985	0 0
Musgrave & Co.	800	0 0
Werner, Pfeleiderer & Perkins, Ltd.	749	0 0
Dargue, Griffiths & Co.	745	0 0
W. E. Bone	620	0 0
R. Dawson & Co.	480	0 0

SWANSEA.

For supply of electric motors and starting switches for twelve months.

Accepted tenders.

Bruce Peebles & Co., Edinburgh, small motors.
Keighley Electric Engineering Co., Vulcan Works, Keighley, large motors.

SWINDON.

For wiring the town hall for electric light.
STEEL BROS., Cheltenham (accepted) . £256 0 0

TOTTENHAM.

For erection of stables, cart-sheds, workshops, three cottages and general depôt buildings on land facing the Green, Tottenham. Mr. W. H. PRESCOTT, engineer.
ALMOND & SONS, Ponders End (accepted) . £12,448 0 0

UTTOXETER.

For taking-down Creighton bridge, near Uttoxeter, levelling and making-good roadway to same Mr. JOSEPH PRESTON, district surveyor, Woodlands, Uttoxeter.
Nevins & Co. . £360 0 0
J. Mackay . 149 0 0
C. Richardson . 125 0 0
WARD & GODHURE, Uttoxeter (accepted) . 105 0 0

VENTNOR.

For erection of isolation hospital at Undercliffe.
A. SIMS, Ventnor (accepted).

WALES.

For erection of a villa residence on the Llest estate, Llantwit-Fardre. Messrs. THOMAS & CULE, architects, Town Hall Chambers, Pontypridd.
C. H. Cooksley . £1,290 0 0
Morris & Thomas . 1,086 0 0
W. Tucker & Son . 1,053 0 0
PRICE BROS., Cardiff (accepted) . 1,050 0 0

WALSALL.

For supply of two tramway transformers.
PARKER & CO., Ltd. (accepted) . £2,253 0 0

WINDSOR.

For painting the outside of the guildhall.
E. A. Snuggs . £125 15 0
W. Knapp . 92 10 0
F. Greening . 83 0 0
COOPER & SONS, High Street (accepted) . 62 5 0

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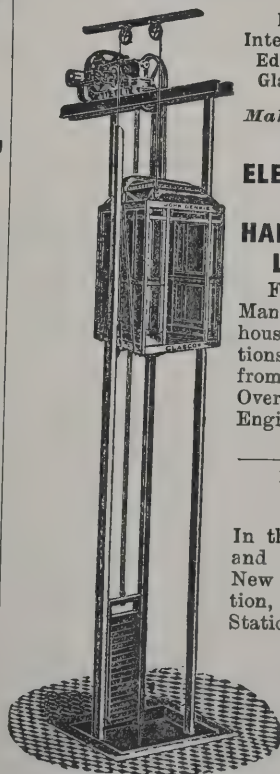
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Houses, Glasgow,
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LEEDS.

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CONTRACTS OPEN.

ALDERSHOT.—For making-up a portion of Alfred Street and the Broadway next the Warren, West End. Mr. W. E. Forster, clerk to the Urban District Council.

LEEDS.—Feb. 3.—For formation of new streets upon the Ivy House estate, York Road, Leeds. Mr. John W. Fawcett, 10 Albion Street, Leeds.

PORTSLADE-BY-SEA.—Feb. 3.—For sewerage, paving, kerbing and channelling of certain streets within the district. Mr. Thomas Austen, clerk, Council Offices, Portslade-by-Sea.

SOUTHAMPTON.—Feb. 12.—For supply and delivery of a new 25 nominal horse-power portable engine and boiler. Mr. W. Matthews, M.I.C.E., waterworks engineer, 18-19 French Street.

WALES.—Feb. 9.—For lighting the new portion of the Swansea workhouse building from the Corporation electricity mains. Mr. Llew. Jenkins, clerk, Union Offices, Alexandra Road, Swansea.

WHARFEDALE.—Feb. 13.—For construction of a storage reservoir in the parish of Menston, for the Menston Waterworks. Mr. E. J. Silcock, engineer, 10 Park Row, Leeds.

YORK.—Feb. 12.—For construction of a bridge and approaches at North Lane, York, for the N.-E. Railway Company. Mr. C. N. Wilkinson, secretary, York.

YORK.—Feb. 16.—For sewerage, levelling, paving, metal-ling, channelling, &c., of all private streets required to be made up within the city of York during a period of twelve months. Mr. A. Creer, city engineer and surveyor, Guildhall, York.

ELECTRIC NOTES.

At a meeting of the electric-lighting and power committee of the Liverpool Corporation it was announced that Mr. Arthur Bromley Holmes, city electrical engineer, had resigned his position owing to considerations of health. The salary attaching to the post was 1,800*l.* a year. Mr. Holmes was recommended to be appointed consultant electrical engineer from March 1 next at a salary of 1,000*l.* a year, and the committee further recommended the appointment of Mr. A. Clough,

deputy electrical engineer, whose salary is now 700*l.* per annum, as resident engineer at a salary of 800*l.*

At the quarterly meeting of the visitors to the Bracebridge lunatic asylum on the 22nd inst. the chief subject dealt with had reference to the proposed installation of the electric light. At the last meeting the visitors considered the matter from several standpoints, and finally referred it to the building and sanitary committee to advise as to the expediency or otherwise of adopting electric light and power for the whole or part of the asylum, and to report as to its comparative cost as distinguished from gas or any other form of light. Being empowered to obtain expert assistance, the committee retained Mr. C. S. Vesey Brown as consulting electrical engineer at a fee of 28*l.* 10*s.*, and they now recommended the visitors to provide an electric installation for light and power purposes, both for the existing asylum buildings and those in course of construction, at a cost estimated at 4,500*l.* The committee's recommendation was unanimously agreed to, and instructions given for specifications to be prepared and tenders obtained.

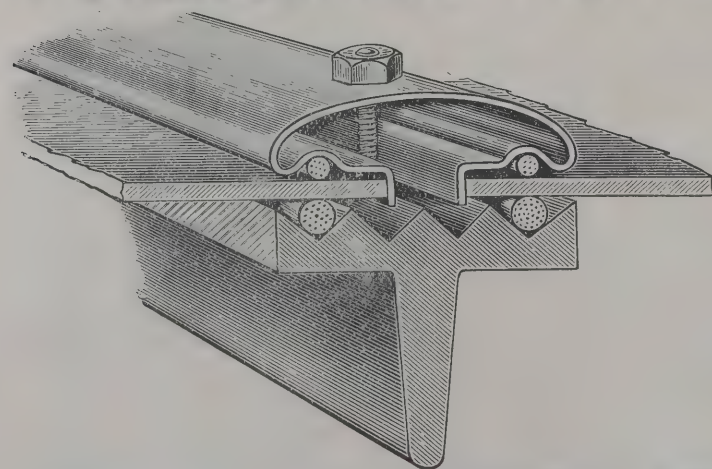
The Bill of the great Ulster electrical scheme has now been drafted, and it appears that the intentions of the promoters are to generate and supply electric current for motive and lighting purposes over a wide area in the counties of Antrim, Armagh and Down, and in the city of Belfast. Large central stations are to be erected in Ballymena, Belfast and Newry, and power is to be manufactured in such quantities, and at such a price, that it is hoped the several local authorities, railway companies, tramway concerns and other large users of electricity will find it to their interest to purchase from the new concern. The greater part of the capital, 1,200,000*l.*, will be subscribed by a syndicate of London gentlemen, practically identical with that which has just carried out a similar scheme in South Wales, and on their behalf it is stated that there is no intention to enter into competition with local authorities already supplying electricity. The project, the first of its kind in Ireland, is calculated to confer great benefits upon power users in the country districts of Ulster, where coal is high priced and steam generation consequently often prohibitive. The many linen mills of the district, for instance, hope to inaugurate a new era of prosperity when the cost of driving the looms is reduced; and a considerable extension of electric tramways and light railways is looked for when the generating plant is in working order. The local authorities are, however, regarding the scheme critically. Newry has already decided to oppose

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For Index of Advertisers, see page x.

the Bill in Parliament on the ground that the land sought to be acquired for a generating station may at some future time be required for harbour extensions. It is believed that the County Down railway company will also appear against the measure, and the attitude of Belfast City Council and the Belfast and Northern Counties railway company has not yet been determined.

VARIETIES.

AT the Bethnal Green workhouse there will shortly be erected new dormitories and maternity wards. Mr. Finch, of 76 Finsbury Pavement, London, is the architect.

THE vane of the Dornoch Cathedral steeple, which was seriously damaged by the storm about a month ago, was, during the gale of Sunday night, completely blown down. It is only two years since the vane underwent a complete repair, including the regilding of the weathercock.

As a result of the recent open competition for public free library and technical school at Chadderton, Mr. Arthur R. Groome, A.R.I.B.A., and Mr. J. Lindsay Grant, Manchester, were awarded first premium; Messrs. Woodhouse & Willoughby, Manchester, the second; and the third went to Mr. Richard Holt, Liverpool. The assessor was Mr. A. N. Bramley, F.R.I.B.A., Nottingham.

THE eleventh International Congress of Hygiene and Demography will be held in Brussels from September 2 to September 8, 1903, under the patronage of His Majesty the King of the Belgians. The Secretary-General of the Congress is Professor Dr. F. Putzeys. All information and programmes can be obtained from Dr. Paul F. Moline, 42 Walton Street, Chelsea, S.W., the hon. secretary of the British committee.

THE formal opening took place on the 12th inst. of the new fire station at Rushden. The building is on up-to-date lines, and on the best principles for fire brigade purposes. There is plenty of space for the appliances, and on the east side is a tower for the fire escape. On the west is the caretaker's residence and a hose-drying tower, with an excellent drill and cleaning yard at the rear.

IN order to check further decay, Lord Abinger has decided to carry out certain renovations and repairs to the old castle of Inverlochy, a building which played no inactive part in the history of Lochaber. He also intends cutting down a number

of the trees which now grow so thickly round the ruins, so that the historical structure may be seen to better advantage from the railway.

A REMARKABLE sale is fixed to take place on Wednesday next, when Messrs. Douglas Young & Co. will, within the precincts of Newgate Prison, offer to the highest bidder relics of so gruesome a character that even the most morbid-minded curio hunter is likely to be satisfied. Among the articles to be sold will be the execution sheds, the toll-bell that has sounded the death-knell of many an assassin, the principal entrance door of the prison and the prisoners' interview boxes.

THE Council of the Society of Architects having been asked by the City Churches Preservation Society to express an opinion on the proposed demolition of All Hallows, Lombard Street, has intimated its opinion that, it being understood that by the sale of the site a large sum of money will be available for the provision of churches and clergy in the poorer parts of the Metropolis, the sale of the site is justifiable under these circumstances, more particularly as there should be no difficulty in removing the building and re-erecting it upon some other site, thus preserving the building and its fittings for more extended use and service.

IT is not often a town hall comes under the hammer, but that of the ancient borough of Sutton Coldfield will, in the course of the next week or so, be knocked down to the highest bidder. The town hall was designed by Mr. Geo. Bidlake in 1859, and erected at a cost of 4,400*l.*, part of the expenses being defrayed by the London and North-Western Railway Company, in consideration of their being released from the obligation to make a railway through Sutton to Lichfield. The placing of such an unusual lot in an auctioneer's catalogue is due to the fact that it is not sufficiently commodious for the Corporation, who recently acquired the building which was originally the Royal hotel and subsequently a sanatorium. A new town hall is to be erected on a site adjoining.

THE *Diamond Fields Advertiser* publishes details of the irrigation scheme for the Colesberg district. One hundred and forty thousand acres, fronting the Orange River, have been acquired, and the works will enable 16,000 acres to be cultivated, providing a good living for a thousand settlers and their families. The sum of 22,000*l.* required for the carrying out of the scheme has been furnished by the Rhodes Estate, Messrs. Wernher, Beit & Co., Mr. Abe Bailey and the Agricultural College. Part of the scheme is that after 5 per cent.

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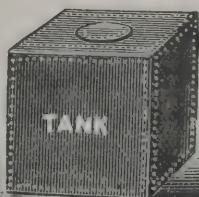
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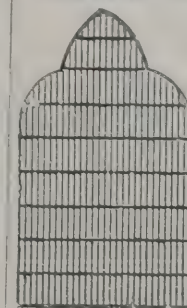
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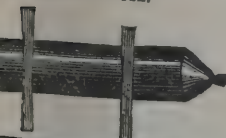
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is paid on the capital the surplus profits shall be devoted to the requirements of the settlers.

A NEW club and institute was opened at Shirebrook, Derby, on the 17th inst. It is built of brick and stone, with tiled roof, is a two-storey building, and contains a billiard-room (which will accommodate two tables), card and bagatelle-rooms, reading, concert and lecture-rooms, refreshment-room and bar, committee-room and caretaker's dwelling-house. At the rear of the main building and adjoining the Great Northern Railway embankment will be constructed a bowling green and skittle-alley. The whole of the building is illuminated by electricity, and the entire cost is estimated at about 2,500l. The institute affords accommodation for upwards of 300 members. The contractors are Messrs. F. H. & J. W. Moore, of Shirebrook, and the architect is Mr. Joseph Perkin, of the same place.

THE Warrington Town Council have agreed "that the municipal non-trading committee be authorised to appoint two chartered accountants to examine the accounts, books, vouchers and documents of the Corporation for the five years ending October 31, 1901, and that he shall have a right to examine any officials, servants or workmen of the Corporation with reference to all trading with the Corporation by members of the Council, either as principals or partners, or through limited companies in which they have been or are shareholders, or whether the trading has been done direct or indirect, or as contractors or sub-contractors during the said five years" There is much agitation in the town on the subject.

THE new Congregational church on Primrose Hill, Kingsthorpe Road, Northampton, was opened on the 22nd inst. It has been built from the designs of Mr. Alexander Anderson, and is entered through a vestibule supported by high stone pillars, and stretching across the front of the chapel above the vestibule is a stone panel carved with eight life-sized figures symbolical of joyful worship. Over it are carved the words, "Approach with joy His courts unto." Over the radiator inside the porch is a brass tablet with the following inscription:—"The church and school were gathered by the patient love of the Rev. Thomas Arnold and members of Doddridge Church, who began their work in Kingsthorpe Road in 1865" At one end of the vestibule is a deacons' vestry, and at the other is a staircase leading to the gallery which stretches along the bottom of the chapel. The total length of the interior is 90 feet, and there is accommodation for 500, the seating consisting of

pitch-pine pews. The chapel is in octagon shape, the dome roof being supported by four angle arches. The electric lighting and heating arrangements are excellent, whilst the acoustic properties of the building were found to answer admirably. The building was erected by Mr. G. W. Souster, and the total cost is about 2,800l, exclusive of the ground, which only cost the chapel 200l, so that the total expenses run up to 3,000l.

BUILDING AND BUILDERS.

THE War Office has determined to erect fortifications for the protection of the town and port of Barrow-in-Furness. A fort will be built on Walney Island, having complete command of the entrance to Barrow and Duddon harbours, and here a garrison of Artillery will be maintained. Some years ago a fort existed at Walney, but it was abandoned. The interests of Barrow have since that time greatly increased, especially from a shipbuilding point of view, and it is deemed that these interests necessitate protection.

A MEETING of the Flesher Incorporation of the seven incorporated trades was held on the 23rd inst. in Trinity Hall, Aberdeen, Deacon Leiper presiding. A full discussion took place over the unanimous report of the sub-committee appointed recently to consider the question of the remodelling of the present slaughter-house buildings in Wales Street. After prolonged consideration it was resolved that the recommendation of the sub-committee be adopted and instructions given to send the plans to the Town Council for approval. The estimated cost of the whole scheme is slightly under 20,000l.

IN response to an advertisement for competitive designs for the new free library at Workington, seventy-three sets were sent in by architects from all parts of the kingdom. These were on view in the Edkin Street Drill Hall last week and attracted considerable attention. The assessor, Mr. Sidney R. Smith, of London, gave his award as follows:—1st premiated design, Messrs. W. A. Mellon & Geo. Wittet, York; 2nd premiated design, Messrs. Spencer W. Grant & Jas. C. Bowden, London; 3rd premiated design, Messrs. Alfred Co. & F. D. Clapham, London; highly commended (1) Messrs. Wills & Anderson, London; (2) Mr. H. A. Crouch, London; (3) Messrs. Hennell & Son, London. The premiums were 25l., 15l. and 10l. respectively.

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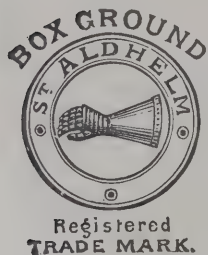
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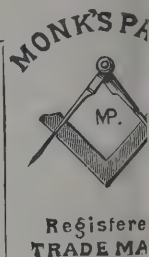
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TOWN HALL, COLCHESTER: SIDE OF GREAT HALL FROM STAGE.

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THE new military hospital now being erected on part of the site of the old Millbank Prison will afford largely increased accommodation for soldier patients, and will be greatly in advance of the Rochester Row Hospital in respect of compliance with modern requirements. It is part of a considerable scheme of building which the War Office have in process of completion at Millbank. Already the new Army Service Corps Barracks, long wanted in London, are occupied, and the hospital, which will afford room for some 200 beds, will soon be finished. The hospital part of the scheme is estimated to cost 100,000*l.* It includes six separate blocks of buildings, carried out in red brick, with string-courses and dressings of sandstone, much after the style of St. Thomas's Hospital, and as in the case of that great institution there is provided suitable covered communication between the component blocks of the hospital. When the Millbank building is completed, the patients in the Rochester Row Hospital will be removed to it, but the latter institution will still be maintained for military patients, for whom in London the accommodation has long been unsatisfactory and insufficient.

BETWEEN 10 and 11 o'clock A.M. on Friday last an accident of a serious nature occurred in Marlborough Street, Dublin, when portion of a scaffolding erected in the grounds of the new training college attached to the offices of National Education gave way, and several men were thrown to the ground. The injured persons were James Neilan, bricklayer, 27 Thomas Street, thirty years; John Ivors, 30 North Anne Street, thirty-five years; John Regan, 30 Upper Tyrone Street, twenty-eight years; and Michael Casey, 23 Sinnott Row, twenty-six years. The four men were conveyed in the Corporation ambulance to Jervis Street hospital, where Dr. Ryan, house surgeon, decided on detaining Neilan and Ivors, who had fallen

a distance of 30 and 20 feet respectively, as the extent of their injuries could not be ascertained without careful examination. Regan and Casey, who had fallen about 14 feet, were not detained, as their injuries were not of a sufficiently serious nature to render such a course necessary.

MR. W. A. DUCAT, Local Government Board inspector, was on the 21st inst. engaged in hearing evidence bearing on the application of the Penrith Urban Council for powers to acquire part of the Whinfall Holme by compulsory purchase from Lord Hothfield. In consequence of the large sum—10,000*l.*—which his lordship was known to have asked for the land required, the proceedings were listened to with keen interest by a large number of townsmen, including most of the members of the Council. Mr T. Shepherd Little, instructed by Messrs. Scott & Allan, Penrith, appeared for the Council, and Mr. Alexander Glen, instructed by Messrs. Dawson, Bennett & Co., London, for Lord Hothfield. Dr. Craven, medical officer, appeared for the West Ward Rural District Council. Mr W. Little and Mr. C. N. Armstrong watched the case on behalf of interested local landowners. After a lengthy discussion, Mr. Glen and Mr Little addressed the inspector, and the inquiry concluded about five o'clock. The inspector visited the various sites during the afternoon.

A MEETING of the committee of management of the Aberdeen Art Gallery was held on the 20th inst., Mr. Murray, Glenburne Park, in the chair. The secretary, Mr. Hugh Macdonald, S.S.C., read the letter from Messrs. Morice & Wilson, advocates, agents for the trustees of the late Mr. John Clark, advocate, in Aberdeen, who resided at Clifton, Bristol, intimating a donation of 7,000*l.* for the purpose of altering and enlarging the Art Gallery, so as to provide a sculpture hall, any surplus and interest, after meeting the necessary expenses, to be devoted to the equipment of the hall. The committee received the intimation with very great pleasure, and in gratefully accepting the munificent offer of Mr. Clark's trustees, resolved at once to take the necessary steps to enable them to comply with the conditions on which the grant is made, and which the committee considered were in themselves most reasonable and proper. Mr. Marshall Mackenzie, A.R.S.A., the architect, submitted plans of the proposed additions, which were considered satisfactory, and the secretary was accordingly instructed to apply to the Governors of Robert Gordon's College for a strip of ground behind the Art Gallery for the necessary extension.

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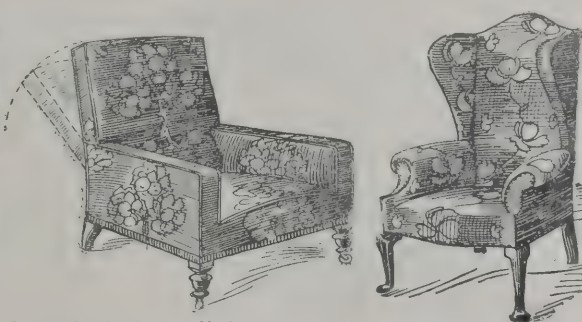
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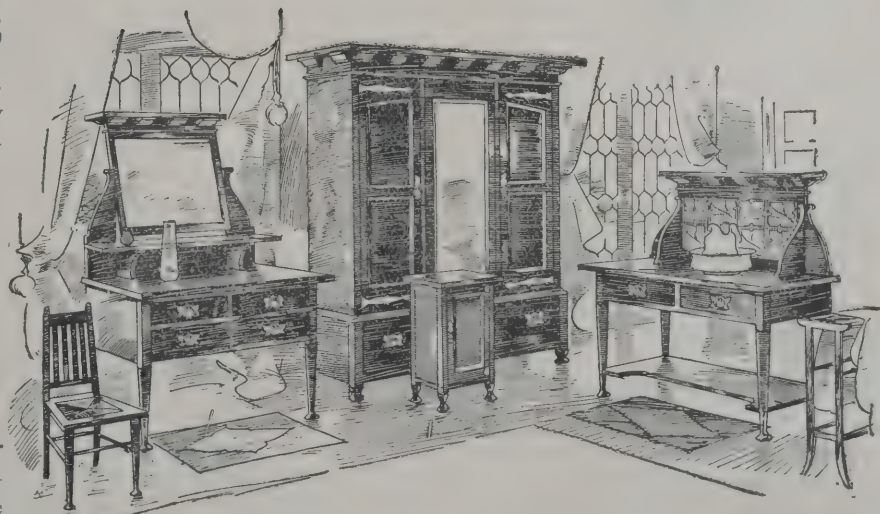
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BEFORE the Glasgow branch of the Incorporated Society of British Decorators, Mr. James Paton, superintendent of the museums and art galleries in the Faculty Hall, St. George's Place, delivered a lecture on "Mosaics in History and Art." Colonel Bennett presided. After defining and describing the various classes of work to which the name of mosaic is given, and limiting his attention to pictorial mosaics made up of small cubes of coloured enamel, Mr. Paton pointed out that mosaic is the most powerful decorative medium which has ever come into the hands of the artist. The practice of mosaic-working is one of high antiquity. It came into extended use at the most interesting stage of human progress, and therefore its history had intimate relation to a subject of the deepest import to mankind—the introduction and the early growth of the Christian religion. Mosaic-working was a costly and difficult art, requiring on the part of its successful practitioner very high artistic and technical skill; but, when composed and properly fixed, a mosaic picture was practically unchangeable and imperishable. The fundamental condition in the employment of a medium so potent was that it be used with moderation, sobriety and reticence, the risk of a mosaic being that it might dazzle more than permanently delight.

TRADE NOTES.

THE Navy League Training Home, Liscard, Cheshire, is being fitted with the latest improved hot-water heating apparatus by Messrs. John King, Ltd, engineers, Liverpool, who have also in hand the ventilation and hot-water supply.

THE new board schools, Trefriw, North Wales, are being warmed and ventilated by means of Shorland's patent Manchester stoves, Manchester grates, exhaust roof ventilators and inlet tubes, by Messrs. E. H. Shorland & Brother, of Manchester.

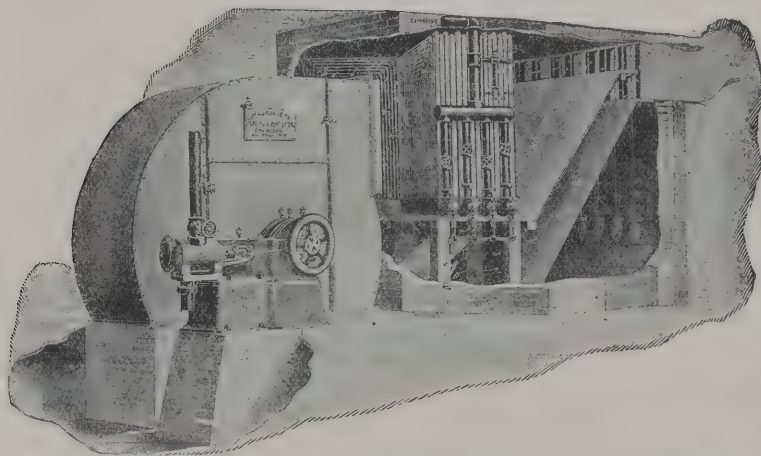
A VERY large clock has been erected in the tower of the new buildings for the Royal Masonic Institutions for Boys, Bushey. It shows time on four dials each 8 feet across, chimes the quarters and strikes the hours. The clock has been made to the designs of Lord Grimthorpe by John Smith & Sons, Midland Clock Works, Derby, who have just received instructions to make a large clock with four dials for the Harbour Trustees' Offices, Swansea.

FORD'S SILICATE OF LIMESTONE PROCESS

IN March of last year we were able to give some particulars of a new system, the invention of Mr. Lewis P. Ford, for the manufacture of an artificial building stone of high quality. During the interval which has elapsed since then various experiments and improvements have been made, the stone has been subjected to tests and analyses by experts, from which has successfully emerged, and it is now ready to be put on the market. In connection with the annual meeting and banquet of the National Federation of Building Trade Employers at the Trocadéro, Mr. Ford has opened in the adjacent premises 28-30 Shaftesbury Avenue, show-rooms where may be seen specimens of the stone in various forms, as slabs, blocks, bricks, carved work, a font, &c., from an examination of which an opinion may be formed of the value of the invention. The only ingredients used are pure silicate sand and a small proportion of lime; specimens of excellent quality are shown made from the tailings of the Johannesburg mines, others from sand from Leighton-Buzzard, Glasgow, Birmingham, &c., and all is found equally suitable. Indeed, it is claimed that wherever sand exists works can be set up and stone and (which is perhaps of more significance) bricks manufactured at the minimum of cost. The many advantages that Mr. Ford maintains his stone possesses include its cheapness, durability, immunity from climatic and atmospheric deterioration, its fine colour and texture and its facility for working. The little exhibition at Shaftesbury Avenue will remain open for a few days longer and Mr. Ford will no doubt be pleased to receive visitors and explain to them the manifold merits of his invention.

RETEMPERING CEMENT MORTAR.

IN the construction of the Manhattan Railway Company power station at Seventy-fourth Street and East River, New York City, during the past two years, about 40,000 barrels of cement were used, all of which was carefully inspected, over 3,500 briquettes being made and broken. In the course of the work several special investigations were made, which are described in a paper by Mr. Thomas S. Clark, resident engineer in charge of construction of the power station, printed



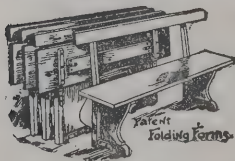
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Cement and Engineering News for October, from which the following paragraphs have been taken:—

It is to be regretted that the practice of retempering Rosendale cement mortar after it has lain in the masons' tubs over the noon hour is a frequent practice by builders in New York City. It is not a question whether a wall built with retempered Rosendale cement mortar will fail or not, but it is a question of getting the best wall for the money expended. To prove to the satisfaction of all concerned that Rosendale cement mortar is injured by retempering after sixty minutes the experiments shown in the table were made. All briquettes in like sets of same brand were made from the same bag of cement and their treatment was exactly the same, except the retempering, which was done at the end of the hour, and enough water added, as in practice, to bring the mass back to its original consistency.

Effect of Retempering Rosendale Cement Mortars.

Tensile Strength.				
Hours in Air.	Age in Days.	Aver. No. of Tests.	Lbs. per Sq. In.	Remarks.
Neat cement; water, 28 % *				
3	1	43	139	Not retempered
3	1	13	27	Retempered after 60 mins.
24	7	27	166	Not retempered
24	7	20	64	Retempered after 60 mins.
24	14	20	180	Not retempered
24	14	7	80	Retempered after 60 mins.
24	28	6	219	Not retempered
24	28	6	94	Retempered after 60 mins.
24	56	5	322	Not retempered
24	56	3	180	Retempered after 60 mins.
1 cement, 3 sand mortar; water, 14 %				
24	28	5	39	Not retempered
24	28	5	31	Retempered after 60 mins.
24	56	5	73	Not retempered
24	56	5	59	Retempered after 60 mins.
24	112	5	113	Not retempered
24	112	5	56	Retempered after 60 mins.

* Per cent. of water given is the initial wetting.

The same disastrous results were obtained even when the cement was moistened every fifteen minutes of the hour. Contractors have argued that if a little fresh cement is added the mortar is as good as it was originally. It is quite true that the strength is increased, but the old mortar must be considered as almost inert material. It cannot be supposed that the fresh cement has any life-giving effect

upon the particles of the old cement which has passed through the first stages of set. Builders may be able to point to walls where this practice was in vogue, but there is no question that the wall built where it was not allowed is the better wall, will endure longer and stand more shock. With several brands of Portland cement under the same treatment the machine used failed to show any injury done.

As with Rosendale cement, there must be a limit where retempered Portland will fail, and we are inclined to believe that it is somewhere within the second hour of standing. That the retempered Portland did not fail may be explained by the fact that the time of active set of Rosendale is shorter than that of Portland. The safest rule is to allow no retempering under any circumstances.

It is safe to assume that concrete a little too wet is oftentimes better than that which is too dry, especially when laid in warm weather, but when forced to lay Portland concrete in freezing temperatures the least possible water used the better.

In order to determine roughly the relation between the tensile strength of neat cement, cement mortar, stone and cinder concrete and its so-called modulus of rupture when acting as a beam under a concentrated centre load, briquettes and beams were made, the latter with rectangular cross section, using the same cement and aggregate for like sets and subjecting them to exactly the same treatment. After breaking the briquettes by direct tension, and the beams by cross-bending, it was found that the substances mentioned showed, on a fair average, that the modulus of rupture of cross-breaking was about one and one-half times greater than the strength in direct tension.

The fracture in the beams often showed the place of rupture passed directly through the stones of the aggregate, so the strength of the stone was largely a factor of the strength of the beam.

It has been decided to build a mission church for the Hob Lane district of the parish of Turton, near Bolton. The proposed building will take the place of the Board school, in which services have been held in the past. The mission church will accommodate about 250 persons, and will be placed on a site given twenty-three years ago for this purpose. Towards the cost of erection, estimated at 1,200l., a sum of 610l. has been raised by a bazaar held last October. The new church will provide for a population of about 950.

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QUOTATIONS FOR CASTINGS.

MATTER-OF-FACT MANCHESTER.

ONE need not be a "canting dilettante" to desire some mitigation of the arid wastes that environ Manchester, of the desolate areas of coal dust and refuse that are within its borders, and of the wretched dwellings that persist through all the efforts of philanthropy. If the commercial and industrial problems were settled absolutely and satisfactorily, greater problems would remain. How are beauty and nobility of life to be made possible for those who live under the conditions imposed upon so many of our fellow citizens? How can they whose material existence is so disordered find compensation in the things of the mind? There are many men in Manchester distinguished for philanthropic works; and one of them, Mr. Charles Rowley, the friend of William Morris and of Ford Madox Brown, speaks with particular authority. In answer to a very general inquiry he writes:—"We hold our own in spite of too much beer and our neglect of specialised education. I can look back fifty years, and having been in the rough and tumble of it all the time, I can assert confidently that there is a change amounting to a revolution for the better in nearly all the conditions of labour—better sanitation, better houses, a lower death rate, fewer hours of work with more wages, and a quite remarkable and rational spending power. The blot is the destruction of the pure country, and the incessant dirt."

There is no great central site of which one may say, "This is Manchester," and if the city were to be burnt down after the fashion of Chicago the citizens would certainly attempt some unity of design in the concentration of public buildings in suitable relation to open spaces. Manchester is matter of fact, utilitarian; it has not concerned itself with architectural fripperies, and when the inhabitants are questioned about their town hall they will tell you how much money was spent on it. If grandeur is attained it is rather through the great volume of effective labour than in anything that appeals to a sense of history or romance. The streets are thronged with workers, with "lurries" creaking under their loads of "greys," and with the heterogeneous combinations of persons and things that are common to large manufacturing towns. It is difficult to differentiate in the general appearance of things. Glasgow and Liverpool have their docks, Manchester, it is true, has its Ship Canal, but its characteristic is rather the central mass of warehouses crammed with goods on the cheapness of which the existence of the community depends. It may seem a

despicable virtue, this virtue of cheapness, but the Manchester man must frankly acknowledge that the future of his depends on it.—From the *World's Work* for February.

EPPING FOREST.

IN their annual report, which is just published, the Epping Forest committee of the City Corporation state that during winter of 1901-2 the thinning operations were very light. In some parts of the forest the birches were too numerous to develop properly, and in other places they were destroying holly, which is one of the features of the forest. The portion of the domain where thinning operations have been carried out are part of Theydon coppice, land adjoining the Copped Hall estate, part of High Beech, south of Earl's Path, Loughton, south of Manor Road, Loughton and part of Lord's Bushey. Reference is made by the committee to the work of enlarging the Hollow Pond, Leytonstone, which is being carried out at a cost of 1,800*l*. The Urban District Council of Walthamstow subscribed 300*l*, and Mr. E. N. Buxton, one of the verger-guards, guaranteed the same amount. The committee subscribed 600*l*. from the capital account, and the balance was taken from the City's cash. The work of restoring the beautiful tapestry belonging to Queen Elizabeth's Lodge at Chingford has been completed by M. Briquolas, an expert, and the tapestry has been placed in prominent positions in the lodge. With a view to meeting certain objections of the players on the golf course at Chingford, the rules and regulations and the fees payable have been revised. Three years ago Sir Edwin Durnford, M.P., with the consent of the Conservators, erected a granite drinking-fountain in the forest, and the committee regret that the donor has since handed over to them 100*l*. towards the cost of the water supply. The committee, after referring the gift by Mr. Gerald Buxton of the greater portion of the Common and the waste land along Ivy Chimnies Road, expressed regret at the fact that the Corporation did not adopt the suggestion that the 800 acres forming parts of Hainault Forest should be purchased for 10,000*l*. The accounts show that 3,000*l*. was received last year by the sale of thinnings, 583*l*. from licenses and tolls and 380*l*. from boating on Connaught Water, the Perch and Heronry Ponds and the Hollow Pond.

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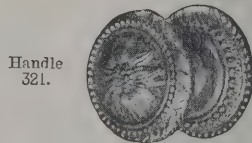
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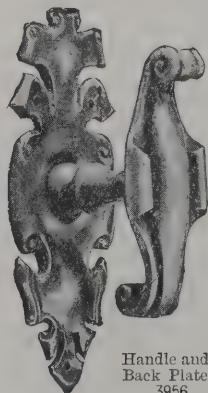
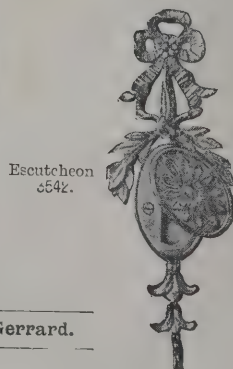
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VALUE OF HOUSES AT HYDE PARK CORNER.

ON Monday Mr. Undersheriff Burchell and a special jury heard the case of Elliott's Trustees *v.* the Great Northern and Brompton and Piccadilly Railway Company, a claim for nearly 40,000*l.* compensation in respect of the compulsory sale to the company of the two freehold residences, 6 and 7 St. George's Place, Hyde Park Corner, and for damage done to the adjoining four houses in the same ownership, by the opening of a railway station on the site of the two houses. In opening the case, Mr. Boyle said the houses overlooked Hyde Park and afforded a fine view of Rotten Row, and were substantially built and well arranged. They were let on leases at 480*l.* per annum each, or 960*l.*, and were undoubtedly worth a much higher rental as they occupied one of the most fashionable positions in the West End. The rental being so well secured should be capitalised on the 3½ per cent. tables, 31-years' purchase, or 29,760*l.*, to which the customary addition of 10 per cent. for compulsory sale should be made, 2,976*l.*, bringing the amount for the property actually taken to 32,736*l.* The remaining residences could not fail to be seriously depreciated by the proximity of the tube station, with its noise and smell and crowds of passengers, and in respect of such depreciation about 6,000*l.* was claimed. The first witness was Mr. E. H. Bousfield (senior partner in the firm of Edwin Fox & Bousfield), who stated that the houses were worth 31-years' purchase of the present rentals, which amounted with 10 per cent. for forced sale to a total of 32,736*l.*, to which he added 15 per cent. of the value of the remaining four houses, representing 6,649*l.*, for depreciation. His total was thus 39,385*l.* It was almost impossible to obtain first-class freehold residences in that part of the West End. By the opening of a tube station the property would be entirely changed in character. Mr. W. H. Elwell capitalised the total rental of 960*l.* at thirty-years' purchase, and added 10 per cent. for compulsory sale and 6,000*l.* for depreciation of the four adjoining houses. Mr. J. J. Boyd (Grogan & Boyd) and Mr. J. H. Townsend Green (Weatherall & Green) were the other experts for the claimants. A consultation took place between the learned counsel, and the case was settled, it being agreed that the claimants should receive the sum of 30,750*l.* for the freehold of the two houses and all such rights as they

possessed over adjacent land shown in the notice to treat. Mr. Douglas Young (vice-president of the Auctioneers' Institute), Mr. Alexander R. Stenning and Mr. Leslie R. Vigers (members of the Council of the Surveyors' Institution), with Mr. George A. Wilkinson, were among the experts retained for the railway company.

RURAL DRAINAGE.

THE paper by Mr. H. T. Scoble on "Rural Drainage and Sewage Disposal," read at the previous meeting, was discussed at the Surveyors' Institution on Monday. Professor Robinson said it was of the utmost importance that all drains should be subjected to the water test, and he was strongly of opinion that the water-carriage system would prevail. The dry-earth or conservancy system he held to be attended with great risk to the health of the community, however carefully the disposal of sewage might be conducted. The requirement of the Local Government Board for land purification in the proportion of an acre to a thousand population could be modified with proper safeguards. There was no matter for dogma in this or in regard to bacterial treatment; each method was capable of being used under skilled advice, and every case must be governed by its surrounding conditions. Mr. Roehling, agreeing with many of the remarks in the paper and deploring the waste of manurial matter, was not in accord with the remedy proposed by the interposition of an expensive and elaborate intermediate process before disposing of sewage on land. There was no necessity for this treatment; land would do all that the bacterial process would do. Mr. A. R. Stenning referred to the difficulties attending the disposal of sewage in small rural villages. For disposing of excreta there was nothing better than the earth treatment, but difficulties arose in connection with sink water. The question of rural sewage was inseparably connected with water supply, and these difficulties had to be met. Dr. Poore severely condemned the sewage system. He formerly lived in the Thames Valley, when the rates were 4*s.* 2*d.*, but the local authorities in ten years borrowed 133,000*l.* for the construction of sewers, raised the rates to 8*s.* 2*d.*, and had created a filthy quagmire in the middle of the place. He described the system he had followed with success at Andover. For many years he had dealt with the sewage from 100 people living in old cottages. He had shown by his method that excreta should be buried

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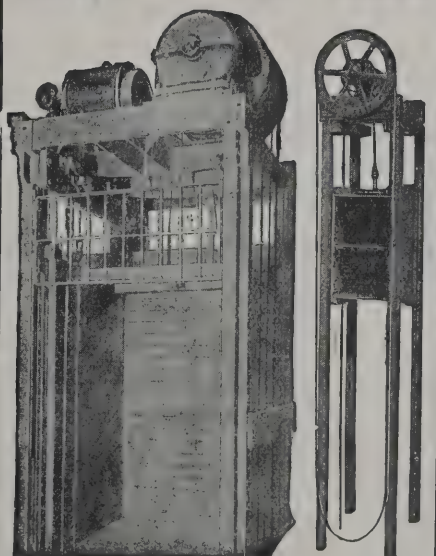


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No. 48.

just below the surface, and rightly carried out this could be done quite near the house, without offence to the senses. He could not see why this system should not be adopted piecemeal in rural villages with an equitable adjustment of a sanitary rate. For the cost of sewers there should be a tax on water-closets. Mr. Beken, Mr. C. J. Mann, Mr. A. J. Martin and Mr. E. W. Booth continued the discussion, and Mr. Scoble replied, defending his view that the proper method to pursue was to purify the sewage and make use of the effluent.

NEW COUNTY ASYLUM FOR LEICESTERSHIRE.

A SPECIAL meeting of the Leicestershire County Council was held on Wednesday at the County Assembly Rooms, Leicester, to consider a report of the asylum committee recommending the provision of a new county asylum at Narborough at a cost of 241,278*l.*

Mr. R. Pochin, in moving the adoption of the committee's report, reviewed the efforts which had been made to provide the county with more efficient asylum accommodation. He pointed out that in 1897 a new asylum was recommended to be built at a cost of 140,000*l.* The finance committee reduced that amount to 120,000*l.*, and the Council authorised the visiting committee to recommend a site. At that time it was thought the asylum might be erected for about 200*l.* per bed. Upon that basis the committee arrived at the estimated cost of 140,000*l.* The demand of the Lunacy Commissioners had now largely increased. In all modern asylums increased accommodation had to be made in administrative buildings for extensions of patients' buildings, and that had been one of the chief causes for the abandonment of old asylums, necessitating entirely new buildings. The estimated share to be provided in the first instance by the Council in connection with the scheme was 208,692*l.*, after deducting the amount payable by the county of Rutland and the Charity, and exclusive of the share of cost of the site, which had already been borrowed. If the money could be borrowed at 3½ per cent. the cost to the county rate would be about 2½*d.* in the pound. Turning to the question of retaining the present asylum and building a smaller one at Narborough, they were advised that a sum approaching 40,000*l.* would have to be expended on the old asylum to make it a suitable institution for the requirements of the present time. In their judgment, they believed that a sum of from 2,000*l.* to

3,000*l.* would be saved annually to the county by the adoption of the scheme for one asylum instead of two.

The report was adopted without a division, and it was decided to apply to the Local Government Board for a loan.

AN AUSTRALIAN CONTRACT CASE.

IN the Supreme Court of Brisbane (Queensland), before Mr. Justice Real and a jury of four, there was heard, from November 17 to November 24, a case in which Felix Edward Barbat, a contractor, sued Richard P. Vincent for an amount alleged to be due for work done and goods supplied in connection with the erection of the railway workshops and power-house at Ipswich. The total amount originally due was 16,221*l.* 19*s.* 2*d.*, but the defendant had paid on account 14,625*l.* 19*s.* 11*d.*, leaving a balance of 1,595*l.* 9*s.* 3*d.*, which the plaintiff now claimed. The defendant, in his statement of defence, alleged that plaintiff had overcharged him for steel supplied to the amount of 410*l.* 12*s.* 6*d.*, and that amount he claimed to be entitled to deduct. He also disputed other items of the plaintiff's claim, and paid into Court 668*l.* 1*s.* 1*d.* as more than sufficient to satisfy the whole of the plaintiff's claim.

One of the claims of the plaintiff was for 90*l.* 6*s.* for the supervision of work, but plaintiff in his evidence said there was no actual agreement between himself and the defendant that he should be paid for services rendered for that purpose, but the work having been done he had charged what defendant would have had to pay if he had engaged a foreman. His Honour expressed the opinion that this sum could not be recovered, and in deference to that view plaintiff abandoned that claim. Evidence was given by a former inspector of ironwork at the Ipswich railway workshops for the railway commissioner as to the quantity of ironwork done by the plaintiff in connection with the contract.

The following were the questions put to the jury by the Judge, and the answers given.

1. What was the agreement between the plaintiff and defendant, as to the price which defendant was to pay and plaintiff was to receive for the due performance of the work done by the plaintiff in connection with the waggon and carriage shop, labour and material, &c.?—22*l.* 10*s.*

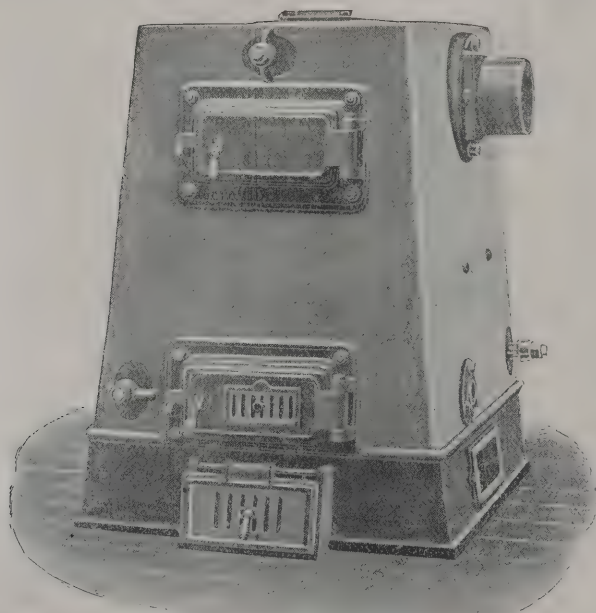
2. How much do you find the plaintiff was entitled to receive from defendant for the due performance of his contract with respect to the waggon and carriage shop?—1,438*l.* 11*s.* 7*d.*

3. Did the work which plaintiff agreed to do for the sum of



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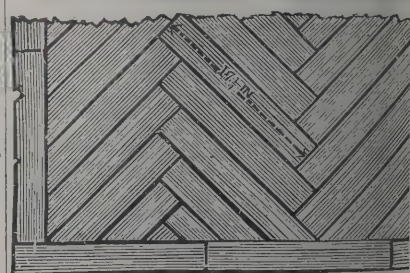
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1½ x 4½" ditto	at 19 <i>s.</i> 6 <i>d.</i> "

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400l. in connection with the gantry girder include the brickwork and concretework?—No.

4. What was the fair value of the work done by the plaintiff for defendant in connection with the said gantry girder and not included in his contract?—20l. 11s.

5. How much was the plaintiff entitled to receive from defendant in connection with the boiler shop?—847l. 4s. 7d.

6. What sum, if any, is due from plaintiff to defendant for interest in pursuance of their agreement in connection with the waggon and carriage-shop contract?—Six per cent., say 153l.

7. How much is defendant entitled to by way of credit in addition to credit given by the plaintiff?—39l. 18s.

8. What balance do you find due from defendant to plaintiff without taking into consideration the amount paid into Court?—1,266l. 2s. 3d.

His Honour entered judgment for the plaintiff for 1,266 2s. 3d., including the sum of money paid into Court. By consent and at the request of the parties, the time occupied in the hearing of the issues and the matters in respect of which the defendant succeeded he estimated as one day, and gave judgment for the plaintiff with costs of the action as if it had occupied two days less than it actually occupied. He excepted the costs occasioned by the claim for 90l. 6s. (abandoned on the third day of trial), and in respect of such claim gave judgment for the defendant for the costs occasioned thereby, such last-mentioned costs, however, not to include any costs of hearing except witnesses' expenses for the first two days, defendant to be entitled to set off his costs in respect of such claim for 90l. 6s. against such costs as the plaintiff was entitled to in the action.

ELECTRIC LIGHTING OF ABERDEEN.

THE new works which the Aberdeen Town Council are erecting at Dee Village are now practically completed, and will very shortly be ready for inspection by the municipal body on the invitation of the gas and electric-lighting committee. For the following exhaustive description of these works we are indebted to the *Aberdeen Free Press*. The buildings have been arranged to allow of extension in an easterly direction, as the demand for electrical energy increases. They at present consist of a boiler-house, engine-room, battery-room, economiser-house, pump-room, offices, stores and test-room, also workmen's mess-room and chimney-stalk. The boiler-house, which has a frontage to Dee Village Road of 137 feet and a width of

82 feet between walls, is spanned by three iron roofs, having louvre ventilators and large roof lights extending the whole length of the house. The central roof is at a higher altitude than the other two, and will cover an overhead coal hopper, which is to be carried upon substantial steel stanchions and compound girders. The coals are to be raised to the hopper by means of electrically driven elevators and conveyers. The stoking floor is upon a level with the roadway, and under it is a sub-floor, to which the ashes from the boiler furnaces are dropped and thence removed. The boilers at present installed are six in number, and are of the Babcock & Wilcox well-known water-tube type, each capable of evaporating 15,000 lbs. of water per hour, and fitted with super-heaters and electrically-driven chain grate stokers. The present building is capable of accommodating other eight boilers of equal dimensions, and when complete will contain an aggregate of about 7,000 horse-power. The main flues, leading from the boilers to the chimney-stalk, measure 11 feet high by 7½ feet in width, and are arranged at the back of the boilers, alongside the walls of the building; they are then led through the economiser house, in which are two sets of Green's economisers; each set consists of 480 tubes, around which the flue gases from the boiler furnaces circulate on their way to the chimney, and through the inside of the tubes is pumped the feed water to the boilers; the water thus attains a high temperature before entering the boilers, and therefore effects a considerable economy in fuel.

The chimney-stalk is 210 feet in height, and has an external diameter of 26 feet at the ground level, tapering to 16½ feet at the neck ring; it then opens out in bell-mouth fashion to an overall width of 21 feet at the cope. The internal diameter of the chimney is 14 feet, and is almost parallel throughout. It is circular in form, and while one cannot speak of it as a thing of beauty, it is, nevertheless, a piece of superior workmanship, well proportioned and very efficient. The bricks, of which there are about 500,000, were made at Strathathie, and the weight of the chimney is computed to be about 3,500 tons, based on a substantial block of concrete 40 feet square. There is a 24-inch cast-iron pipe led up the inside of the chimney to carry off the exhaust steam from the engines when they are running non-condensing, so that there is no nuisance in the neighbourhood due to condensation of steam, as is sometimes experienced in the vicinity of such works. Over the economiser house, and in reality forming the roof of it, is a cast-iron water tank, 51 feet long by 39 feet wide and 5 feet deep, capable of



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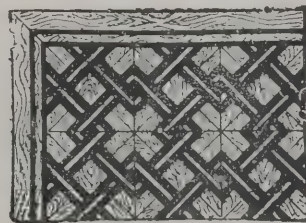
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holding about 60,000 gallons of water, which is used for condensing purposes; the water is pumped up from the river Dee through an iron pipe laid along the concrete culvert which conducts the Ferryhill burn through the site of the works and down to the river. The pumps are of the centrifugal type, and are placed in an underground chamber built near the river bank, and driven by electric motors controlled from the works.

The boiler-feed pump-room is a brick-built apartment contained within the boiler-house; the walls are lined on the inside with glazed white tiles throughout, and within this house are erected two of Weir's patent vertical direct-acting steam pumps, each capable of delivering 4,000 gallons per hour when working at a speed of twelve double-strokes per minute, against a boiler-pressure of 150 pounds per square inch. The water used here for feeding the boilers is supplied from the Corporation mains, and is pumped from a commodious water-storage tank constructed of concrete, and which is situated directly under the pump-room floor. The engine-room lies parallel with the boiler-house, and has a frontage to Millburn Street of 126 feet, and is 62 feet wide inside. The walls are lined with glazed white tiles, which, together with the large windows on the south wall and the light admitted from the roof, give the building an exceedingly bright and handsome appearance. Five engines are installed, four of which have been running more or less since December 1901. There are two of 300 horse-power each, coupled direct to Messrs. Mavor & Coulson's dynamos, one of 300 horse-power coupled to Messrs. D. Bruce Peebles & Co.'s dynamo, one of 700 horse-power coupled to a Johnson-Lundell dynamo, and one of 700 horse-power coupled to a Westinghouse dynamo. All the engines are of Messrs. Williams & Robinson's well-known high-speed central valve type, and the dynamos are all suitable for either lighting or traction. The whole of the traction load for the tramways has been supplied from these machines since the month of June last, as well as a portion of the lighting. Surface condensers are used in conjunction with the engines, and these have been supplied by Messrs. Alley & MacLellan, of Glasgow. The air-pumps and the circulating pumps are driven by electric motors. The condensers, as well as the air and circulating-pumps, are placed in a sub-floor below the level of the engine-room.

There is at present installed in the engine-room a 120-kilowatt balancing set, the purpose of which is to compensate for fluctuating loads, and maintain an equal voltage on both sides of the three-wire system of distributing mains. The

temporary switchboard in the engine-room is fully equipped with the necessary ampere and voltmeters and other delicate instruments, which are mounted on teakwood slabs. All these instruments are to be fixed upon marble panels to form the permanent switchboard, the erection of which is now being rapidly proceeded with. The switchboard gallery, along the south side of the engine-room, is constructed of steel joists, and the floor is composed of glass lenses in cast-iron frames; the glass stands above the iron frames, and thus forms a perfectly insulated tread, and at the same time does not reduce to any appreciable extent the light below the gallery, and has the further advantage of being incombustible. A 20-ton electrically driven crane, made by Messrs. J. Carrick & Sons of Edinburgh, spans the engine room, and makes it possible to handle the heavy machinery with ease. A gallery is formed at the west end of the engine-room, giving ready access from the offices to the switchboard platform and the boiler-house.

At right angles to the engine-room, and facing Crown Street, is the battery-room, which measures about 100 feet in length and 45 in width. The floor is laid with terra-cotta tiles, and the walls are rendered with cement dado, with plaster above. It is bright, lofty and well-ventilated, and contains two complete storage batteries of 128 cells each, together capable of giving a discharge of 2,200 ampere hours at 440 volts. The batteries were supplied by the Electrical Power Storage Co. Ltd., of London, and have been in operation during the past fourteen months. At the south end of the battery-room is what is called a booster set for charging the storage batteries and raising the town pressure sufficiently to overcome the internal resistance of the cells. The set consists of two dynamos actuated by a 100 horse-power motor. The block of buildings, of which the battery-room occupies the ground floor, is a two-storey one with a basement floor, in which there are commodious cellars—the natural formation of the ground lending itself admirably for the provision of sub-floors throughout. Above the battery-room are the test-room, staff-room and lavatories, also the station engineer's and manager's rooms, which have each a large oriel window immediately overlooking the engine-room.

It should be stated that in arranging the buildings due consideration has also been given to the comfort and convenience of the workmen. On the ground floor to the south of the main block is bath-room and lavatory accommodation, and a room which will be fitted with a gas cooking-stove.

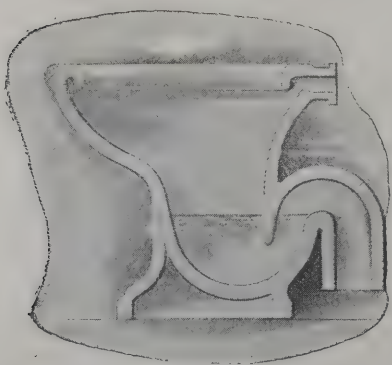
To the south of the battery-room block and adjoining it are

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SECTION.

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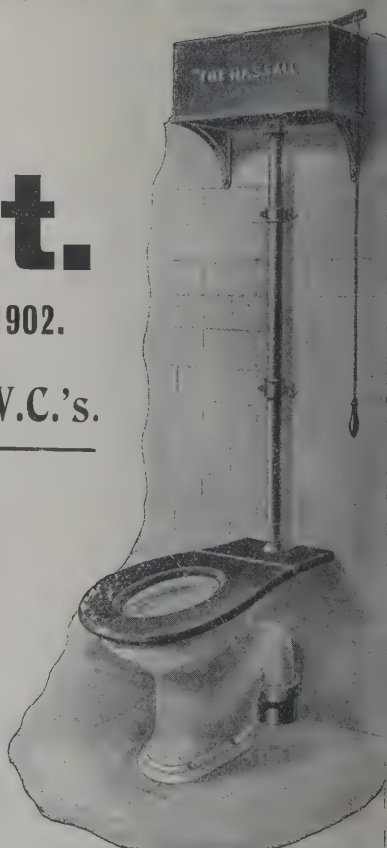
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the offices, with a frontage to Millburn Street, where accommodation is provided for a checker and weigher, clerks, draughtsmen, and also a waiting-room and book store. The block is a three-storey one, and is surmounted by a flagstaff, which stands 100 feet from the level of Millburn Street. This building, with the engine-room, which both face Millburn Street, are undoubtedly an acquisition to the architecture of the neighbourhood. The dressings throughout are from Kemnay Quarries, and the rustic ashlar from Rubislaw. The contrast in depth of colour from this combination is very effective. The buildings are entirely of granite, and are built in a substantial manner. The site of the works will necessarily look in a somewhat rough condition until the buildings are carried out to their full extent, which, however, will not likely be for a few years. The vacant piece of ground fronting Crown Street was reserved for a workshop and car repairing dépôt, but nothing meantime has been settled regarding this. The boiler-house and engine-room, when extended other 126 feet towards Wellington Road, will contain plant capable of developing about 15,000 horse-power.

MUNICIPAL WORKS IN BRADFORD.

A COMMITTEE of the Corporation was lately formed in Bradford for the purpose of inquiring into the formation of a works department on the lines adopted in London and other places. A deputation visited London, West Ham and Battersea in order to report on what was being done there, and make a recommendation as to what line of action the Bradford City Council should adopt. The deputation has just completed their labour and presented their conclusions. There are two reports, one signed by Alderman Vint and Councillor H. H. Spencer adverse to the establishment of a works department in Bradford, and another signed by Mr. Tuke Priestman favourable to such a scheme.

In their report Messrs. Vint and Spencer state:—

"The London County Council works department, which we first visited, has been in operation since 1892. All engineering and architectural works decided on by the Council are estimated for by the Council's engineer or architect, from their knowledge of current prices, and are offered to the works department at that estimated price. If the department accepts the contract, the work is carried out by the department. If not, the work is put up to tender and executed by the successful

contractor. . . . Our observation led us to think that the work of the contractors was equal to that of the works department." The report proceeds:—"On the question of wages, both at the County Council and Battersea, it was most strongly insisted on that trade-union wages and no more were paid. The managers were instructed that they were to consider themselves fully in charge of their departments as they would be in private works, and to show that there was to be no interference we were told that Mr. Burns, Mr. Taylor and Mr. Crookes, three labour members, had particularly refrained from sitting on the works committee. Generally speaking, we found that the works department was unable to compete in price in architectural work with the outside contractor, but could do so in underground engineering work; that we had no proof that the work was better done by the works department, and that wages and hours were the same under both." As to the West Ham works department, the deputation found that while trade-union wages were paid certain other special privileges and payments were made, namely, a sick fund, holidays with pay, and an arrangement that whenever at union rates a man's wages did not amount to 30s. a week they should be increased by not exceeding 2s. a week. These payments were not charged to each job, but a special note was kept, and the general rates were charged with them. Generally speaking, they found the departments worked with a great deal of enthusiasm and a desire for their success. The deputation made inquiries as to the effect that the multiplication of municipal workers had in regard to their votes at elections. In London and Battersea they were told that it was a negligible quantity, whereas in West Ham they were told (which was also denied) that the municipal employes would always vote for the men who would make them into a specially favoured class. The proportion of municipal employes was very much smaller to the population than in Bradford. In conclusion, the report states:—"We are compelled to report that we do not consider it advisable to establish a works department in Bradford. From what we saw we do not think that such a department could compete with the private trader; we also think that in cases where the Corporation can do so, the work will be done more economically and with much less friction between committees by the committees responsible undertaking the work. Perhaps the nearest approach we have in Bradford to a department for supplying the needs of the other committees is the Team Labour Department, and in this department we find just the same result as in West

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For Index of Advertisers, see page x.

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Ham—that whereas the Team Labour Department to compete with outside teamers has to supply horse, cart and man at 8s. per day, the actual loss last year was 1,122/”

In the course of his report Mr. A. Tuke Priestman (the Socialist) says:—“The works committee in the past appears to have been one of the principal battlegrounds of the contending parties, and its non-success financially, so far from being inherent in the system, was only what was to be expected under the circumstances. In Bradford, however, extensions of municipal enterprise, though strenuously opposed at first—as, for example, our trams—have, when once adopted, always received the hearty assistance and support of the members of all parties in the Council; the principal difficulty with which the L.C.C. works department has had to contend is therefore absent as regards Bradford. . . . We had an opportunity of seeing, and in most instances examining, a large number of buildings of different classes erected by the departments. These included artisan dwellings, pumping station (in course of erection), large public baths and washhouse, fever hospital, electricity generating station, coroner's court and mortuary, &c. The workmanship in every instance appeared to be of the first class. There can, therefore, be no doubt as to the ability of a department managed by a local governing body to turn out satisfactory work of any description which may be called for from it.”

URALITE.

THE American Consul-General at Coburg has sent a report to his Government on Uralite. Describing the manufacture, he says:—The process commences in what is known as a “preparation building,” where the crude asbestos is first of all “teased” out and freed from sand and other foreign substances. It is carefully graded and separated and passes on to edge runners, where a small portion of whiting is added to prevent grinding rather than the loosening of the fibres which is desired. From the edge runners it is conveyed by elevators to a floor above, where it is fed into a Krupp disintegrator, which further loosens the fibres. It is again separated by air blasts and by sieving, and is then ready for the next stage. In another building the asbestos is mixed with an equal weight of whiting, if white uralite is being made; or if grey or red uralite is needed this is replaced by carbon black or red oxide. The whiting is first reduced to a cream by beating it up with revolving paddles in a mixer. This is passed through a sieve

for the removal of accidental impurities, and thence into “hollander.” The asbestos is next added, the usual charge being 5½ cwts., and then the colouring matter. The whole worked up into an emulsion by revolving screws and beaten for a quarter of an hour or so, and there is a further separation to remove any sand which may have hitherto escaped detection. The uralite pulp then passes to a machine designed on much the same lines as that employed in making paper boards. The pulp is delivered over riffle boards on an endless revolving blanket, and passing through a series of rolls is partially dried and compacted. It then passes on to a revolving drum at the end of the machine, on which some fourteen or fifteen thicknesses are deposited before the required thickness is attained, this point being signalled by a flash from a red incandescent lamp above. During the process of winding on to the drum a solution of sodium silicate, with a small amount of sodium carbonate insufficient to permit of the immediate deposition of the silica, is passed over the successive fibres of asbestos, and serves as an adhesive.

The large sheets, as they are taken from the drum in the pliable state, are quickly cut to smaller ones, measuring 6 feet 2 inches by 3 feet 1 inch. These sheets are piled up, alternating with sheets of wire-gauze or sheet-iron, to a height of about 40 inches. The pile is then placed under a hydraulic press and the pressure slowly increased, so that at the end of half an hour it is equivalent to about 200 pounds per square inch. This is maintained for 1½ hours, and the pile is then left to harden for 24 hours, after which the sheets are removed to go to the storing-rooms. Here they are placed vertically in racks on trucks and pass through a series of stoves with graduated temperatures. The stoves are gas-fired. They are then steeped in a solution of sodium silicate, washed, left to dry, and again passed through a stove, after which they are steeped in a solution of sodium carbonate, and washed and dried as before. These subsequent operations are repeated as often as required for the final hardening of the sheets, and the entire process occupies several days. The sheets are stacked for some days and again passed through the stove, being then ready for use, though I understand that, like timber, they are the better for a little seasoning. The sheets of uralite thus produced are found to be uniform in thickness, three thirty-seconds of an inch being the standard.

Uralite in its present form is the result of protracted research, experiment and tests, and I was on the occasion of my visit to the works enabled to witness a somewhat unique

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demonstration of its fire-resisting and other qualities. I understand, by the way, that tests carried out by the British Fire Prevention Committee have already thoroughly established its reputation with that important organisation. In the tests carried out on the day of my visit to the works I was given a confirmation of these results. Three principal tests were made, and they fully proved that uralite possesses the following qualities:—(1) The material is able to withstand intense heat for a long time without disintegration; (2) its non-conducting powers are uniform throughout; (3) it is capable of entirely preventing the passage of flame from any room where fire occurs; (4) after prolonged exposure to fire it is able to resist water without serious damage; (5) exposure to changing atmospheric conditions does not affect it, and (6) all the materials employed in its manufacture possess substantially the same chemical, physical and thermal constants. It is claimed that no other material fulfils all these conditions.

The uses to which uralite can be put commercially are many. It will probably find its widest field of service in the building trades, and it appears that it should prove equally valuable whether the buildings are of a temporary or permanent character. Owing to its extreme non-conductivity, huts, railway carriages, barracks, hospitals, &c., constructed with it, while absolutely fire and water-proof, are warm in winter and cool in summer. A room covered (walls, doors, ceiling and floor) with uralite three thirty-seconds of an inch thick might have its contents burned, it is claimed, without any danger of the fire spreading. Another great advantage is that immediately after the work is finished the room can be occupied, no time being required for drying as in the case of plaster. The fire-preventive qualities make the material invaluable for warehouses, particularly when these are filled with inflammable materials, since with uralite partitions a fire can be confined to the one compartment in which it originated. For partitions light wooden framework only is required, with sheets of uralite fixed on both sides, or it can be affixed to match-boarding.

THE HOUSING PROBLEM IN GLASGOW.

THE manager of the city improvement department of the Glasgow Corporation, Mr. William Menzies, gave evidence before the Municipal Commission on the Housing of the Poor. The *Glasgow Herald* says that, in his opinion, the tendency of the population is to migrate from the rural districts into the

crowded urban centres. A comparison of the last two census returns showed that the town-dwellers in Scotland—covering only towns of over 2,000 inhabitants—had increased from 2,925,000 in 1891 to 3,367,280 in 1901, or by 442,000—equal to an increase of over 15 per cent. in ten years. During the same period the rural population had increased by 4,153 persons—an advance on the numbers recorded in 1891 of slightly over one-third, or 1 per cent. The county census included towns numbering less than 2,000, and it also included large suburban areas which were almost entirely occupied by citizens engaged in business in the large cities. He quoted as an explanation of the genesis of the frightfully congested and insanitary areas which required the scheduling and demolition, under the Glasgow City Improvements Act of 1866, of 88 acres in central Glasgow, inhabited by over 75,000 persons previous to that year, a paper read by Sir Samuel Chisholm before the Royal Philosophical Society of Glasgow in 1894.

Witness then gave some particulars regarding the work carried on under the City of Glasgow Improvements Acts of 1866 and 1897, since the date when he was appointed manager of the department. Under these Acts 1,269 houses had been demolished since 1891. The houses were of the following size:—692 one-apartment houses, 507 two-apartment houses, 70 larger houses. Regard for the health of the citizens and the necessary preparation of the ground for the erection of the new buildings, which, so far as these have been undertaken by the Corporation itself, were commenced in 1888, required that the insanitary and ruinous buildings in which most of the houses were situated should be demolished. The building policy of the Corporation was carried on continuously from year to year thereafter, requiring the previous demolition and clearance of each site which was to be covered. The houses demolished in eleven years were 692 one-apartment houses, 507 two-apartment houses, 70 three-apartment houses; a total of 1,269 houses.

He made himself intimately acquainted with all the houses included in both the earlier and latest schemes of demolition already referred to, and he could distinguish the following three classes among the occupants of these areas:—(1) A number of thrifty, well-doing people who would gladly be clear of their sordid surroundings and their bad neighbours. These people were held to their dwellings by poverty, the result of weakness, age or misfortune, and no doubt to some degree by the ties of association born of their long residence in the same house. (2) A large number of weak and thriftless persons, mostly living as sub-tenants of the house-farmer. The pre-

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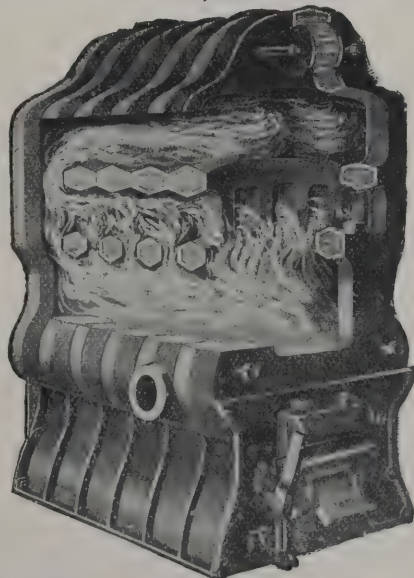
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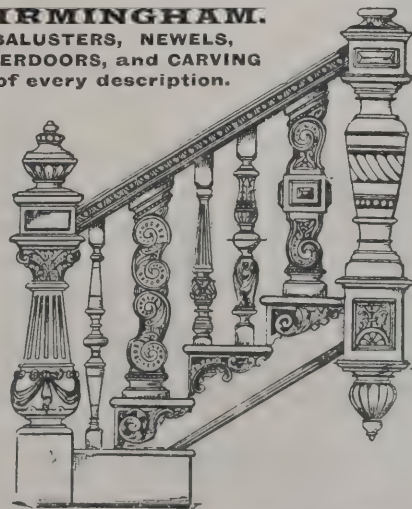
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vailing vice of this class is a tendency to intemperance. If they have a house of their own, their drinking habits and thriftlessness prevent them keeping up the due payment of the rent, with the result that they become either the intermittent respondents to actions for ejectment in the Burgh Court or permanent victims of the house-farmer, tending all the time to fall into the "third" and most hopeless class. (3) A small percentage living in crime or on the borderland between it and an honest life.

If any areas are to be scheduled for demolition in the future, he should expect to find within them the same classes as he had described, with a larger relative proportion of the "first" class than had hitherto been found. Persons of this class would largely take advantage of the accommodation provided in a rehousing scheme, under these conditions:—(a) That the rents of the new houses be the same or but slightly higher than from those which they remove; (b) that the new houses be situated within one-half mile of their former residence; (c) that the provision of new houses be made a considerable time prior to the term at which they are to be dispossessed of their old houses. The "second" class would not so readily migrate into Corporation dwellings, but if others belonging to private proprietors were not available they would do so. The same difficulty would not be found in removing this class further from the site of their previous dwellings. The "third" class avoided going into any houses where order and the claims of good neighbourhood were rigidly upheld. These persons would not voluntarily be participants in the benefits of a rehousing scheme. They would not abide for any lengthened period in occupation of Corporation houses, even if by some pressure they were placed there. The only method, apart from the personal influence of the caretaker, available to the improvements department officers for enforcing good order among the tenants was the usual statutory powers of a proprietor. This was not sufficient to restrain people of the class spoken of, but was quite effective in sending them out of the houses. He regarded the minimum dimensions of dwelling-houses as authorised by the Act of 1892 to be too small for one and two-apartment houses. The Act requires the following minimum cubic space in small houses:—Dwelling-houses of one apartment, 1,000 cubic feet; dwelling-houses of two apartments, 1,600 cubic feet; dwelling-houses of three apartments, 2,400 cubic feet. He would suggest that the minimum to be allowed for single apartment houses, where the one apartment

is used as living, dining and sleeping room, should be at least 1,200 cubic feet. This would give a room 10 feet by 15 feet with an 8 feet ceiling, which is the minimum height of ceiling, and is only allowed in an attic storey. The minimum size of the two-apartment houses should, he thought, also be increased to 2,000 cubic feet, which would allow of a kitchen or living room being the same size as the single-apartment house, and in addition a bedroom of 800 cubic feet capacity, accommodating two adults. The erection of one and two apartment houses of less than the minimum dimension suggested would, in his opinion, tend to encourage overcrowding of houses. Builders had two paramount considerations in planning and building dwelling-house property:—(1) To provide a house which will let and yield a rent large enough to afford a good return on their capital; and (2) to erect a building which will be put at a good valuation, and so commend itself to the investor who has money to lend on mortgage. These considerations almost of necessity resulted in builders leaving aside the erection of low-rented houses for the poorer classes, and preferring to erect those which would yield the largest rent for the particular size of house built. The Corporation was not hampered by these conditions, and could build houses similar to those erected at Haghill and Baltic Street and let them at the same or lower rents. A charge upon the rates would be necessary during the period of construction, and until the houses were occupied and rent-producing. If after that the Corporation were able to borrow at 3 per cent, and agreed to repay the whole of the capital within sixty years by a sinking fund on the "terminable annuity system," the revenue drawn from the houses would be sufficient to cover the necessary outlays for management and upkeep, and also to provide for the annual payment of interest and sinking fund. If it were deemed preferable to establish a sinking fund on the "instalment system," by which one-sixtieth of the total capital would be repaid each year, and thereby secure in each succeeding year a corresponding diminution of interest payable, the charge in the early years of the scheme being the highest, the revenue from the property might have to be supplemented from the rates for five or six years. After that time the houses would show a profit, which would ultimately be very considerable.

He had not thus far dealt with common lodging-houses, but as sixty-seven of these establishments appeared upon the register, giving accommodation for 9,705 men and 577 women lodgers, account should be taken of them.

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The Architect.

THE WEEK.

ONE effect of the new Licensing Act will be that every holder of a license must find it requisite to possess correct plans of his premises. They can be demanded by the magistrates, and if they are not produced without delay the granting of a license can be postponed. Under the new conditions magistrates are expected to be satisfied that structural alterations will not afford increased facilities for obtaining drink or of concealment during any of the inspections which will henceforth be more frequent. Should there be a suspicion of either the magistrates can decline to grant a license, or in case of alterations insist on the premises being realtered to their original state. If plans do not exist and are not forthcoming suspicion is likely to arise, and it will not be advantageous to the tenant. The sooner plans are made the better, and publicans should bear in mind that no mere general outline or sketch will serve. Every detail which might arise in the discussion over a license should be clearly presented. That is the conclusion which must be drawn from the addresses of chairmen of licensing sessions in various parts of the country.

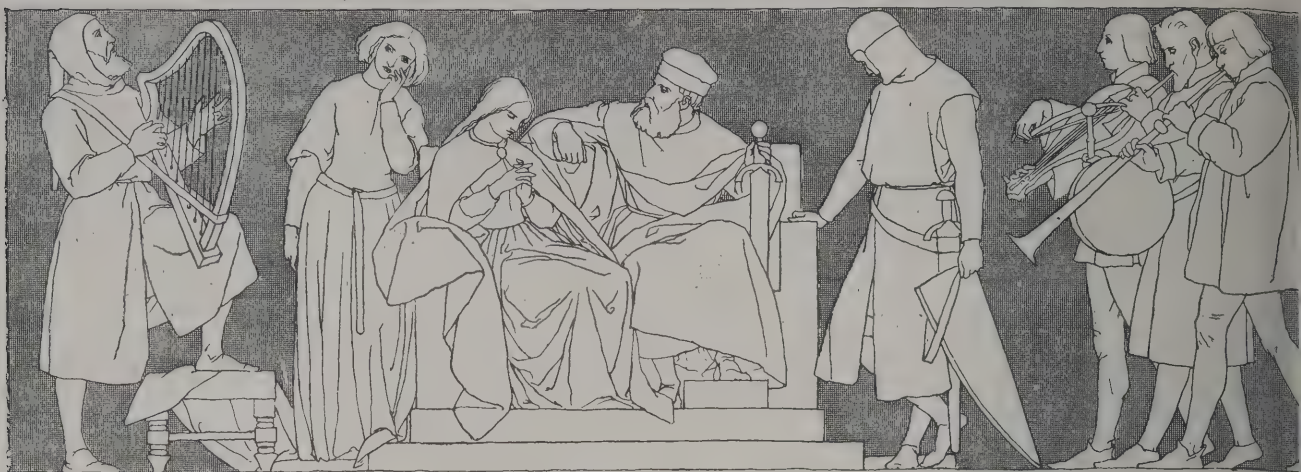
THE late Vice-Chancellor MALINS was accustomed to announce how little he cared about the evidence of experts in light and air cases. He preferred when the buildings in question were not remote from Lincoln's Inn to examine the extent of the obstruction with his own eyes. Technical evidence in such cases necessarily varies, we might say, almost as much as judicial opinion. But the interpretation of legal questions depends to a large extent on the meaning given to words and is therefore uncertain, whilst the scientific problems involved in discussions being supposed to be based on mathematics and optics are presumed to have the utmost certainty. To determine the quantum of sky area shut out by a new building, to take the simplest kind, appears to a judge to be no less easily determined than the area of a field, and when he hears conflicting statements, or is shown geometrical diagrams which do not correspond, he is apt to come to the conclusion that somebody is endeavouring to take advantage of the Court's weakness in science. It is not to be expected that judges will confine themselves to the mathematical or optical aspects of a light and air case, but their lordships are impressed by evidence in which science is employed without being strained to meet a particular purpose. The book lately issued by Messrs. E. & F. SPON, in which "Obstruction to Light" is investigated by Mr. H. B. MOLESWORTH, M.Inst.C.E., affords an example of the class of evidence which is likely to prevail in courts. Generally speaking, it is assumed that light and air are constant in quantity and quality, and that light strikes from one point, although everyone must know they are variable. Mr. MOLESWORTH explains how by the aid of a planisphere or orthographic projection of a sphere far more precision in showing the obstruction of the sun's rays at different times can be secured. In the book this is done by means of very clear diagrams on a large scale, and without their help it would be impossible to furnish a clear account of the author's method. We consider his process to be worth studying by all who are likely to be called on to be witnesses in cases of obscurity through obstruction. The subject is one which has not been treated to excess, and for that reason mathematical contributions are desirable.

THE bay window offers so much relief from the monotony which prevails in the fronts of houses, it is no wonder people endeavour to preserve it at all costs. It has been made recently the occasion for determining an important point of law, and that is, how far official demands can override the stipulations of a lease. The case WRIGHT v. LAWSON came before Mr. Justice KEKEWICH. The defendant in 1888 entered into a lease for a house and shop in Fulham. He undertook among other things to uphold and maintain the premises. In 1900 he received a notice

from the London County Council ordering him to take down or otherwise secure the brickwork of the external walls and bay window, so far as cracked, bulged, loose, sunk, overhanging, out of upright or otherwise defective; also to shore up the bay window and arch over the back door immediately. The lessee obeyed; the window was taken down, but owing to the walls of the house being old and badly built it could not be re-erected without becoming a dangerous structure. A new window was formed in the main wall of the house. The lessor demanded that the premises should be restored to their original condition by replacing the bay window. That could only be done by employing columns or other supports beneath it. Mr. Justice KEKEWICH gave judgment for the defendant, who, he said, had been unable owing to the action of the London County Council to perform the work required. A new bay window resting on columns could not be considered as a repairing of the old one. The case will be found to have a wide application. Local authorities order many alterations which have the effect of imparting a new character to premises. Sometimes lessors will not recognise the new works or will insist on compensation. It is therefore an advantage to have the law on the subject once more laid down with precision.

THE results of the trials of uralite at West Kensington in last December demonstrate that even temporary buildings, when protected by sheets of the material, will resist flames for a sufficient time to enable any inmates or property within them to be removed without risk. When it is remembered that the retail price of uralite is less than 4d. per square foot, it is evident that immunity from danger can be secured without much expense. An ordinary deal door with two thicknesses of uralite was subjected to a temperature which at last reached 2,340° Fahr., and at the end of 30 minutes the uralite, although "porcelained," was still in position. Another door constructed with five thicknesses of uralite, two of deal, the inside being covered with armour, did not in 30 minutes allow the flames to pass. The outer part of the door was in perfect condition. A partition formed of six thicknesses of uralite and two of deal, with upright timber studding, was found to have the uralite next the fire porcelained, but the uralite behind this was in good condition, and the first layer of wood was somewhat charred. A platform was also tested as well as deed-boxes, with no less satisfactory results. Uralite deed-boxes are in request, and they have a special use for those who need to have protection for documents, designs, patterns, &c. The peculiar applicability of the material enables it to be used without elaborate preparations, and in consequence it may be said to be an indispensable adjunct for wooden buildings. It completely changes their character. It compensates for the consumable qualities of timber, and temporarily, as it were, imparts endurance under great heat to the material. At a time like the present, when there is so much anxiety on the subject of improved buildings, the advantages of this preparation of asbestos cannot be too widely known. In order to secure fire-resisting and fireproof doors that will be practically invulnerable, the British Uralite Co. have made arrangements with Messrs. MATHER & PLATT, Ltd., to make uralite doors at their large works, which are especially laid out for their production.

THERE has been a cessation of speech and writing in relation to the gold ornaments found in the North of Ireland and which were purchased by the Trustees of the British Museum. There is no doubt, however, that the Crown lawyers have not suspended their operations, and the subject has been formally brought under the notice of some of the officers of the High Court. In Ireland confidence is still prevalent that the examples will one day be restored. Mr. J. R. GARSTIN, the president of the Royal Society of Antiquaries of Ireland, referred to the controversy at the annual general meeting which has just been held. He demurred to the intervention of the Society of Antiquaries, especially as the official of the British Museum who bought those objects was the Secretary of the Society, and its President was one of the Trustees of the Museum.



"MUSIC."—By F. R. PICKERSGILL, R.A.

THE ARBITRATION CLAUSE.

IF a vote could be taken among lawyers respecting the arbitration clause, which is almost universally introduced in contracts for works of construction, there is little doubt a majority would be found in opposition to it in its present form. Such a mode of ascertaining opinion is, of course, impracticable. Lawyers know that the parties to a contract can set up a tribunal of their own for the arrangement of any differences which may arise, and the agreement once made there is no escape from it. On the other hand, it is realised that so much unrestrained power in the hands of an individual is sometimes liable to abuse. Besides, there is more or less of an anomaly in the fact that an architect or engineer, who is the paid representative of his client or clients, and whose personal interest is bound up with them, should in an emergency cease to be one-sided, and become as impartial as would be an outside arbitrator, or one of the judges of the High Court. In consequence of this view there has evidently been a desire whenever occasion offered on the part of judges to limit the powers claimed by the architect or engineer as arbitrator. For example, it is sometimes held that certain questions in a contract deed are of a legal kind and cannot be determined by any individual other than a trained lawyer. Or if a clause speaks of the manner of executing works and a dispute arises about the quantity executed the clause is not supposed to apply. Many other instances could be given, but the few we have mentioned are sufficient to indicate the tendency of the judicial mind in England.

The judgment which was delivered by Mr. Justice FARWELL a few days ago in the Chancery Division of the High Court is the latest instance of the endeavour to restrict the authority of the engineer or architect within their own province as superintendents of works. The plaintiffs in the case were Messrs. FOSTER & DICKSEE, contractors, and the defendants were the Mayor and Corporation of Hastings. The arguments arose out of an application for an injunction by the plaintiffs to restrain the defendants, or their officers, from acting under a notice given by the borough engineer on the 6th ult., by which the plaintiffs and their workmen were to be dismissed from their works and other persons employed to complete the contract at the cost of the plaintiffs. The contract was for works in connection with a supply of water to the borough of Hastings. It was entered into on December 31, 1898. Three wells were to be sunk and lined as part of the undertaking. Two of them were completed. There were some difficulties about the third well, and it was arranged that the original site should be abandoned. A supplemental agreement was entered into in July 1901, in which it was stated that the provisions of the original contract were to apply to the new works. After a depth of 58 feet had been reached, for the new well there was a sudden inrush of water. Not anticipating such a difficulty, the Corporation had hired out the most effective pumping machinery, and

the plaintiffs were therefore compelled to utilise pumps which were inadequate to the duty required. Delay was unavoidable. The engineer wrote in a friendly way asking the contractors if they could not expedite the work. The reply was that more effective pumping machinery was indispensable, and, owing to the dimensions of the well, was difficult to obtain. On December 23 the contractor wrote to the engineer submitting various proposals. These were considered by a sub-committee, whose decision was that the notice should be given for which the deed provided, dismissing the contractors and announcing that other arrangements would be made for completing the work at the plaintiffs' expense.

The contractors evidently were well advised by their lawyers, for they informed the Hastings Council that the notice was of no avail, and that such questions as were in issue were to be decided by two arbitrators. On January 1 the contractors selected their arbitrator, and asked the Council to name another within seven days. As the Council course was not followed the plaintiffs moved for an injunction.

The clauses relied on by the plaintiffs were, generally speaking, of an ordinary character. The plaintiffs undertook to execute the works to the satisfaction of the engineer, but it was added that if any dispute arose between the Council and the engineer or the contractors as to the mode of carrying out the work, or the interpretation of the contract, or otherwise in relation thereto, or the settlement of the account, the same was to be referred to the arbitration of two arbitrators, subject to the provisions of the Arbitration Act, 1889, and no action was to be brought in reference to the matter in dispute except for the purpose of enforcing the award. The engineer or officer of the Council had the power to dismiss forthwith any workman or workmen found to be incompetent. If work were executed with unsound materials or not in accordance with the specification it was to be reconstructed or restored if the engineer so directed, and the engineer was empowered to employ other workmen or use other materials if necessary. The engineer could also have unsound or unfitted materials removed. The expense incurred was to be deducted from the monies due to the contractor. It will thus be seen that the contract was as rigorous as could be desired. The Hastings Town Council were so much masters of the situation they must well have imagined, as counsel stated, that they could imitate other municipalities, and after taking the work out of the contractor's hands complete it by their own works at a cheaper rate. It had to be admitted that in the last which passed there was no specific complaint against the contractors. There was, of course, grumbling, but it was a contract carried on with nothing but congratulatory on the part of those who had charge of the works?

The only question, therefore, at issue was whether it was necessary to call in arbitrators. Counsel for the defendants contended that unless the engineer had the power to act, then the clause by which he could serve no

the work was improperly conducted or sufficient despatch as not used became futile. Counsel for plaintiffs could not dispute the power to give notice, but said it was one of those cases of dispute between the engineer and the contractor which were to be referred to arbitration.

Mr. Justice FARWELL, in giving judgment, said that if the engineer alone was to be the sole judge the Court could not interfere. But in clause 2 it was stated that disputes between the engineer and the contractor should be referred to arbitration. There was no other provision in the contract to override that clause. Suppose the engineer out of spite dismissed the foreman, were the contractors not to insist on arbitration? Without the arbitration clause the contractors would be delivered bound hand and foot to the engineer. His Lordship said he found more difficulty in determining whether the Court could interfere by injunction. By the defendants' view the Corporation could turn out the contractors if so advised by their engineer. His Lordship considered that it was implied at such a course would not be followed unless it was ordered by the arbitrators. His Lordship therefore granted an injunction until the arbitrators had decided whether the engineer was right or wrong.

It will be seen that the case is not yet ended. When it is necessary for a judge to suppose that something is implied, another judge under different circumstances may take an opposite view. There was no exaggeration in supposing that the contractors could be dismissed. By an exceedingly simple process they would in that case not only lose money, but they would run the risk of being considered unsuitable to undertake similar works, and consequently a grievous punishment would be inflicted on them. So many public bodies now meddle with construction, it was not unwarranted if plaintiffs' counsel to suggest that the defendants were in danger of becoming their own contractors. That is a consideration which should not be scouted by other contractors. The whole system of executing work has been changed in recent years, and it cannot be said that the change has been entirely advantageous to general contractors. Nevertheless, it is still supposed that the contractors' fate should depend on the will of one man. Whatever may be the final issue in the Hastings case, there is more satisfaction when an arbitrary act, although believed to be justified, is approved by two other experts who can make an investigation without having the least interest in the result except the triumph of equity.

HAMPTON COURT.*

FOR the majority of people the interest of Hampton Court is mainly derived from its history. The Manor is known to have been worth 40*l.* a year in the time of EDWARD THE CONFESSOR. In Domesday it is entered as only one-half that amount. Early in the thirteenth century it was bequeathed to the Knights Hospitallers, by whom WOLSEY was granted a lease. It is now impossible to say why he should be anxious to erect a palace in that situation. It was too distant from London for a statesman's continuance of whose office did not depend on the pleasures of an assembly, and if WOLSEY's dreams were of the privacy there could be no special advantages for the realisation of them in the tenure of such a place. But having obtained possession of the land he resolved to build in a new style.

Hampton Court being chiefly constructed of brick, there were architectural limitations imposed by the material which could not be easily surmounted. It is possible that WOLSEY adopted a homely design for the exterior on the intention of creating greater surprise to a visitor when he entered. In the account which CAVENTISH, WOLSEY's secretary, gives of the visit of MONTMORENCI, the French ambassador, there is very little said except about the impressions made on him by the gorgeousness of the interior. Emphasis was given to the cupboards finished with gold and silver plate, the Arras hangings, great candlesticks, the music and entertainments, so that the Frenchmen, as it seemed, "were rapt into a heavenly paradise." Gold and silver abounded in all the

rooms. This view is confirmed by the report of a conversation soon afterwards between FRANCIS I. and the English ambassador. The French king had heard so much about the interior, all his inquiries related to the exterior. According to the account, "He was very desirous to here, and to take great pleasure to commune with me thereon, shewing me He had said that Your Majesty did use much gilding in your said houses, and specially in the rowffes, and that He in his building used little or none, but made the rowffes of tymbre fyndly wrought with dyvers cullers of woode naturall." At this time the palace had been presented by WOLSEY to HENRY VIII., who was engaged in adapting it to his own requirements. A Frenchman would find it difficult to understand why there should be much difference between the interior and the exterior of a building as regards architectural quality. At Hampton Court the exterior corresponded with the English work of the time. But within, the building is a remarkable example of the change which was about to arise. In a general view the rooms will appear to correspond with English work, but when examined closely it becomes manifest that the spirit of the Renaissance had succeeded in gaining admission, and exhibited its power in many of the details.

If the buildings are to be judged by a palatial standard, it cannot be said that they will bear comparison with examples which are seen abroad. The work of the early part of the sixteenth century and that of the end of the seventeenth century were alike mainly derived from domestic buildings. In both cases residential purposes are recognised, but something more is needed for buildings which are to be the scene of grand functions and where State business is transacted. It was in that way Mr. FERGUSSON considered the older and the later work when he said:—

He (Wren) was more successful at Hampton Court, though here the basement is too low, especially in the courtyard, and the dignity of the "bel étage" is destroyed by the circular windows over the principal ones, and, where orders are introduced, they are merely as ornaments, and overpowered by the attic that crowns them. The great merit of this design is its largeness, and being devoid of all affectation. From the possession of the first quality it contrasts favourably with Wolsey's palace, to which it is attached. Neither is of the best age of its peculiar style, nor perhaps the best of its age; but there is a littleness and confusion about the Gothic as compared with the simplicity and grandeur of the Classic which is altogether in favour of the latter. When, however, the earlier design is looked into it displays an amount of thought and adaptation to its uses which is wholly wanting in the Classic. Wren's design looks as if it could have been made in a day; Wolsey's bears the impress of long and patient thought applied during the whole time it was in execution; and though, therefore, the conception of the first is grander, the ultimate impression derived from the latter is more satisfactory and more permanent.

The monarchs who succeeded HENRY VIII. were not disposed to spend money on Hampton Court. ELIZABETH, who was the most favourably placed to incur expenditure, preferred the Thames as seen at Greenwich. CHARLES I., who enjoyed the place and added many pictures to the collection, was for a time a prisoner in the palace. During the Protectorate there was an order made that the palace, with its outhouses and gardens, should be sold. But CROMWELL was able to obtain possession of Hampton Court, and he used it like his predecessors for an occasional residence. CHARLES II. was disposed to carry out many alterations. PEPYS in 1665 describes the king as "mightily pleased with his new buildings there." The sedate JOHN EVELYN, who visited it in 1662, speaks of it as a noble and uniform pile and as capacious as any Gothic architecture could have made it. But he is more enthusiastic about the interior, with its "incomparable furniture." In fact, most of the old accounts of the palace refer to what was to be seen in the chambers and galleries. One of the innovations introduced by CHARLES II. was the painting of the walls and ceilings, a practice which was more common on the Continent than in England.

The staircase at Hampton Court, which was one of the subsequent works, is so tremendous an example of mythological painting, there can be little doubt it has deterred public authorities as well as individuals from giving commissions for mural decoration. It was supposed to be a type of the grandest style, and it was enough to confound

* See Illustration.

the largest manner of architecture. VERRIO, the painter, was a Neapolitan who had settled in France. CHARLES II. brought him to England in the hope of VERRIO's becoming a rival of LE BRUN in the designing of tapestries which were to be produced at the Mortlake factory. Instead of work of that kind he was allowed to be busy at Windsor and Hampton Court, and was paid liberally. He was also appointed as master gardener. But his expenses exceeded his receipts. Out of loyalty to the STUARTS he refused to paint for WILLIAM III., and it was only when persuaded by Lord EXETER he condescended to undertake the great staircase at Hampton Court. There is evidence to suggest that the painter was then irregularly paid. His allowance was 10*l.* weekly for himself and his assistants. Instead of 260*l.*, the amount due for the period between December 1701 and June 1702, he complained that he had received only 50*l.*, leaving a balance of 210*l.* A month afterwards we find VERRIO again appealing for money. He stated it was arranged that he was to receive 400*l.* for painting the great bedchamber at Hampton Court. For the great staircase and little bedchamber his charge was 1,800*l.* All he had been given was 1,190*l.* His necessities were said to be very pressing, and without speedy assistance he was likely to be reduced to an extremity. We find WREN reporting on an appeal of VERRIO for money to pay for colours he needed to finish the great room at Hampton Court. He had been paid only 200*l.*, and 500*l.* was required to pay for his subsistence and charges until the room was complete. Up to 1688 VERRIO was in receipt of 200*l.* a year as chief painter. The office was held by JOHN RYLEY and GODFREY KNELLER during a part of the reign of WILLIAM and MARY.

VERRIO was not the only person engaged at Hampton Court to whom money was owing. WILLIAM ROBERTS, the plumber, who described "Mr. TALMAN" as his substitute, said he was employed to cast and make pipes for the gardens and fountains. After the death of WILLIAM III. the pipes had to be used to repair the main pipe which brought water from Coombe to the house, and he remained unpaid. In another appeal ROBERTS declared the amount owing to him for plumbing at Hampton Court, Kensington and Windsor was 3,971*l.* 5*s.* 2*d.* One ROBERT BALLE, a merchant of London, claimed 600*l.* for seven marble statues and one marble head ordered from him for Hampton Court a little before the death of WILLIAM III. The sum charged was what he had paid in Italy. Queen ANNE and her Ministers appear to have settled all the outstanding claims. VERRIO was also provided with a pension which was similar in amount to the sum he received when chief painter, or 200*l.* a year, but he did not live long to enjoy it, for he died at Hampton Court in 1707.

It will be observed that ROBERTS, the plumber, refers to WILLIAM TALMAN as his substitute. Although so described TALMAN seems to have been an architect, and a busy one towards the end of the seventeenth century. He was born, according to WALPOLE, "at West Lavington in Wiltshire, where he had an estate; was comptroller of the works in the reign of King WILLIAM; though of his life I find scarce any particulars, although he was an architect employed in considerable works." Among the buildings ascribed to him are Thoresby House in Nottinghamshire, Dyrham House in Gloucestershire, Swallowfield in Berkshire, and Chatsworth. It would seem as if his comptrollership at Hampton Court gave some annoyance to WREN, and his aim might be supposed to oust the more able architect from his position. As comptroller TALMAN was succeeded by VANBRUGH.

There were two reasons which may be said to have compelled WILLIAM III. to give more attention than CHARLES II. to Hampton Court. Bishop BURNET records that when the king came to St. James's, the absence of exercise and hunting made him so weak that ill effects were anticipated. He did not wish that the influence of London upon him should be apparent, and the restraint he put upon himself made him peevish, silent and reserved. After a few days he went to Hampton Court, and travelled to London only when meetings of the Council were held. The retirement caused general disgust, for the gaiety and diversions of the Court disappeared. The Bishop tells us that "the king found the air of Hampton Court agreed so well with him that he resolved to live the greatest part of the year

there. But that palace was so very old built and irregular, that a design was formed of raising new buildings there for the king and the queen's apartments. The king showed a resolution to live at a distance from London; and the entering so soon on so expensive a building afforded matter of censure to those who were disposed enough to entertain it, and this spread a universal discontent in the City of London." WILLIAM, however, was not the man to be daunted by popular clamour. Next to hunting he preferred architecture and gardening as amusements. He had erected a palace on a heath in Guelders which was reported to be a wonder of art, and he decided to create a second Loo on the banks of the Thames. A large extent of ground was laid out in gardens in the Dutch style. Trees were transplanted from neighbouring woods. WREN received the commission to make the alterations, and he provided apartments for the king facing the private garden and the Thames. Their length is 320 feet, while the queen's suite facing the Home Park is 2 feet longer. WILLIAM's taste was not very refined. ELMES says that WREN at Hampton Court was under Batavian influence and was never less happy in designing. The king was too just not to assume responsibility for the defects. According to Lord PEMBROKE, when the lowness and disproportion of the arrangement of the cloisters or arcade under his apartments were complained of, the king honestly excused his architects by acknowledging that they were so constructed by his express command.

In those days, when roads were rarely found in proper condition, a journey to Hampton Court could not be expeditiously performed. On the one hand Hampton Court was too remote to allow of consultation with the monarch, and on the other WILLIAM feared that if he lived in London death was not far off. As a compromise Kensington House, which belonged to the Earl of NOTTINGHAM, was purchased for 18,000 guineas, and then followed "more building, more planting, more expense, more discontent." But his preference was always shown for the more rural abode. When WILLIAM returned after his last visit to Holland he gave orders he was to be brought direct to Hampton Court. Three months afterwards he there received through the stumbling of his horse the contusion which his feeble frame could not resist.

WILLIAM III. had no successor as a builder at Hampton Court. The alterations since his time have been of little importance. Indeed, some which were perpetrated a few years ago can only be considered as injurious to the Palace. The first and second GEORGES lived at Hampton Court, but from the reign of GEORGE III. it can hardly be regarded as a royal residence. Some of the apartments are now used as dwelling-places by individuals who have done the State service or by their representatives. But the principal rooms or State apartments have become no more than a museum. The walls are hung with pictures which are not of uniform value. The cartoons of RAPHAEL are no longer to be found there. The tempera paintings by MANTEGNA of the *Triumph of Julius Caesar* continue to make the gallery the most occupied one of the attractions of Europe. The building has also their historical associations, and for many reasons they are now and will continue to be one of the places which are best worth a visit in England.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

THE third craft evening in connection with the above Society was held on Thursday, January 29, the president, Mr. Butler Wilson, F.R.I.B.A., in the chair. The demonstrator for the evening was Mr. Walter Gilbert, of the Bromsgrove Guild, who discoursed upon "Decorative Metal Work" and exhibited and explained the processes connected with various examples of the art produced by his band of fellow workers. Previous to this he delivered a short but interesting paper in which he traced the history of the ancient guilds from their inception, and dwelt upon the fact that in the days gone by everything manufactured seemed unavoidably touched by the finger of art. He contended that the misleading phrase "Gothic work" should give place to some such term as "guild work." The craftsman in former times made his work as amusing to himself as he could, and lavished treasures of human hope and thought on everything that man makes from a cathedral to a porridge pot.

THE LEGAL RIGHTS AND LIABILITIES OF ARCHITECTS AND SURVEYORS.*

TO anyone at all familiar with matters relating to architects and surveyors, the subject and proper scope of the present address will be indicated with sufficient clearness by the above title. It may nevertheless be not inappropriate at the outset to point out certain limitations to the generality of the title, and to define a little more clearly the questions proposed to be considered. In the first place, some limitation to the generality of the title is required, because there is a broad and obvious sense in which the rights and liabilities of architects and surveyors, or of any other class of professional or business men, are the same as those of any individual members of society, and a consideration of all such rights and liabilities would involve a survey of the entire law as to persons—a task plainly out of the question. It is clear that the purpose of the present address must be limited to the consideration of those rights and liabilities on the part of architects and surveyors which arise from the position in which members of those professions are usually found, in relation to their employers and to other persons who may also be employed in the same matter. It may then be suggested that the subject for consideration should be the rights and liabilities of architects and surveyors as such, but this limitation would be too severe, for notwithstanding the above title it may with safety be stated that neither architects nor surveyors have any rights or liabilities simply as such. They do not, like members of the legal or medical professions, require any legal qualification to practise, and nothing analogous to the Solicitors' Acts or the Solicitors' Remuneration Act applies to them. They are not subject to any legal restrictions or regulations as to their professional conduct or remuneration. They are not, in fact, protected or harassed, as the case may appear, by any special legislation or rule of law, and any person, however ill-qualified, may set up and practise as an architect or a surveyor, or as both, and if being so ill-qualified he can induce the public to employ him, so much the better for him and so much the worse for the public. It is true that as some protection and guarantee for the public, as well as in the interests of the respective professions and for the mutual benefit of their members, societies of architects and surveyors have been formed, and have framed rules as to professional etiquette and remuneration, but these rules only bind the members as a condition of membership. They have no binding legal effect whatever. In this respect the position of architects and surveyors is analogous to that of accountants or engineers, who are alike free from any legislative trammels as to qualification or professional conduct or remuneration.

What, then, are the rights and liabilities proper for our present consideration? for, as already indicated, it is obvious to all familiar with the subject that the position of architect or surveyor does frequently and, indeed, generally give rise to rights and liabilities which may with propriety be described as those of architects and surveyors. They will be found for the most part to depend upon the law of agency, and upon the position in which the architect or surveyor is so frequently placed as the agent of the employer or building owner in superintending works to be carried out for such employer or building owner under what is known as a building contract.

Attention may here be drawn to the fact that a very great part, if not the greater part, of all legal problems and complications in matters and between persons of every kind arise from this law and position of agency. In company matters, for instance, as a company though a "person" in law is incapable of acting except through agents, scarcely any dispute or point arises into which the question of agency does not enter. Disputes or litigation between two individuals or parties simply and not complicated by any question of agency on the part of either of them or of any other parties, are usually of a more or less simple character, apart from the question of torts or wrongs which need not be here considered. Such disputes or litigation are most frequently upon some simple question of contract, the point being whether there was any and what contract, whether there had been a breach of it, and what is the legal right or remedy in respect of such breach, and in such cases the question is usually one of evidence rather than law. So cases with simple questions between architects or surveyors and other persons directly and apart from questions of agency. If I employ an architect to prepare me a plan or a surveyor to measure up a piece of land or get out some other quantities, and he performs the work with the skill reasonably to be expected from a person holding himself out to be qualified for such work, he is entitled to be paid the stipulated or reasonable remuneration, and upon his being so paid the transaction is at an end. Such a simple transaction is in all respects similar to a bargain made, for example, with a portrait-painter to paint a portrait.

I may not like or use the plan prepared for me; I may not like the portrait, and may prefer to hang it in the back bedroom or with its face to the wall, but if it has been done with such reasonable skill as aforesaid I am bound to pay for it, and there is an end of the matter. If the usual transactions with architects or surveyors were of this simple nature there would hardly be more occasion to consider the rights and liabilities incident to the practice of these professions than there would be to consider those of portrait-painters, photographers or the like, and the present paper might almost end here as a sufficient survey of such rights and liabilities. Such, however, is very far from being the case. The terms of their employment usually involve not only the designing or suggestion of works, but their supervision of the works designed or suggested whilst in progress, for the purpose of seeing that they are duly executed in accordance with the plans and specifications. This brings them into relation with other parties, and it is this relationship which gives rise to so many of the rights and liabilities proposed to be considered.

It appears from the foregoing introduction that the particular rights and liabilities so to be considered usually arise under what are known as building contracts, or contracts of the like nature, and that the chief of them are incident to the position of the architect or surveyor as the agent of the employer. Those familiar with such contracts are aware that in addition to his position as agent, the architect or surveyor is for the prevention of disputes invested with certain judicial or arbitral functions which give rise to other rights and liabilities to be considered in their due place. Having thus outlined the scope of the address and the subjects for consideration, I now propose to deal with those subjects in detail, and under the following heads, that is to say:—

1. The proper qualifications of the architect or surveyor.
2. The position of the architect or surveyor under simple contracts of employment not involving or apart from questions of agency.
3. The position of the architect or surveyor as agent of the employer under building contracts or the like; and
4. The position of the architect or surveyor in his quasi-judicial capacity or as arbitrator under building contracts or the like.

Proper Qualifications.

I have used the term proper qualifications advisedly, for it has already been seen that no qualification is legally necessary. Architects and surveyors, however, are in the position of persons holding themselves out as competent to perform certain work requiring certain skill, and they impliedly guarantee that they have such skill. If therefore they do the work so badly or carelessly as to indicate lack of the required skill they will be unable to recover remuneration for it and might be made liable for damages should loss or injury result from negligent or unskilful work. I believe that in France an architect has been held criminally liable for the death of a man killed by the fall of a building owing to its defective design, and though I am not aware of any such case in England, circumstances could be conceived in which under the English criminal law a negligent architect could be so made liable. As regards the matters in which skill or knowledge is required to make a competent architect or surveyor, they may be generally stated as follows, that is to say:—

- (a) Skill in the preparation of plans, drawings or designs suitable for the particular work to be executed, or in the case of surveyors, skill in the measurement or surveying of land or in suggesting plans or ideas for the development thereof.
- (b) Knowledge of the materials to be used and of the proper application or use of such materials.
- (c) Knowledge of Building Acts and the requirements of local authorities and of the law as to light and air, support or other easements.

If through ignorance or neglect of any of these matters on the part of the architect or surveyor the work designed or suggested should prove to be impracticable or fail, that would be evidence of such want of proper skill on the part of the architect or surveyor as to disentitle him to remuneration. But although persons undertaking to do work requiring certain skill impliedly guarantee that they have such skill, yet if an employer deliberately employs for the carrying out of important works requiring high and special skill a person whom he knows has not enjoyed a practice likely to give him the requisite experience and knowledge, he would not in the absence of special guarantee or representations of sufficient knowledge and experience be entitled to recover damages from the architect or surveyor in the event of the work proving unsatisfactory. See Macassey and Strahan on Civil Engineers, pp. 36 and 37, and the case of Henry and Belfast Board of Guardians, cited on p. 39.

As regards requirements (a) and (b) little more need be said. What is expected of architects and surveyors in these respects is pretty generally understood. Of course the amount of skill and knowledge required in each case depend upon the nature and importance of the particular work to be done.

* A paper, by Mr. H. H. Richardson, solicitor, Clement's Inn prizeman, 1879, Hon. M.S.A., read before the Society of Architects on Thursday, January 22.

As regards (c), it is obvious that a lack of acquaintance with statutory or local requirements, or with the rights of adjoining or neighbouring owners may render a plan or suggested works, however otherwise excellent, impracticable and useless, and it is therefore of the utmost importance that architects and surveyors should be thoroughly familiar with such requirements and rights. All men are presumed to know the law—ignorance of it excuses no one—and architects and surveyors no less than lawyers must carry on their practice under the burden of this stupendous presumption.

In this connection it may be pointed out how important it is to architects and surveyors, in their own interests, to know what contracts, in order to be binding, require to be in writing under the Statute of Frauds and what require to be under seal. Under the Statute of Frauds contracts relating to land, and also contracts the performance of which must necessarily extend beyond a year, require to be in writing, signed by the party to be charged, and contracts with corporations require generally to be under seal; and architects and surveyors, in dealing with corporations, should therefore be on their guard against relying on memoranda or writings merely signed by an officer of the corporation.

Position of Architect under Contract.

We may now pass on to the consideration of the position of the architect or surveyor under simple contracts not involving or apart from questions of agency.

In such cases the position in which the architect or surveyor stands towards his employer is that of a skilled servant, and in it he will be expected to possess and properly display such skill and knowledge as has been already indicated, and moreover to perform the duties he undertakes with such care, attention and fidelity as to free him from any charge of negligence. The simplest cases of such position and employment are those where the architect or surveyor is employed to prepare plans or designs, or make suggestions for works without reference to the question by whom such works are to be carried out, or superintended or whether they are to be carried out at all. The simple bargain in such cases is—stipulated work to be done with proper skill on the one part, and the stipulated or a reasonable payment therefor on the other.

One or two points, applicable alike to such simple contracts of employment and to contracts involving agency, may be rapidly noticed. As already stated, the contract may be for a period of employment greater than a year and so may require to be in writing, under the Statute of Frauds, signed by the party to be charged. It may be with a corporation and so require, generally, to be under seal. The plans, designs or suggestions may be ordered for the approval of the employer, and, if this is clear, nothing is payable for them unless they are approved or at any rate used. See *Moffat v. Dickson*, 22 L J C.P. 268.

They may be sent in in response to an invitation to compete, in which case, unless remuneration is offered by the terms of the invitation to unsuccessful competitors, they will not be entitled to any unless their plans or designs are actually made use of. Under this head the question of ownership of plans and designs may be considered. Does the employer, when employing an architect or surveyor in the usual way, purchase the plans, drawings or designs, or only the use of them for the purposes of the designed works? It was formerly considered that by the custom of the profession the latter was the case, and that the drawings remained the property of the architect notwithstanding payment. The contrary, however, appears to be now settled by the case of *Ebdy v. McGowan*—*Times* of July 7, 1870—and whatever may be said with respect to the ownership of plans prepared for the purposes of works to be carried out under the superintendence of the architect, it is impossible to doubt that where an architect is simply employed to prepare a plan or design without more and without definite agreement to the contrary, the plan or design would, upon payment therefor, be as much the property of the employer as a portrait ordered to be painted for him and duly paid for. If the effect of the bargain is to give the property or the plans to the employer, it is clear that he can use them for any purpose he pleases, and need not confine their use to the purpose for which they were originally prepared or intended.

The contract between the employer and an architect or surveyor is a personal one, and the employer is entitled to have the work done or superintended by the architect or surveyor personally. Consequently the death of the architect or surveyor terminates the contract, though that of the employer does not necessarily do so, and his executors may under the contract be entitled to have it carried out for the benefit of the employer's estate. Should the architect or surveyor die before the completion of the work, and before any payment has become due for it, he would not in the absence of agreement to the contrary be able to recover any payment, but if his services had been retained at a salary he could recover so much of the

salary as had become due at the date of the death. See *Stubbs v. The Holyhead Railway Company* L.R. 2 Ex. 311.

Apart from the strict practice of their respective professions, architects and surveyors may, like other professional persons, be employed to give evidence before Parliamentary committees or the like in support or in opposition to some particular measure, or to give expert evidence in a court of law. In such cases they are of course entitled to be paid proper fees, having regard to their standing and reputation. They are also in practice frequently employed as valuers, and although, as before stated, they are not in their ordinary professional capacity hedged about by legislation, yet if they act as valuers or appraisers it appears that they should take out qualifying licenses therefor under 46 Geo. III., c. 42, ss. 4 and 7; or 8 and 9 Vict., c. 76, sec. 1.

As regards protection from libel or slander, architects and surveyors have, of course, the like legal rights and remedies as other people. It would be libellous to write and slanderous to say of an architect or surveyor that he was incompetent, or that he had not sufficient skill, knowledge or experience for the carrying out of any work undertaken by him. See *Botterell v. Whitehead*, 42 L.T., N.S. 588.

Liabilities as Agents.

With this summary survey of the rights of architects and surveyors as skilled servants, we may now proceed to consider the more important and, from a legal point of view, more interesting question of their rights and liabilities as agents or otherwise under building contracts or the like. These come under heads 3 and 4 above mentioned. First then we deal with head 3, that is to say, the position and authority of the architect or surveyor as agent of the employer. In the simple cases dealt with under head 2 the architect and the employer are the only persons concerned. When the architect is employed not only to design the building but to superintend its construction he is brought into relationship with those who are employed to construct it, and it is this relationship and the duties and liabilities arising in connection with it which are now to be considered. The same lack of personal skill or knowledge which usually precludes a building owner from designing the work he wishes to have done precludes him also from seeing that it is done properly by the person employed to do it. He has, therefore, to employ someone to perform this service also for him, and in building contracts this person is usually and properly the architect or surveyor who has designed it. The owner having satisfied himself that a building or work erected or done in accordance with the prepared plans or designs will be what he wants, employs a builder or contractor so to erect or do it, and an architect or surveyor to see that it is so erected or done. He thus constitutes the architect or surveyor his agent for the purpose of seeing the desired work carried out. Now agency is of two kinds. A man may appoint another to be his agent simply for some particular purpose or purposes—as in the case of an agent or attorney appointed to execute some particular deed or deeds, or to give receipts in some particular matters. In such cases the person to whom the deed is to be executed or the receipts given must see that the agent has that particular power, otherwise he may find that the principal is not bound. He cannot rely upon the mere word of the agent that he has the professed power. On the other hand, he may appoint someone to be his general agent to do all such things as may be necessary or proper for some purpose or undertaking. In such cases the authority given is an authority to act in a certain capacity for all the purposes of the undertaking in question. A person put forward to act as such general agent can bind his principal by all acts within the scope of his employment, although the principal may have privately limited his authority in particular matters. The position of the architect or surveyor under a building contract is one of general agency, and his position as such general agent appears from the leading case of *Kimberley v. Dick*, L.R. 13, Eq. 1, where the question of the character in which the architect stood was considered under the terms of a building contract. "I am of opinion that I must treat Mr White (the architect) as the agent of Mr. Dick (the building owner) generally, for all purposes connected with this building, and that without any limitation as to price or anything else." The decision of the case upon the point is thus summarised by Mr. Roscoe in his useful digest of building cases:—"The architect is the agent of the employer generally for all purposes connected with the erection of the structure of which he has prepared plans, and the erection of which he is to superintend."

The general principle is thus laid down and established. The bearings of it lie, like Captain Bunsby's observations, "in the application of it," that is to say, when any question arises as to the employer's liability for the acts or orders of the architect or surveyor, such question will usually be found to depend upon whether such act or order was, in fact, within the scope of the general authority given.

If an agent falsely represents that he has an authority

which he has not, and thereby induces another person to act on the faith of his representation, that is a fraud for which if the person so induced to act is thereby injured he could recover damages. See *Randell v. Trimen*, 18 C.B. 786. Of course as between himself and his employer simply the position of the architect or surveyor under a building contract is still that of a skilled servant, and the same skill, knowledge and care requisite in the preparation of the design must continue to be shown in the superintendence of the work, and for any neglect of his duty in this respect the architect or surveyor might be made liable. Questions as to the extent of the architect's or surveyor's authority under a building contract must frequently arise in respect of the following matters, viz:—(a) Alterations and deviations from plans; (b) extra work; (c) authority to employ quantity surveyors, and (d) certificates.

In properly-drawn building contracts all these matters are carefully provided for, and in so far as they are so the rights and liabilities of the parties will be determined by reference to the particular provisions. In the absence of special provision the authority of the architect as the general agent of the employer does not extend so as to entitle him to permit any alterations or a deviation from the accepted plans, or to order any extra work to be done. If, therefore, he permits or orders any such alterations or extra work he will not thereby bind the employer, and may render himself personally liable to the contractor. Of course, in all these cases the unauthorised order may be accepted and ratified by the employer, but architects and surveyors will be well advised to avoid any risk by keeping well within the bounds of their general authority, as limited or extended by the contract, and in the event of anything appearing desirable to be done, but of doubtful authority, to obtain clear written directions and authority for the execution of any alterations or extra work.

It is usually provided that no extra work should be done without a written order of the architect, and in such a case a written order is a condition precedent to payment for such work, and its mere inclusion in an interim certificate will not prevent the employer from objecting to payment on final adjustment. See *Tharsis Sulphur, &c., Company v. McElroy*, 3 App. Cas., 1040.

In the course of a comparatively short paper like the present, these and similar questions of detail can only be briefly touched upon. It is sufficient to keep in view the position of the architect or surveyor as agents and the main principles of the law of agency, viz. that the agent must not exceed the limits of his authority, otherwise the principal will not be bound, and that persons dealing with the agent must be satisfied that he has the authority he claims, either under the instrument of his appointment or as coming within the scope of authority as general agent for the purpose in hand.

As regards (c), it does not appear to have been anywhere laid down that power to employ a quantity surveyor comes within the scope of the architect's authority simply as agent of the employer under a building contract, and his right to do so if it exists appears to depend upon custom. See *Moon v. Witney Union Guardians*, 3 Bing. N.C. 814.

(d) *Certificates*.—The position of the architect or surveyor with respect to the giving or withholding of certificates is of the highest importance, and may be regarded from the point of view of the architect or surveyor—(1) as skilled servant; (2) as agent of the employer; and (3) as arbitrator. As skilled servant he must have and use the skill necessary to show that the work certified for has been properly done, and failure in this respect will amount to negligence for which he will be liable to his employer.

(2) As agent of the employer he must act in his interest without collusion or any other surreptitious dealing.

(3) As arbitrator he must honestly and impartially exercise the quasi-judicial functions entrusted to him.

In granting or withholding certificates the architect's conduct (apart from collusion or fraud) cannot be impugned, and his decision is final. But wilfully to certify work to be done when it is not done is a fraud upon the employer, for which he would be liable, and collusively to withhold a certificate properly due would be a fraud upon the contractor. But mere negligence or want of skill in granting or withholding a certificate is not sufficient ground for impeaching the certificate, though as regards the employer whose skilled servant he is, negligence in granting a certificate for work not properly done would render the architect or surveyor liable.

The almost autocratic power put into the hands of the architect under the usual terms of a building contract has often been alleged as a ground of complaint on the part of the builder or contractor. Whether such complaint be just or what alterations likely to be accepted are proposed, would be fitting and interesting subjects for discussion in a paper on the rights and liabilities of builders and contractors; suffice it to say here that owing to competition the employer is generally in a position to dictate his terms, and that from the point of view of the architect or surveyor he very naturally claims, not only as agent of the employer, but in the interests of his own

reputation, to be put into a position which will enable him to see that the works designed by his skill are not jeopardised by any want of skill or care or honesty on the part of those employed to carry them out. Even-handed justice to the contractor must be what no doubt in the vast majority of cases is found—the fairness, integrity and high-mindedness of those into whose hands these powers are put.

This brings us to the last of our four heads, namely, (4) the position of the architect in his judicial capacity or as arbitrator. This, as has been seen, arises to some extent in connection with the question of certificates, but what is here more specially referred to is the position of the architect or surveyor as dispute preventer. If it is clear from the contract that the parties have agreed that he shall so act they must be taken to have conferred upon him a judicial capacity.

His decision is final unless some appeal is provided, and cannot be impeached for want of proper care or skill or upon any ground but that of fraud. There is no more familiar legal dictum than that fraud vitiates everything, and so it will vitiate the decision of the most fully-empowered judge or arbitrator. Nor must he do or be party to anything which would interfere with the proper impartiality of his position. Upon this point there is an interesting decision—that of *Kemp v. Rose*, 1 Giff. 258—where an architect having undertaken to his employer that the cost of the proposed work should not exceed a certain sum, it was held that he did not possess a sufficiently unbiassed mind to make his decision against the contractor just and conclusive.

The above survey, though necessarily very incomplete and imperfect, having regard to the many points in the position of the architect or surveyor under building contracts, will, it is hoped, suffice to show the general principles upon which questions relating to such positions must be decided, that is to say, the principles applicable to the relationship of (a) employer and skilled servant; (b) principal and agent and scope of agent's authority; and (c) arbitrator and disputants. Many interesting subsidiary questions remain to be considered—such, for instance, as the position and right of appointment of clerks of the works, the particular duties of quantity surveyors, the position of architects or surveyors with respect to questions of light and air, or the like. These, however, do not give rise to any different rights or liabilities, and are sufficient in themselves for independent papers. Nor has any attempt been made to deal largely with authorities, for a discussion of these to be of any use would leave insufficient time for the setting forth of those general principles upon which all such authorities are based, and which it has been considered (apparently not without reason) would afford sufficient material for the purposes of a single address before this Society.

THE NATIONAL GALLERY.

THE following additions have recently been made to the National Gallery, by bequest and gift:—

By the bequest of Mr. Charles Gassiot, two pictures by John Phillip, R.A., "Gossips at a Well" and "The Prison Window," and a picture by William Collins, R.A., called "Sunday Morning." These are hung in the Tate Gallery. Also a view of "The Severn off Portishead," by Patrick Nasmyth, hung in Room XX. in the Gallery at Trafalgar Square.

By the bequest of Lord Cheylesmore, "An Italian Landscape," by Jan Both, hung in Room X. in Trafalgar Square; "Cromer Sands," by William Collins, R.A., hung in the Tate Gallery; and "The Execution of Lady Jane Grey," by Paul Delaroche, temporarily placed with other pictures of foreign modern schools in the Tate Gallery.

By the bequest of Sir James Carmichael, two small works by Jan van der Heyden, "A Royal Château in Holland" and "A Dutch Church and Market Place," hung in Room XII. in Trafalgar Square.

By the bequest of Mr. George Vacher, a large water-colour of "Rezzonico and the Splügen Range, Lake of Como," placed in the water-colour room at the Tate Gallery.

By the bequest of Colonel John Morland, a small full-length portrait of Mr. Morland of Capplethwaite, an early work by George Romney. It is hung in Room XVII. in Trafalgar Square.

Mr. G. F. Watts, R.A., has completed the gift of his series of ethical and allegorical pictures to the National Gallery of British Art by the addition of his large picture of "The Court of Death," which is now hung in the room devoted to his works.

Another large and important work by Mr. Watts, which was painted for the Cosmopolitan Club and has hung for many years in its principal room, representing the story of the banquet of Anastasio degli Onesti from Boccaccio, has been presented by the members of the Club to the National Gallery of British Art. It is at present in process of being relined, and will be hung ultimately in the large sculpture gallery, opposite the "Isaiah" of Alfred Stevens.

NOTES AND COMMENTS.

AN ingenious attempt is to be made at Liverpool for solving the housing problem in a novel way. According to a description given by Mr. J. B. COLTON, a member of the Town Council, the buildings will be constructed of concrete made from refuse destructor clinker, and the sides, floors and roofs are all made in single individual pieces; they are stamped out in one block, and will be hoisted up and bolted together. The mouldings, fire-places, &c., are also formed in one mould, and stamped out under one pressure. The houses will be three storeys high, and will cost just half what it would to erect them in brick. The Council anticipate that the goal for which they are striving, namely, rents of 1s. per week per room, will be achieved, and they will be able to not only pay off their sinking fund but to make a handsome profit. One house per day could be erected. This is no parable or fairy tale, but an absolute fact. The Liverpool Council have to deal with demolitions on an immense scale. Although much has been done, about 10,000 slum houses remain to be removed. The rule has been made that demolition is to be regulated by the accommodation provided by the Corporation. In the new buildings no tenant will be accepted unless he has been dispossessed, and the rooms will remain empty until slum tenants seek the accommodation. In some of the houses already constructed one-roomed houses are let at 2s. per week, two-roomed 3s. a week, three-roomed at 4s. a week, and the four-roomed house at 5s. a week. For the purposes of a recreation ground 1,900 square yards were set off, and there were seven shops provided for. The land cost 14,466*l.*, and it was estimated that the buildings would cost 76,912*l.*, a total of 90,378*l.*, and upon this they estimated a return of 3 per cent. The rents are below the average charged in Liverpool. The plans are by Mr. TURTON.

THE Chapelle Expiatoire is not known to all English visitors to Paris. It is novel in form, and without much elevation. But it is at once recognised as a true "monumental" building. It was designed by FONTAINE (PERCIER & FONTAINE), who when a youth distinguished himself in 1785 by his design for a sepulchral chapel. After the resignation of PERCIER, FONTAINE became the royal architect, and he held the appointment under LOUIS XVIII., CHARLES X. and LOUIS PHILIPPE. The Chapelle Expiatoire was erected by LOUIS XVIII. as a memorial of LOUIS XVI. and MARIE ANTOINETTE, whose remains were interred in that spot of ground which had been the cemetery of the Madeleine. The title given to the chapel has often offended Republican susceptibilities, and, regardless of the merit of the building as an unique work of architecture, from time to time demands were raised for its removal. Twenty years ago, when an attempt of the kind was made, CHARLES GARNIER wrote that the chapel was a true *chef d'œuvre*, and that its demolition would be an act of real vandalism. Characteristically he asked why there should be so much hate against LOUIS XVI.; for if that king had not reigned it would have been impossible to overthrow the Bastille. A proposition is now before the French Parliament seeking authority for the destruction of the building, which, it is claimed, would afford a site for the new mairie of the district. The chapel may be demolished, but the historical fact that the king and queen of France were executed cannot in that way be obliterated.

READERS of CARLYLE'S "French Revolution" will remember the exciting scene of the arrest of LOUIS XVI. at Varennes. The postmaster DROUET, who was an ex-dragoon, was suspicious of a berline that entered the village of Ste Menehould, and with another old soldier followed the vehicle. When they reached Varennes the pair appealed to patriots, the bridge was barricaded, and when the vehicle arrived there was a demand for passports. Sieur SAUSSE, procureur and grocer, is present, and King and Queen are asked to remain with him until morning. The historian says:—"Procureur SAUSSE gives his grocer-arms to the Queen and Sister ELIZABETH, Majesty taking the two children by the hand; and thus they walk coolly back over the market-place to Procureur SAUSSE's, mount into his small upper storey, where straightway His Majesty 'demands refreshment.' Demands refreshments,

as is written; gets bread and cheese, with a bottle of Burgundy, and remarks that it is the best Burgundy he ever drank." SAUSSE's house is now known as No. 28 Rue de la Bas-Cour. It consisted in 1791 of two rooms on the ground floor and two on the first floor. The interior arrangement is unaltered. Recently the grocer's house was acquired by the Curé of Varennes, who wished to transform it into an expiatory chapel. The Government, however, would not permit of the change. The Curé had since died, and his representatives have decided to sell the little historic mansion where "imperial MARIE-ANTOINETTE was near kneeling to Son SAUSSE and Wife SAUSSE, amid candle-boxes and treacle-boxes," and from which the hapless LOUIS and his Queen departed prisoners for Paris, and eventually the Place de la Révolution.

ILLUSTRATIONS.

SKETCHES AT HAMPTON COURT.

CATHEDRAL SERIES: WORCESTER.—EAST END OF PRINCE ARTHUR'S CHANTRY. DETAILS OF PRINCE ARTHUR'S CHANTRY.

THERE was no English ruler stronger in kingcraft than HENRY VII. One proof of it was seen in his dispensing with Parliaments, for during thirteen years only once was summoned. He took care so unusual an independence should not give offence by keeping the expenses of his court within the limits originally fixed. His first son was named ARTHUR, in memory of the ancient British race of which the king considered himself to be the representative. ARTHUR was born at Winchester in 1488, and in 1492, *i.e.* when he had hardly reached his fourth year, a treaty was entered into by his father with the king of Castile and Aragon for a marriage between the young prince and CATHARINE, fourth daughter of the monarch. Another treaty was concluded in 1496, when FERDINAND promised to give to the princess a portion of 200,000 crowns, and HENRY engaged that his son should endow her with one-third of his income at present, and one-third of the income of the crown, if he should live to wear it. The marriage was postponed on account of the youth of the bridegroom. When he had completed his twelfth year a dispensation was obtained, and he was married by proxy at Bewdley. Two years later the princess was demanded. She came to England and was married in Old St. Paul's. At the door of the cathedral before the people ARTHUR endowed her with one-third of his property. The festivities which followed were on so magnificent a scale as to bring ruin on many of the nobles. Lord BACON, writing on the subject, said:—"In all the devices and conceits of the triumphs of this marriage there was a great deal of astronomy, the lady being resembled to HESPERUS and the prince to ARCTURUS, and the old king ALPHONSUS (that was the greatest astronomer of kings and was ancestor to the lady) was brought in to be the fortune-teller of the match. And whosoever had those toys in compiling, they were not altogether pedantical. But you may be sure that King ARTHUR, the Briton, and the descent of the Lady CATHARINE from the house of Lancaster was in no wise forgotten. But (as it should seem) it is not good to fetch fortunes from the stars. For this young prince (that drew upon him at that time not only the hopes and affections of his country, but the eyes and expectation of foreigners), after a few months, in the beginning of April 1502, deceased at Ludlow Castle, where he was sent to keep his residence and court, as Prince of WALES. Of this prince, in respect he died so young and by reason of his father's manner of education, that did cast no great lustre upon his children, there is little particular memory. Only thus much remaineth, that he was very studious and learned beyond his years, and that beyond the custom of great princes." Two years after the death of the prince the chantry chapel was erected. It will be observed that in style it is characteristic of the Tudor period; the Tudor badges are frequent as ornamentation. The tomb of the prince, within the enclosure, is plain in style. There is an inscription around it, which no doubt was painted when the memorial brass was removed.

WESLEYAN HALL, EDINBURGH: LARGE HALL.

COUNTRY RESIDENCE RECENTLY ERECTED.

DESIGN FOR FONT AND DECORATION.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. Aston Webb, A.R.A., president, in the chair.

Royal Gold Medallist.

The PRESIDENT announced that the Council had decided to submit the name of Mr. C. F. McKim, of New York, to His Majesty the King as a fit recipient for the Gold Medal.

Wellington Monument.

The PRESIDENT said the proposed completion of this monument had aroused general interest, but there were few people who were more interested than architects. The work had a quality which was specially appreciated by architects. The Council of the Institute had had the matter under consideration, and that afternoon he was requested to express the hope at the meeting that if the equestrian model of the Duke was in such a condition that it could be placed on the monument for examination and consideration before anything further was done that that course would be adopted, so that, if possible, to insure that the work might be completed as far as possible without the intervention of any other hand than that of Alfred Stevens.

The PRESIDENT then read the following

Address to Students.

Brother Students,—Ever since I undertook the responsibilities of this chair it has been present to my mind that it would be my duty and privilege to address you this evening, and I have wondered if there was anything that I could say that would be of use or help to you.

The experience of one man, valuable to himself, is seldom of value to another, especially if the other be a younger one, and in art, perhaps, this is more true than in any other career; each must work out his own salvation, and a stranger cannot intermeddle with his joy.

I am not speaking to-night especially to those who have just entered for the various prizes and studentships yearly offered by this Institute. This has been kindly undertaken by Mr. Walter Millard, who is especially qualified for the task and sure to fulfil it conscientiously and generously. I am speaking to students generally, students of what I think we might consider the greatest and noblest of the arts, the art of architecture, the most abiding and the most useful of the arts. Those of us who heard Dr. Evans's recent paper on his exploration of the Palace of Knossos in Crete must have felt as he laid bare before us the work executed by men some 3,000 or 5,000 years ago.

In addressing you students I shall endeavour to give you in the briefest and most condensed manner possible the main lines on which, as it appears to me, a student of architecture should endeavour to prepare himself for his work.

One thing I would first ask you on the threshold of your career, Are you quite sure you have chosen aright? No one can tell this so well as yourself, and you will probably, by this time, have had sufficient experience of what this career means to form a sound opinion, and I advise you deliberately, if you have any doubt, to throw it up now; you will be none the worse, but all the better for the training you have had, and you will find it useful in other careers. If, on the other hand, you determine to go on, decide at the same time never to look back again. It is a career beset of course with difficulties, and one that requires a lifelong training to enable you even to keep your place in it. Remember, this training must be irksome to you who have not their heart in the work, and it will shut you out of many pleasures you will see others enjoy; it is so encompassing that you will inevitably find yourself becoming, to some extent at least, a one-sided man, a contingency which certainly should not by anyone be lightly assumed.

But, on the other hand, if your heart is in it you will find an ever-varying character of your work a never-ending delight, trying you to many places and bringing you into contact with all sorts and conditions of men, a delight which cannot be equalled, and indeed can hardly be equalled, I think, in any other calling.

But to arrive at this you must follow it with patience. The young men seem to expect to attain success as soon as, or even before, they are out of their articles; the majority are necessarily doomed to disappointment. Work, you will find, is necessary, and that work must be lifelong; there is no rest or happiness without it. When a young genius was brought to Ruskin, his first question always was, "Does he know?" A clever man, he says, may be indolent, but a great man never. It is probably the ten years succeeding pupilage that are the most important in the life of most architects, and these must be the all-important ones in yours. How will you use them? Then you will begin to rely upon yourself and teach yourself, and cease to rely upon others, a very important principle. Mr. John Morley said a little time ago, in a speech, "What a splendid thing a man might make of his own life." He did not add, because I suppose it is so evident,

"What a poor, miserable thing he often does make of it." It is for you to decide to make a splendid thing of yours. Start with high ideals, for they will be sorely tried. A famous painter told a gathering of students a short time ago that he never painted a picture that realised the ideals he had started with; and if this is true of a distinguished painter, how much more true of lesser men?

Many years ago I read a paper on "Pupilage" before the Architectural Association, and after the paper a gentleman got up and was kind enough to say I had given them many useful hints as to how to do their work, would I now give them a few tips as to how to get it; but that was not part of my subject then, nor is it now. I will only say this, that if you take care to prepare yourselves and do the work that lies nearest to you as well and as thoroughly as you can, the work will come to you and you will not even have to trouble how to get it; the way you do what does come to you is the all-important thing. Remember Carlyle's description of common journey work well done for want of better. I shall take it that most of you here to-night have completed or are nearing the completion of your articles, and are about to commence your professional life in one capacity or another. You have been therefore through a course of systematic instruction, most necessary and most useful if a little dull, and you are now about to take a higher flight, urged, let us believe, by an ideal impulse. Do not clip your wings; the head has been educated, now it is the turn of the heart.

We will assume you have got knowledge. But with all your getting you must get understanding, get to the bottom of things and understand them. A well-stored memory is not the chief essential for an artist, though it is of great value to him. Cultivate curiosity and observation, and leave nothing unexplained. Now is your time. Some grow old without gaining any experience, through never having learnt to observe. Learn now how to learn, or you will never do it, and lead the "strenuous life." Don't be afraid of overwork; the number of people who overwork themselves is infinitesimal; the chances that you will be one of them are hardly worth taking into account.

I would recommend you, for one thing, to know as many artists of about your own age as possible, architects, painters and sculptors; meet together as often as you can, talk what is called "shop" with them, visit buildings, paintings and sculpture, old and new, together, criticise these things together, admire where you can and give your reasons, and when you must condemn, give your reasons also; get all you can from your friends, and give them all you can in return. The Royal Academy schools, this Institute, the Architectural Association and your own office will give you ample means of doing this, and you will make friends that will last your lifetime, and as difficulties arise in your work you will go to them for advice and counsel, and as occasion arises they will come to you for the same.

You will read, of course, "a lot." A very successful artist friend of mine (not an architect) once told me he had always made a rule of reading not less than five hours a day, and he was a very busy man. Few of you can do that, perhaps; but start with a high ideal and map out a certain time every day for the purpose.

You will have already read your text-books, your Fergusson, your Middleton, your Viollet-le-Duc and so on, and now you will read more of the romance of architecture, the story of the building of St. Sophia, of the Duomo at Florence, of St. Peter's at Rome and St. Paul's in London; the lives of great architects, painters and sculptors of all generations and countries; how they looked at their art and the principles that guided them in the execution of their work; you will read your Ruskin and in fact all the literature in connection with your art that you can lay your hands on (and there is no difficulty in that respect nowadays), for remember that your clients will expect you to know a great deal more about art in general and your own in particular than they do, and you must not let it be said of you, as a late Bishop of London said of a certain architect, "that he had sat next to him at dinner and was astonished to find that he (the Bishop) knew more about the Parthenon than the architect did himself."

Then, of course, you will sketch existing buildings, new as well as old, and try to get at the principles of their design and construction. In my day we used to sketch and measure an arcade, a doorway, a font, or other detail easily accessible, draw it out prettily and publish it in the "Architectural Association Sketch-Book," and, I am afraid, remain oblivious of the points in the plan, elevation and section of the building which produced the result we admired but did not understand. You will, I do not doubt, make a rough note of the plan, elevation and section of the building you are studying, and put on the leading dimensions, noting the thickness of the walls, the amount of lighting area, &c., and any distinguishing features this analysis brings out. Thus you will learn the real vertebra of the building, although you will probably have no notes fit for publication; but you will know

your building in its three dimensions; and you will be surprised, if you continue this plan, how it will give you a grasp of the general conception of buildings, which is what an architect should endeavour to arrive at. The detail is important—vitally important—but the conception is the principal thing; and as you come to design buildings yourself you will think of them in the same way as cubes, not as planes, and, having learnt what feet look like in existing buildings, you will at once understand what they will look like in your own buildings when they come to be realised from paper structures to real brick and stone. The great buildings of the world are admired because their dimensions are noble and proportionate the one to the other. You will, therefore, never rest till you have obtained this rhythmical music of dimension.

Then you will not think construction beneath your notice. It is at the root of all great architecture. Wren was a great constructor, the founder of the Royal Society, an inventor of scientific instruments and a scientific man. Go into St. Paul's and stand under the dome and think; go up into the spire of Salisbury Cathedral and think a little, and realise how greatly daring were the men who designed and erected these structures so that they have withstood the thrusts, the storms and natural decay of centuries, and remain the admiration of mankind.

Then you will also study materials—those that look well in work from colour and texture, and that weather well and improve by time. It is impossible, again, to exaggerate the importance of this towards a satisfactory building. You will also (if you are wise) keep a commonplace book and jot down dimensions of things as they come under your notice, because it will save you much time and trouble later, when your hands are full and your time can be better employed than in hunting these matters up.

And with regard to the drawings you send out to the works, you will remember that what you show is far more important than how you show it, and so you will make your drawings as practical as possible, and write all instructions on them the workmen are likely to require, and you will be comparatively unconcerned as to how your building looks on paper, provided you can see in your mind's eye it will look well in reality. An architect's work is his building, let him produce it how he may. The beautiful drawings of the late J. F. Bentley, shown here a short time ago, had never been seen before, his one desire being—so Mr. Ingress Bell, who knew him well, tells me—that he should be known by his work and nothing else.

I have not even now enumerated half the branches of study in which you will have to instruct yourself; but, lest you should feel it an impossible task, I may say that you will find, as you master first one and then another, these subjects will dovetail one into another so that you will gradually, perhaps almost unawares, become a well-informed man.

Then you will travel, of course, when the opportunity occurs. The caution given in this room by Sir Laurence Alma-Tadema a short time ago did not apply, you will see, to foreign travel generally, but to travel undertaken too early in your career and before you know your own country.

And then, in addition to all this, you will practise scrupulous integrity towards your employer, employed and professional brethren, and you will never do anything you would prefer your client not to know about (for that is a safe rule when you are in doubt). You will, I am sure, endeavour to be courteous, upright and modest in all your work, not always seeking your own advantage, and so you will raise yourself and your calling and become what we call an English gentleman.

You will not, if you are wise, be content to let your art stay where you found it, but you will go on and on and carry it, as far as in you lies, a step further; you will become a "true lover of the past who does not scorn to take good heed to what the future saith," and so you will not work in vain.

It is easier I know—no one better—to say all this than to do it. Nothing worth doing was ever yet easily done; lifelong work is required, and I end as I began. You will do no good thing without it, and get no enjoyment either without it. The possibilities of life are nearly endless, and they depend mainly on yourselves.

Remember that the pursuit of architecture is a serious pursuit. Some buildings seem as if put up for mere fun; you will not treat your art so I am sure. Play and fancy in the detail there may be, but the main structure must be sober, with an evident idea to impress or to attract.

Ruskin tells us "it is sympathy and imagination that make the artist." Cultivate, therefore, both, and you may leave behind you something that has been worth the doing. And doing is the principal thing—don't think over much, but try.

Mr. WALTER MILLARD read a

Review of the Designs and Drawings submitted for the Prizes and Studentships, 1903.

In compliance with a request from the President, which I take as a command, I will endeavour to give in the form of a short criticism some of my impressions on making an exami-

nation of the designs and drawings submitted this year for prizes and studentships. Whilst deeply sensible of the honour of being invited to follow those who in former years have discharged this most responsible duty, and keenly conscious of the extreme delicacy, to say nothing of the difficulty of the task, I will nevertheless waste no vain words on misgivings concerning my own fitness for it, but will proceed forthwith to the expression of thoughts provoked by the exhibition we have been holding. I may say that my opinions on this were formed independently of the prize awards, and indeed, I think, by any awards had been made.

Following the printed syllabus of prizes and studentships we find the Essay Medal put first. The subject set for it is "A comparative review of the various past and present systems of architectural training at home and abroad," has a special interest—we might almost say a vital interest for us, now in particular; and one can only hope it may have attracted competitors qualified to treat it adequately in spite of the rather vast and comprehensive nature of the title. I have not had the opportunity of reading the essays; but I would point out that any review of the subject could scarcely fail to note the far-reaching fact that as a corporate body, "for the general advancement of architecture and for promoting and facilitating the acquisition of the knowledge of the various arts and sciences connected therewith," this Institute bears no direct or active part in the work of teaching and training recruits to our profession; leaves them, in this respect, to the ministrations and management of anybody who undertakes "to teach and instruct to the utmost of his skill and knowledge in the art and profession of an architect—in consideration of, &c." Rightly or wrongly the Institute does not train; it provides the course, the hurdles, the water-jumps. In the exhibition just held we have brought up before the Institute for trial and judgment the results of architectural training obtained elsewhere—and where, training for which the Institute as a body assumes no responsibility; acting rather, so to speak, as a fountain of honour.

For the Measured Drawings Medal three sets only are submitted, none of them illustrating a subject earlier in date than the seventeenth century. Considering the immense value of more respects than one, of the faithful delineation of existing examples of our old architecture, of all dates, might not be worth while to increase the sum of money awarded with this medal, from ten guineas to something nearly approximating to the bare value of the labour of draughtsmanship required to portray worthily a good subject as in the case of most well-conducted competitions nowadays. The author of the drawings of Craigievar Castle, Aberdeenshire, neatly lays open for us by his plans and sections inside of a delightful-looking residence. In rather sharp contrast with his geometrical drawings are his pen-and-ink perspective views of a subject that deserved drawing, marked by peculiarities of penmanship which he should hasten to un-

What a lesson to us all in the quality of restraint in architectural excess do these Scotch castles afford. How they seem to do without much detail externally, and happily the detail that is used is concentrated exactly where it means most and tells best in the composition as a whole, whilst internally how home-like and cosy everything seems with thick enclosing walls and a good blanket of rough-cast to the weather face. The two other competitors illustrate respectively Ball's Park, Hertford, a square, brick-built house about A.D. 1641, apparently much modernised inside, and a church of St. Martin-in-the-Fields, London—its tower excepted a rather large omission. Neither set strikes one as a convincingly faithful rendering of its subject; and of what is an unfaithful rendering? I would ask. The author of the former, whilst ruling innumerable lines to denote brickwork, ignores all jointing in what appears to be masonry, whilst telling us if it be only stucco; the author of the latter, in full-size mouldings, fails to indicate a single bed-joint where he happens to cross one in section—a point in masonry altogether negligible. His longitudinal elevation and section of the church in one or two small points do not agree quite the same story—a minor matter, perhaps, but significant.

The subject for the Soane Medallion being a "Design of a town church" on a corner site of 140 feet by 90 feet, attention of competitors was called to the remarks on church planning in Sir William Emerson's Presidential Address of 1901. This, alas! seems to have proved, indeed, what Butler would have described as "strong meat for babes;" at any rate about one-third of the twenty-one competitors, several of whom, ablest among them, appear to have considered themselves thereby licensed to arrange for the choir of a modern church—presumably a parish church, whose choir would hardly consist of individuals "in orders"—to sing away by themselves up at the extreme east end of the building, having in cases interposed between them and the congregation the backs of one instance by a high redos, and surmounting others by a big, four-legged baldachino. But waving discussion of this question, let us view the designs themselves.

There is still scope for "Advance," to act up to his motto. He has allowed himself to be dominated by the idea of an octagonal octagon for his plan rather than by the real conditions of the problem of designing a church for that particular site.

In like manner "Bee" goes astray on different lines. He needs at all costs pile up a soaring central tower and, borne aloft over the middle of his church on four thick piers, perhaps the least convenient plan of all others for a town church. After indulging to such an extent as he does in such Gothic detail, he ought now to pledge himself to abstain from detail for awhile. "Como," taking a wider base, also goes for a good central pile-up, resulting in a terribly tall interior. He may fear it would not result in a good church for working purposes, if that be of any consequence. "E Natura architectura" means at least to be practical, with his concert-room falling eastwards, his steel-framed roofs and extract ventilation tubes. At first sight the general lay-out looks well; yet after all his interior would prove gloomy, even if his neighbours did not block his northern lights. "Fides" produces a church plan without indicating any site, so it is difficult to say how it would do. The design by "Fioretto" shows some largeness of idea, and is altogether cleverly executed, but his building is crowned by a needlessly ungainly dome, all out of scale, both internally and externally, with the rest of the architecture, which is too good to be so handicapped. The painting he proposes might doubtless do something to help matters internally. The sort of work shown by "Dien" is hardly deserving of encouragement, the more so as it looks like the result of bravado than of incompetence. Freehand drawing in his perspective view amounts to little more than an affront to the beholder. "IXΘΥΣ" has done an admirable thing in Byzantine planning and detail, showing in a good set of drawings much careful contrivance, no slight knowledge, and a real architectural ability that commands respect. Whether he could add to our happiness to see it all built to-day is another question. "Lauda Finem" strikes one as a man who knows his own mind and has the power of giving effectual expression to his ideas. We may question a few points in his design, but must allow that he handles his architecture like an expert. He can draw, too, his perspective view surviving the uncomfortable-looking background of furnace vapour in which it is relieved. "Medici" is one of several who waste their site-area in attempting, more or less ineffectually, to make some pet idea work; so the real problem of designing a church on that site, and that alone, is evaded, not solved. "Neni" wastes his main area by a barrel vault so wide in span that he is short in the other direction that he might have made a dome of it at once. "Ne oubliez" plants a fairly tall tower in the wrong position, on the external angle of the site, thus swamping his church. He is too bold with his tower and too modest with his church. "New Era" makes a well-made effort to put into good form, in his own opinion, the particular site lessons learnt—in the best sense—from Bentley's Westminster Cathedral; learnt from a building rather than from books, the way good work ever was done. He skilfully utilises every inch of the site, and, but for his debatable position of the choir, would work admirably, producing a striking and even impressive interior in spite of the unavoidable shortness of the whole building. Evidently the author has had the happy audacity—and he is the competitor who has—to treat us to a pair of towers: a sure way of obtaining a telling effect in a building mass, and stamping it with distinction. This almost sets one at fault—though it may be heresy to say so—that such a scheme might have been carried out in the case of the Westminster Cathedral itself. With two towers you get the emphasis, and something more. The play of light from one to the other, is a charm to count on. The design by "FOINIE" fits the site, but fails as architecture. "Everando" produces a working plan, filling the site and giving an interior that would have some scale and mystery to it. He hampers himself by the fancied necessity of a central tower and of supporting this by transepts, as well as such only externally with any effect. He has learnt to unlearn in the use of detail as well as in manner. "Rodari" too obviously attempts to squeeze a circular church on to a plot of building land not selected for the purpose. The exact purpose of his tower is not clear, seeing that there are no belfry openings to speak of. "Sanctus" might have tried twin towers with advantage in his design, and at the same time, perhaps, have better escaped recalling quite lately a published design. One is checked in smiling at "Seres" and his legions of columns by his evident nervousness. "Xa" and "Xb." base themselves somewhat on Pearson and Sedding respectively, and afford an interesting parallel of stone-vaulted churches. The main disadvantage of "Xa's" building is on right lines for appropriate unified effect, though no tower appears worth mentioning. His massing of parts is good, but the repetition of book tracery and other detail would be wearisome in execution. He and also "Medici," perhaps with some pro-

phetic insight, put their choir and organ at the west end. "Xb's" is, on the whole, a consistent and well-threshed-out design, with just a tendency to fussiness in detail in too many places at once. A little might be left out with advantage. His east front would have risen still more majestically above a quieter treatment of the low building at its base. The tower, planted exactly in the right position for it, is quite a noble feature—a good tower for a town church. Lastly, "Patriarchal Cross" plans a church for the site, and tries to solve the old problem of how to reconcile and make the best of both aspects of a cupola, the interior and the exterior.

For the Tite Prize this time it may be said that the authorities did "a stately pleasure-dome decree," setting as the subject "A pavilion in a public garden." Competitors might go as they pleased with regard to conditions of site and surroundings, certain accommodation only being required; but the designs must be in accordance with the stipulation that the trust fund be applied "in such manner as the President and Council shall deem best calculated to promote the study in England of Italian architecture," as that slightly ambiguous term was understood by Sir William Tite. So, altogether, there is rather less air of stern reality about the fourteen designs for this competition than about those for the Soane.

"Altiora," "Archivolt" and "Ariel" play with architectural forms more or less prettily, but not to exceptionally good purpose, though "Archivolt" has some good points in a disproportionate whole. "Caber Feidh" has designed a building that holds together consistently and has marked character. Why he should think it necessary to put a row of glazed windows in his frieze above a range of open arches is a mystery, his section showing how futile they would be for lighting purposes and how needless. "Forum" has composed a group too fussy to be fine architecture. "Le Nord" produces a straightforward piece of architecture, soberly and sensibly designed. "Lindisfarne" secures apparent unity in his design, which, however, will not bear close scrutiny. "Lux" has had a big cupola to work off—not a bad one, by the way, to look at; but, would it stand, especially on the ground-floor supports shown? Otherwise his architecture is well handled. "Mime" and "Muciber" have done exercises in the grouping of architectural forms radiating on plan from a central cupola. "Pax" denies himself a perspective view, so that full justice is scarcely done to the merits of his thoughtfully laid-out piece of architecture. In the same way, of course, some of its weaknesses too may escape disclosure. The design by "Phoenix" is unassuming and so far welcome, whilst that by "Queen of Hearts" comprises too many different ideas to be quite happily combined and to hang well together as one thing. "St. Winifred's" design would not make good architecture if it could get built as shown.

The Grissell Prize, "For the encouragement of the study of construction," attracts eleven competitors, most of whom seem to consider that the solution of a constructional problem cannot be complete without involving an exercise also in the art of manipulating purely architectural features and detail. Can it be that the display of this latter accomplishment is thrown in as a make-weight?

In working out the "Design for a stone dome over a porte-cochère to a large public hall" "Blunderbuss" indulges in some sculpture as well as architecture, after attempting a version of Wren's cupola construction at St. Paul's, all in stone, without getting sufficient room between the inner and outer shells to enable the cone really to carry the lantern. "Red Rose" is far less ambitious of showing any ingenious system of construction, whilst giving us architecture so charming that I think Wren himself might have put his name to it and not been found out. "Duomo" conceives a simple dome, and then proceeds to hide it all up externally by architecture of the Ionic order. In addition he provides and sets a statue on plan. "Golden Horn" draws a bare outline section of a dome with no visible means of construction about it—not a joint; which is the more remarkable because his architecture below it is depicted more or less as it might be built. He is careful to specify the arrangement of the electric lighting. "H.I.M." is one of two competitors who venture to complicate the constructional problem by introducing daylight into their dome above the springing. His architecture itself hardly justifies its intrusion into the question. "Notts" sticks closer to the problem of constructing a dome, and determines that it shall carry a stone lantern on the crown. To make doubly sure as to this he thoughtfully provides and shows, outside, at the springing, a "tested steel cable, coated with Dr. Angus Smith's solution, and afterwards well tarred." "Quercus" also carries a stone lantern, and at the same time pierces his dome for light. He makes some show of architecture. "Civic" goes into the constructional question with calculated diagram of stresses, line of pressure and specification of mortar. "Wrot iron ties," as he calls them, help to ensure that his stone lantern at the crown shall remain *in situ*. "Sepia" tackles the rather awkward problem of draughtsmanship, if not of construction, involved in the

crossing and impenetration of arches to form pendentives, such as we see in illustrations of certain domes in India. His dome proper, raised above these arches on a pierced drum, forms another problem, over the solution of which he expends far less effort. "White Rose" has a double-shell dome carried by architecture of no mean order, ably delineated. Finally, "Z" would have timid visitors received, on alighting from their carriages, by four semi-draped human figures in stone of colossal size, standing up in the gloom of the four inner angles of the porch, performing the office of pendentives by carrying on their bowed necks and shoulders the circular cornice, from which a simple dome springs.

Three men compete for the Owen Jones Studentship, "Founded for the encouragement of the study of architecture, more particularly in respect to ornament and coloured decoration." Mr. Guthrie shows useful studies from St. Mark's, Venice, St. Vitale, Ravenna, Granada and elsewhere. His original design for the decoration of a domed chamber suffers in the first place from too many sources of inspiration. It lacks unity among other qualities to be desired. Mr. McLachlan, in a slight but illuminating sketch to scale, lays open to us from end to end that wonderful interior of the Capella Palatina, Palermo. It sets us asking for more. The mosque at Cordova and Sta Anastasia, Verona, afford him subjects for other clever drawings; whilst it is satisfactory to find our own country also represented by examples from Canterbury and Ranworth, in Norfolk, and by the ceilings of that great Suffolk church of Blythburgh. Mr. McLachlan does not venture on a design of his own. Mr. Percy Nobbs relies mainly on one, viz. "A scheme for the mosaic decoration for a church of the form and scale of Sta Fosca, Torcello," a most appropriate subject to choose. It is easy to imagine that his scheme might be made to work out even more successfully and impressively than his slightly inadequate representations of it would warrant one in supposing. His treatment of broad belts of gold-ground mosaic below the blue-ground mosaic of the main vaulting surfaces seems a happy combination. Evidently he knows what mosaic decoration is, and has found how difficult it is to illustrate by small-scale sketches.

The Pugin Studentship, "For the promotion of the study of the Mediæval architecture of Great Britain and Ireland," is awarded, on conditions, to the author of the best selection of drawings and testimonials. Mr. Harold Gibbons goes the right way to work in his survey of Cheetham's Hospital, Manchester, which, as regards a good portion of the place, he takes up as a whole and dissects for us, showing its anatomy and its build, all illustrated intelligibly, if not exhaustively. Likewise he lays hold of the interesting, stone-roofed church porch, of two storeys, at Leverington, Cambs, making a fairly complete study of it as a self-contained piece of architecture. His quarter-full-size pencil drawing of the Heckington sedilia, finished, as he tells us, on the spot, is a thoroughly good study, so far as it goes without a section, of a fine subject. Mr. Gordon's sketches and drawings have about them rather too much the air of having been made for show in the first place, and, secondly, for the purpose of study of the work itself. Nor are they conspicuously good even for the former purpose. Mr. Hamp pursues his outdoor studies in architecture as so many of us have been guilty of doing, viz. by making a great variety of little perspective views of buildings and bits of building. He should, at any rate, make better ones, to justify his procedure. Of this particular line of study Mr. Milne is also a devotee, though, like Mr. Hamp, he grants some slight concession to possible prejudice by submitting a scale drawing or two. Mr. Mears has much more to show on similar lines; but besides some needlessly muddy sketches, he gives us, to 1/4-inch scale, drawn rather slightly, the steeple of St. Mary's, Oxford, from bottom to top, as well as several interesting coloured drawings to scale of Norfolk screens. Mr. Muir's strainers are mostly filled by measured drawings; and, as drawings, very taking one or two of them are, touched up by skilful brushwork, with shadows deftly cast and high lights cunningly left, all at the draughtsman's own sweet will. Other drawings of his look more workmanlike. He might now go on, with advantage, to studying works of architecture rather more *in toto* and a little less in tit-bits. Mr. Myrtle Smith has a good, miscellaneous show of regulation sketches, with a sheet or two of measured work thrown in—for propriety's sake, perhaps. Mr. Westwood does give, besides many little pencillings, pretty and otherwise, a set of measured drawings of a whole church; not, indeed, one of first-class importance architecturally, but possibly with more of real interest in it than one might suspect from a glance at these neat-looking but not quite exhaustive drawings of his. For instance, he blacks in his plan throughout, as though the entire church, as it stands, were all the result of one building effort, which is improbable.

I have deemed it a matter of some importance to try and notice, however briefly, the work shown of every competitor for a prize or studentship. Of our winners of studentships the holder of the Godwin Bursary is surely the one most to be envied by men of his own time, since he goes forth to study

and report on the real thing, the work of to-day done by his men. To think of our sending out one student only a year, such a mission. To be sure, the study of the work of to-day in our own country is barred to him by the conditions of the bursary, for which any British subject is eligible.

To sum up, I cannot help wondering a little with what feelings would some of the pious founders of our prizes studentships have viewed the exhibition, and in what way would they have given expression to their feelings? As it is, from questions of architectural style, would they have been content to observe a large proportion of the designers starting with some preconceived idea and a stock of architectural trimmings to dispose of, to evolve designs apparently without intelligently grasping anything like the full significance of the problem to be solved, as set forth by the conditions; going the wrong way to their work from the first and often gratuitously creating difficulties for themselves, perhaps for the purpose of getting over them, but then failing to do this, as Mr. I suggested was the case last year also? Or would the founders have been any better pleased in looking at certain of the representations of old work, wherein some facts are distorted and others left doubtful, when they might be clearly told, evidenced not only of slipshod ways of drawing old work, but, furthermore, of a superficial way of regarding it? I must not just a single instance of this want of thoroughness because it is typical. One competitor begins to treat full-size, in elevation and section, a moulded arch-bar; but so far from going through with the thing and telling us the depth of the bar by giving its complete section, he is satisfied to give the moulded edge only, with going even so deep as the plane of the glass itself which the bar is designed to hold. This is characteristic of much of the draughtsmanship in vogue, professing to be workmanlike. What is an architect, or a student of architecture, if he be not really workmanlike in his methods of work and study? The root of the evil I fear we must go further back than to individual students themselves. To a quite considerable extent these are yet untaught and untrained in right method of study; how to learn they have never been taught.

In other callings the cry goes up for efficiency; is this less needed in ours? But an architect of whom it could be said that he was efficient would not thereby necessarily be entitled, in the fullest and highest sense, to recognition as an architect. For this he must add to his indispensable practical qualifications something that we try to describe by some term as artistic ability, but for which term I would prefer to substitute another, viz. the appellation of that rather indefinite quality which in parallel branches of human knowledge, human endeavour is generally understood by the word scholarship; a quality based on sound knowledge, yet compounded also with something more than mere knowledge—the crowning result of a process of training rightly applied to draw out to best advantage those finer instincts with which every student may have been endowed by nature. If I may presume to suggest for the architectural student two words, these would be scholarship and efficiency. Without one he can be no true architect, without the other he will be a sorry architect indeed.

The PRESIDENT then distributed the prizes and awarded the successful competitors. The list has already appeared in *The Architect*.

Mr. SOLOMON J. SOLOMON, A.R.A., proposed a vote of thanks to the President for his address, and to Mr. Milla for his criticism on the drawings.

Mr. JOHN BELCHER, A.R.A., in seconding the motion, spoke of the importance of sketching buildings *in toto* and said that if buildings were studied as a whole the student would not fail to grasp the meaning of the various parts and to acquire a faculty for rhythm and harmony of detail and a sense of proportion.

CRETAN PICTURE WRITING.

IN his third and last lecture at the Royal Institution on "Phœnician Writing in Crete, and its Bearings on the History of the Alphabet," Mr. Arthur Evans said that by the two definite systems of Cretan writing—the pictographic and the linear—there was a variety of isolated signs or marks on pottery and other materials. Similar marks were found in Egypt distinct from the hieroglyphics, and going back to historic times. These signs were of geometrical form, anticipating alphabetic shapes, and stood really nearer to the origin of letters than the elaborately carved hieroglyphics of a more civilised age. The Cretan evidence supplied a standpoint for examining the vexed question of the origin of the Phœnician alphabet. The earliest Phœnician monument like the Moabite stone, went back to about 900 B.C. The earliest traces of the use of Phœnician letters by the Greeks might be traced from the eighth century. On the other hand, the recent discovery of Sabæan and Minæan inscriptions in South Arabia tend to throw back the date of the origin of the Phœnician alphabet.

We might suppose, then, that the Phœnician system was already in existence by about 1200 B.C. From what source, then, did the Phœnician alphabet originate at some time about this approximate period? De Rougé attempted to derive the Phœnician letters from Egyptian prototypes. By an eclectic process he sought these in certain hieratic forms of a much earlier period, making the Phœnicians rename their letters according to a fancy system. This theory was popularised in England by Dr. Isaac Taylor, and still might be said to hold the field there, though the objections to it seemed to be unsurmountable. Even less happy had been the attempt of Peiser and others to derive the alphabet from cuneiform characters. These early quasi-pictorial characters of old Chaldæa had vanished some 3,000 years before. The old simple theory of Gesenius and his followers that the Phœnician letters were derived from the pictorial objects suggested by their names seemed on the face of it more natural than the artificial theory of De Rougé. A table prepared thirty years ago by Sir John Evans for the Royal Institution showed how easily the derivation from these pictorial originals might be effected. It was, therefore, highly interesting to find among the Cretan characters a whole series of pictographic forms answering to the prototypes of the Phœnician letters as conjecturally drawn in accordance with the meaning of their names, so far as could be interpreted, and in some cases accompanied by similar linear simplifications. A still more interesting question arose—Did the Cretan evidence supply something more than a parallel example? There was an agency at work which brought Crete and the Ægean world that it dominated into a direct relation with Canaan during the very period of alphabetic incubation. The Biblical and Egyptian records both agreed in bringing the Philistine tribes from the "Isles of the Sea." The Southern tribe of Philistines, the Hebrew Cherethim, were translated "Cretans" in the Septuagint, and their chief city, Gaza, preserved the Minōan name and the cult of the Cretan Zeus to classical times. New Egyptian evidence made it almost certain that the mysterious Kaphtor was really Crete, the Egyptian Keftō, and the Kefts, the highly civilised people who bore offerings to the Egyptian kings, had now reappeared in the wall-paintings of the Palace of Knossos. The Philistines derived from this side must be looked on as representatives of what was in many respects a higher intrusive culture from the West, and the Cretan evidence showed that they must have brought with them a highly developed system of writing. Much must still remain hypothetical, but in the absence of any other satisfactory source for the elements from which the Phœnician letters were selected, the identification of the Philistines with a highly civilised Ægean race far advanced in the art of writing became an extremely suggestive fact. Nor was it without significance that during the same period another parallel wave of colonists from the Ægean implanted the Mycænæan culture into Cyprus, and introduced there a syllabary showing points of conformity with the linear script of Knossos.

NORTHERN ARCHITECTURAL ASSOCIATION.

At a meeting of the Northern Architectural Association held at 36 Northumberland Street, Newcastle, Mr. Ralph Hedley, R.B.A., gave an address on the subject of "Sketching in Charcoal." Mr. Frank Caws, Sunderland, the president, occupied the chair, and briefly introduced Mr. Hedley, who made the remarks he was about to make on sketching and designing in charcoal were principally addressed to students. He did not pretend to tell them anything new. Charcoal had been appreciated by artists for ages, but he did not think it had been quite sufficiently appreciated by architects. The reason why he advocated charcoal so much for drawing details whatever kind of decoration was required was because it lends itself so readily to what one desires to express. Delicate, soft or sharp lines, broad and delicate tints, broad and decided shadows could be produced with charcoal with much more ease than with ink or pencil. With charcoal they could give all relative planes, any required depth or strength, quality and feeling. This was of the utmost importance, and would enable details to be understood at once—that was, projections and sinkings—if great care was taken to imagine a light coming from either the right or the left. In showing relief in a design if they got the light full on it was rather deceptive when it was handed over to be executed. It was often very difficult to know whether the signer of some piece of ornament intended parts to be concave or convex without showing a section, and it was quite impossible to show sections in delicate parts of foliage. If a detail was thought was displayed in drawing it could be expressed and understood almost as well as working from a model in relief. It was extremely difficult to express with pen or pencil full-sized drawings. By the pressure required and the trouble involved in drawing a great number of thin lines all freedom was lost, and with freedom certainly individuality

must be lost, and he thought every drawing of decoration should have individuality. The easiest way of getting individuality was by working with something that expressed their thoughts, and they could not help themselves if they used charcoal freely. Their own feeling was bound to crop up. He would show them, as well as he was able, what he thought was the best manner and how to get at a workable drawing, say, of a caryatid. Mr. Hedley then made sketches from a living model, with explanations, and at the conclusion of his demonstration he was accorded a very hearty vote of thanks.

ART IN SCOTLAND.

THE Scottish Arts Club entertained at dinner Mr. James Guthrie, president of the Royal Scottish Academy, and Sir R. Rowand Anderson, H.R.S.A. The chair was occupied by Mr. W. D. M'Kay, R.S.A., president of the club.

The Chairman, in proposing the health of Mr. Guthrie, said that he had recently been raised to the highest position the art world of Scotland had to bestow. Amongst all the great men who had occupied that position, he (the chairman) made bold to say that not one had been better equipped by nature, by training and by culture than Mr. Guthrie. Mr. Guthrie was a painter of European reputation, and already possessed more honours than most men attained to in a lifetime. Mr. Guthrie was first known among them as the leader of a new school, having its headquarters in the west, and, as was inevitable both from the novelty of the movement and from its local habitation, there was at first some friction. But within a dozen years or so of its first appearance, most of the leaders of the Glasgow school were on the roll of the membership of the Academy. It would have been an evil day had it been otherwise, for an art which was not from time to time revived by new influences was doomed. There had been times when the honour conferred on the President more than balanced the duties and responsibilities imposed—times when all things were going smoothly and well—but assuredly the present was not such a time. It was just because it was a time of stress and strain, when the art-future of Scotland might be said to be in the crucible, when the most careful steering would be necessary if they were to weather the shoals and cross-currents which seemed to be all about them, and that Mr. Guthrie's qualifications seemed to fit him for the task, that they had called on him to take the helm. In responding to their call Mr. Guthrie had taken upon himself no light burden, and gave at least as much as the Academy had to confer.

Mr. Guthrie, P.R.S.A., in replying said he was extremely grateful to the Club for the honour which they had done him. The position to which he had been called was one of considerable responsibility, and he doubted if he was very well qualified to fill it. He felt nothing but gratitude to his fellow members, not merely for having put him in the position of President, but for all the kindness that had been extended to him since he was asked to take the chair. However much he might succeed, or however much he might fail, no one could have started on the arduous work that lay before him with greater good feeling and goodwill than had been extended to him by his fellow members of the Academy. The Chairman had spoken of him as representing a movement with which undoubtedly he had had a great deal to do. He did not think that they in Edinburgh would think any more of him if he were in the least degree to repudiate his connection with it. He was extremely proud of his association with those men in Glasgow, but he felt that he had been the one whom the force of circumstances in connection with it had brought most to the front. He could tell them that with the position he now occupied he would do his very best not merely as one from Glasgow but as one who had the interests of art in Scotland at heart. It would be his endeavour not only to do justice to anything that might be done in Scotland, but to try to link the art of Scotland as far as possible to the art of the world outside. He would try to do that, feeling that if they were not linked to the art of the world at large they would lose their proper status. He wanted to bring the art of the world into their exhibitions. They could only do that to a small extent, but if they got a few pictures from the greatest masters, putting them beside their own pictures, they would at least learn how they stood. And if they stood well, it would disillusion people and prevent them from speaking of everything outside of London as merely local.

Professor Baldwin Brown proposed the health of Sir Rowand Anderson. He congratulated him on the royal favour which had recently been bestowed upon him. He hoped that the result of the investigation now proceeding would be to lead to the preservation and extension of what was good in the existing institutions.

Sir Rowand Anderson said that what they had heard from the President that night must convince them that a most fortunate selection had been made, and that Mr. Guthrie

would maintain the institution over which he now presided in that high state in the public estimation which was necessary for it to fulfil its mission. He (Sir Rowand Anderson) had always put before himself a high ideal of the art he followed, and had endeavoured to translate these ideals into realities. He could look back on a fairly long professional life, and if he was asked to state any particular point that had characterised the history of architecture during that period, he should feel inclined to point to the rapid and successive changes of one phase of art in favour of another. These, to his mind, were making their art rather too much of a fashion and less of a tradition. They now spoke in many languages, and sometimes the confusion of tongues was very great. They had arrived at a period of what they might call free trade in art. The public must get what they chose to pay for, and, added to that, a school of artists had arisen who, rejecting all tradition, looked upon themselves as apostles of a new revelation in art. Their output had been considerable, and much of it was made in Germany. He believed their mission would be a barren one. They must, however, put up with their eccentricities and their cult of crudeness and ugliness, but the public, he believed, would soon come to recognise that art, like everything else in this world, was governed by the laws of evolution, and was not the product of invention. In spite of all that confusion there was much good work being done, and one very hopeful sign was the increased desire there was to bring the arts of sculpture, painting and architecture together, and by their co-operation to produce greater and more complete works than they had hitherto known. Referring to the applied art school, Sir Rowand said that the education of the rising generation of architects and all engaged in the decorative and industrial arts had been long a subject to which he had given much attention. He could truly say that the work of the committee had been a labour of love to all its members, and the success of the school had been owing to the very practical system of teaching they followed, and the soundness of which had been demonstrated by its results. He expressed regret that the municipality, which in former years generally supported them, had withdrawn the subsidies given to the school and to others in order to apply the money to an infinitesimal relief of the rates. The intervention, however, of the Parliamentary committee now dealing with the Board of Manufactures had, of course, very much altered the situation, and as soon as their report was published he trusted that a united and vigorous effort would be made to establish in Edinburgh one fully equipped and comprehensive art school by the amalgamation of all that was best in the existing schools. They should then be able to offer the best education that could be given to painters, sculptors, architects and all engaged in the decorative and industrial arts, and he appealed to this representative company to aid such a movement, so that they might have for Edinburgh an educational institution for art the same as they had for law, divinity or medicine.

ALL HALLOWS CHURCH.

THE Commissioners appointed under the Union of Benefices Act (23 and 24 Vict. cap. 142) to inquire into and report upon the expediency of uniting the contiguous parishes of All Hallows, Lombard Street, &c., with St. Edmund the King, Lombard Street, have sent their report to the Bishop of London. Such commissions are composed of two clergy nominated by the Bishop and one nominated by the Dean and Chapter of St. Paul's and two laymen nominated by the Court of Common Council. After giving details of the population, church accommodation, expenses of Divine service, patronage, parsonage houses, &c., of the two benefices, the Commissioners report upon the income of the respective incumbents. The gross income of the two benefices is 4,121*l.* (St. Edmund 1,404*l.*, All Hallows 2,717*l.*). On the first avoidance of the rectory of St. Edmund a sum of 614*l.* a year out of the rector's income passes to the Ecclesiastical Commissioners for church purposes. The income of All Hallows is now reduced by deductions in favour of poorer parishes amounting to over 1,450*l.* a year. The Commissioners, who recommend that the union should take effect, suggest that 750*l.* a year, with a residence in Finsbury Square, will be sufficient for the incumbent when the present life interest lapses. They also recommend that St. Edmund the King, Lombard Street, should be the church of the united benefices, with Canon Benham as incumbent, All Hallows being vacant by the death of Canon Rawlinson; and add that, if their suggestion of 750*l.* is accepted as the figure for the stipend of Canon Benham's successor, there will be a further sum of 1,300*l.* a year to allocate to poor parishes, while 470*l.* which All Hallows has received for the upkeep of Divine service can be applied elsewhere where it is more needed. As to the church and site of All Hallows, they recommend that these be sold by the Ecclesiastical Commissioners and the property developed in connection with the frontage premises in Gracechurch Street, which are also ecclesiastical property.

The proceeds, they suggest, should go to the building of churches in poor districts under the direction of the Bishop of London. The first of these should be called All Hallows, should be built on lines as nearly as possible similar to those of All Hallows, Lombard Street, and should be furnished with the splendid carving and fittings of Wren's church; as other churches are built, the names of the other five parishes comprised in the union should be attached to them in succession, and wherever possible parsonage houses should be provided for the new benefices. The report is signed by all five Commissioners, but one of them adds a reservation that in his opinion the Commissioners have not been sufficiently informed of the relative values of the St. Edmund's and the All Hallows' sites, so as to be able to say which could be the more profitably disposed of. The report is now being considered by the Dean and Chapter of Canterbury, and in due course the Bishop of London will present such proposals as he may think fit to the respective vestries.

EDINBURGH CITY CHAMBERS.

ACCORDING to the *Scotsman*, Mr. W. Hole, R.S.A., has just finished the first of a series of panel pictures for the decoration of the new banqueting-room of the City Chambers. The series, as was stated at the time the scheme was arranged, is to consist of representations of prominent historical incidents in the life of the city, and the first that has been selected for execution shows the crowning of King James II. at Holyrood, 1437. This was the first-recorded coronation of a Scottish king which had taken place at Edinburgh, and in a manner it set its seal upon the city as the capital of the country. Stone was the palace where former monarchs had been crowned, but for the time it was much too near Perth, where James I. had just been so brutally murdered by a section of his discontented nobles. The queen, who belonged to the Royal House of England, had, after the king's assassination, escaped with her young son to Edinburgh, and the coronation ceremony had been hastily performed there in the Chapel Royal of Holyrood. In the picture the youthful James, who was only six years of age at the time, is represented not in the act of being crowned, but of receiving the homage of the prelates and nobles. The chair of State is set upon a dais at the junction of the chancel nave and transepts, and the grey stone pillars, arches and other architectural accessories make an admirable background to this courtly scene. The covering of the dais is of rose colour, with emblems in gold wrought upon it; the chair is of Gothic type with three finials. The king is a sweet, chubby-faced boy, with fresh complexion and fair hair, the flowing locks of which escape from below the crown which is upon his head. He is attired in a red silk tunic and ermine cape, while the royal robe of purple escapes in graceful folds on the right of the chair, and spreads itself over the dais. He wears the Collar of the Thistle. Between the crown and his brow is what looks like a kerchief tied around his head. This is the "amice," which was worn for a certain time after coronation to preserve from being rubbed off the sacred chrism, with which in the crowning ceremony the forehead was anointed. Kneeling in front of the youthful monarch is a venerable prelate with mitre on head, and wearing a cope of cloth of gold. The contrast between the boyish king just entering life and the aged ecclesiastic who must soon quit it is very impressive. The group on the left includes the queen, a young maid of honour, and a number of prelates and nobles waiting their turn to tender their homage. Over their heads are carried croziers and crosses, the emblems of ecclesiastical authority. The queen is a prominent figure in her royal robes, on which the arms of England are impaled with those of Scotland. She wears a quaint head-dress, and her maid is also distinguished by a striking, high-pitched coiffure. Behind the kneeling archbishop is the figure of a young noble in the elaborate wide-sleeved dress of the period in blue and gold, who comes well into the picture. In the group on the right, placed behind the chair of state, the leading figure is that of the Lyon King in his herald's surcoat, and wearing his crown, proclaiming the names and titles of the prelate and nobles as they advance to the royal presence. Beside him is a kneeling herald or pursuivant, with white wand, and behind him the bearers of the sword of state and of the golden spurs. In the background on the right, under an arch, is a venerable figure carrying a cushion on which rests the sceptre. In a gallery on the same side, between two of the pillars, with the front draped in soft colours, is a sprightly and interested group of the ladies of the Court. The picture is an excellent example of what a historical painting should be. It is happily and vividly composed, the figures, well drawn, are imbued with life, the details of costume, of furniture, and of armour belong to the period in which the incident occurred, and the group altogether has a gracious and regal aspect. From the decorative point of view the picture is also a success. The colour is of pure and delicate tint, forming a most agreeable

harmony, and giving to the work the feeling of a beautiful piece of tapestry. Executed in spirit fresco the tints are necessarily flat; and the work when in position should form an admirable piece of decoration to the end of the banqueting-room. In size it is about 8 feet square.

TRANSVAAL ARCHITECTURE.

THERE is no cosier spot for conversation, says Mr. E. Strangman in the *Rand Daily Mail*, than the stoep of a Dutch farmhouse. Alike in Cape Colony, in the Orange River Colony, and in the Transvaal, the Dutchman, when building his house, seems to have been influenced by climatic considerations to a far greater degree than his British rival. The walls of the Dutchman's house are thick, the rooms are cool, the stoep extends that view which, with variations, is the same throughout South Africa, where veld and mountain and a gigantic arm of sky commingle in one vast scheme of opal tints and subtle shadows.

It is curious to note that one of the lessons Dutchmen were competent to teach us, namely, that of the architecture of farm-houses and village dwellings, has been borne in mind but little by British settlers throughout South Africa. In Capetown and its suburbs, in the villages throughout Cape Colony, in the townlets of the northern States where Dutch influence has been unfettered, the Dutch dwelling is almost invariably the happiest combination of comfort and simplicity, built with an admirable adaptability to considerations of wind and weather. The argument here, let it be observed, is that of the superiority of Dutch dwellings over those of purely British architecture in villages and country only. The moment a Dutch village ceases to be the centre of a purely pastoral population, the moment it becomes a centre of business and commercial activity, the inconvenience of one-storeyed buildings, of houses fifty yards apart, of streets many miles in length, becomes at once apparent. Before the Transvaal knew of its gold reefs Pretoria was a smiling village, embedded in willows and water streams. The streams of water and the willows are still there, but a mass of incongruous architecture has grown up, showing egotistic influences and contradictory minds, and the original harmony of the capital is to a great extent destroyed. Of the architecture of towns the Dutch knew little. But we can afford to imitate them as far as the building of homesteads and hamlets in this country is concerned.

About the laying-out and architecture of Johannesburg what can be said? Much, but much by way of criticism. When the Dutch planned out a hamlet they planned it with a view, firstly, to the interests and comfort of the community as a whole, then, secondly, to the comfort of each individual. When Johannesburg was planned out very little thought appears to have been given to the comfort or convenience of the community. In the early days of the Rand, during the periods of uncertainty regarding the fixed continuity of the reefs, and throughout the long excitement of political strife, it is pardonable, perhaps, that individuals and companies should have thought only of themselves. As a result the architecture of the city bears the imprint of flagrant egoism. Palatial buildings rise beside squalid hovels or open on the squares that reek with filth. Sumptuous offices abound in every street and there are clubs as comfortable as any in Pall Mall, but to pass from office to club and from club to home many a sun-stricken and much-attacked square and many a foul and dusty street have to be traversed. Now that the war is over reform in these matters can only be a question of time. It should be remembered, though, that Johannesburg is situated close to the 26th degree south latitude, and therefore in seeking a model as a basis of improvement attention may well be directed to the architectural features of towns in the northern hemisphere near the same degree of latitude, allowance being made for differences of altitude.

As one passes through Johannesburg there is nothing, either in its public places or in its general features, that is reminiscent of Barcelona, Madrid or Cairo. On the other hand, there is much that reminds one of Aberdeen and Glasgow. A charge that is constantly preferred against the Anglo-Saxon is that of want of adaptability to new surroundings. The architect from Aberdeen will go on building houses just as he built them in Aberdeen, and the man from Chicago can think of nothing but skyscrapers. As to the public squares of the city, it is hard to say precisely what model would best suit them. But nothing is easier than suggesting improvements on their present state. In the central and most active portions of Johannesburg shade and protection from dust are sadly needed. It is pleasant to conceive the Market Square—with the market moved elsewhere—converted into one great promenade, circled by wide-lying arcades, and connected by wide and airy colonnades. Here what are known as continental cafés might be built and cool reading-rooms and bath-rooms, without in any way interfering with the present business houses. One of the most beautiful spots in Paris is the Palais Royal Gardens,

and these same gardens for more than a century formed the centre of the whole commercial life of France. Perhaps the wanted model is found in the Palais Royal Gardens. Johannesburg has special and exceptional advantages, which should make it not only the healthiest city in the world, but one of the most pleasant to live in. For many years, unfortunately, the percentage of mortality in this city has been somewhat high. Hitherto faulty municipal regulations and the want of a good improvement committee have been to blame for this. I am not sure that the ordinary private dwelling-house has not something also to do with it.

The usual type of dwelling-house in Johannesburg takes the form of a one-storeyed chalet, with a narrow stoep running round two sides of it. Now, nothing is finer than a stoep from which a fine perspective stretches, and which stands some distance from a public highway. Nothing, at the same time, is so trying as sitting on a stoep that overlooks a dusty road. In Madrid to-day, as in not a few of the towns of Southern Europe, many people live in buildings that have much in common with the habitations of ancient Rome. The rooms are built around a square or succession of squares. These squares are paved with marble or granite, and a fountain rises in their midst. They are open to the sky, although an awning is stretched across during inclement weather. In these places the inmates of the house pass their time. They are made cosy with rugs and conveniences of every kind, and are cool on the hottest days.

But, above all things, what is wanted in Johannesburg is a shady and well-paved square, which, though it rival not the architectural splendours of the piazzas of Spain and Italy, may at least rival them in comfort and suitability. So that, æons hence, when the reefs around shall have yielded their last ounce of gold, and Johannesburg become a city of the past, some keen-visioned archæologist, happening on the site and beholding its admirable disposition and its noble ruins, may exclaim:—"Those wonderful Johannesburgers who planned this city, history tells what extraordinarily active men they were." But to find that amongst them were men of great thought as well—that is a real discovery.

A SUSSEX "MINT" HOUSE.

THE Rev. H. M. S. Bankart, curate of St. Nicholas Church, Pevensey, who is now resident in the Old Mint House, has succeeded, says the *Sussex Daily News*, in exposing some curious frescoes in the "king's bedroom." The walls, which are of oak beams and plaster, are being cleaned and scraped with minute care, and already satisfactory results have been obtained. The Mint House itself dates from the year 1542, when it was built by Dr. Andrew Borde, the original "Merry Andrew," a quack physician and court jester to king Henry VIII. In his capacity of medical adviser, and we expect, of cheerful companion as well, he accompanied the young king Edward VI. to Pevensey, and entertained him for some time in his house there. It is in the large bedroom, then occupied by the youthful sovereign, situated above the oak room, that the frescoes have been discovered. Probably all the walls were at one time thus decorated, for traces of red ochre and other paints are visible on the beams. Mr. Bankart hopes by care and patience to find others.

So far, a painting of the same age as the house, and representing cherubim and conventional foliage, has been found in the south-east corner of the room. Another is to be seen in the centre of the same wall, but this is of more recent date, for the portion of wall on which it is executed was originally a doorway leading from the king's bedroom to a smaller one, no doubt occupied by the worthy doctor himself during His Majesty's residence. The design displays a curious motto, "Give of of that little (to) my bretheren also," in black letter, with a crown and wings beneath. The first "of" is evidently a mistake for "ye," and the spelling of "bretheren" is original, though not without precedent. The word "to" was unfortunately destroyed by accident while exposing the fresco. There is a rumour of a large blue cross having been discovered some years ago on the west wall, but all traces of it have disappeared. In the small room adjoining, a store of coins was found hidden behind one of the beams of the wall. Even before Borde's time the Old Mint was in existence, and it is believed that coins were struck here during the Roman occupation, and afterwards. The great chimney of the Mint furnace is still standing, though the fireplace itself is bricked up, and the old copper, also used in smelting, has been replaced by a modern one. The ancient pump is to be seen against the north wall, and was in use up to thirty years ago, while a small, filled-up well in the floor on the east side is said to be connected, by an underground passage, with the well in Pevensey Castle.

Behind the big chimney are two small chambers, as yet unexplored, and roomy lofts with concealed entrances, used in

former years by the local smugglers for storing "run goods." The house is built directly on the ground, the floor being only 9 inches above the soil, and the low ceilings and doorways are very quaint and old-fashioned. The oak room was discovered some nine years ago by Mr. Kelsey. An accidental blow on the whitewashed plaster revealed the wood beneath, and immense pains were taken to clean and restore the valuable panelling. The entire room was found to be lined with oak, ornamented here and there with diamond-shaped carvings. Over the fireplace was a fine carved oak overmantel, divided into two, each panel representing a leviathan, with an elaborate heraldic tail, approaching a hook or spear, on a stippled ground. The overmantel is probably 150 years old, but the rest of the woodwork is considerably older, 200 years possibly.

A small room on the ground floor, which can be entered only by going through the house—an important point—has the reputation of being haunted. Quite recently a gentleman who was sleeping there related that he was disturbed in the dead of night by a female form in a white headdress, who peered at him through the diamond-paned window. On his remonstrating with her, she "instantly"—so he described it—appeared at his bedside, having entered through the locked door. He gave up his room in consequence. The Mint House is close to the Old Court of Pevensey, which possesses two cells and a spiked wall, with an iron-studded door abutting on the roadway. A story is told of the trial here of a man who was accused of stealing a pair of leather breeches. The jury found him guilty—of manslaughter. Yet there was wisdom in their foolishness; manslaughter was punishable with imprisonment, while in those bad old days stealing was a capital offence. Pevensey is still officially a "town," though it no longer boasts a "chief magistrate" and "jurats" of its own.

EXHIBITION OF IRISH BUILDING STONES.

THE Department of Agriculture and Technical Instruction for Ireland have taken steps to place on view for a period of three months, at the Imperial Institute, London, the extensive collection of Irish minerals and building stones which formed one of the most interesting and valuable of their exhibits at the recent Exhibition in Cork. The exhibit will embrace samples of the varied and excellent building materials and marbles in which Ireland is particularly rich, and it is expected that the opportunity of examining these samples will be of advantage to those who are concerned in the many large building schemes now in progress in London and elsewhere in Great Britain. The beauty and excellence of the Irish granites, sandstones and limestones, as well as of the red, green and black marble and the other ornamental stones of the country are well known, and when shown at the Department's exhibit at Cork were much admired. The exhibit also includes specimens of clays, cement-making materials and fine sands. In the mineral section of the exhibit are a series of prospectors' samples of the metalliferous deposits of the country and samples of Irish coal and other minerals now being worked.

The Department of Agriculture will take steps to place the fullest information on the subject of this exhibit at the disposal of inquirers. It is intended to open the exhibition about the middle of February.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A REGULAR meeting of the Council was held at the Institute rooms on Monday, the president, Mr. G. C. Ashlin, in the chair. There were also present:—Mr. J. Rawson Carroll, Sir Thomas Drew, Mr. A. E. Murray, Mr. F. Batchelor, Mr. W. G. Gilliland, Mr. W. J. Fennell, Mr. F. G. Hicks, Mr. C. J. McCarthy, Mr. C. A. Owen, Mr. R. C. Orpen, Mr. W. Mitchell, Mr. G. P. Sheridan, and the honorary secretary, Mr. W. Kaye Parry. A communication was read from the Ulster Society of Architects informing the Institute that they had appointed Mr. Gilliland and Mr. Fennell to act as representatives of the Ulster Society on the Council of the Institute for the present year. The Council received a report from the honorary secretary with reference to the establishment of a qualifying examination for membership. It was decided to have the usual annual exhibition of the prize drawings of the Royal Institute of British Architects. The Council had under consideration the rules of the Master Builders' Association with reference to tendering, and the honorary secretary was instructed to address a communication to that body on the subject.

Mr. R. W. Perks, M.P., in his speech at the meeting of Methodist delegates in the Royal Aquarium on Monday, said that they hoped before very long to erect on that site "a building which, in its beauty, its simplicity, its utility and its permanence would be typical of their great church."

GENERAL.

The British and South African Exhibition at Ca Town will open in November next as arranged. The death of Mr. Baker, the secretary, will cause no alteration.

The Assessor, Mr. Aston Webb, A.R.A., having declined to assent to an extension of the time originally fixed for the delivery of the plans, &c., for the Cape of Good Hope University buildings, the Agent-General states that the original date—namely, January 31—for sending in all such plans, will be adhered to.

The Lancashire County Council offer twenty monetary prizes for the purpose of encouraging technical students to show originality in designs for woven fabrics.

The Delegates of the Common University Fund, Oxford, have appointed Lewis R. Farnell, M.A., and John L. Myres, M.A., lecturers in Classical Archaeology, to hold office for three years from January 1, 1903, and to lecture under the direction of the Lincoln and Merton Professor of Classical Archaeology and Art.

The Surveyors' Institution junior meeting will continue on the 16th inst. the discussion of Mr. Latham's paper "Dilapidations," which was adjourned on the 19th ult. owing to want of time. On Monday, February 9, a paper will be read by Mr. William Woodward (Fellow) entitled "Some of the Difficulties which present themselves to the Architect and Surveyor practising in London."

The St. Petersburg Academy of Fine Arts now admit women as students of architecture and house-building.

Mr. C. W. Green, of the firm of Messrs. Holme & Green, at Liverpool, has been elected president of the National Federation of Building Trade Employers of Great Britain and Ireland.

The Earl of Rosebery has presented to the Hawick Archaeological Society a collection of arms and articles from Somaliland. The articles number between thirty and forty and include sandals, spears, tanned hide, a prayer mat and riding saddle. The Society recently presented Lord Rosebery with an apothecary's bronze mortar of the sixteenth century the property of an ancestor of his.

Sir William Emerson has been nominated by the Lord Mayor as one of the nine members of the committee of inquiry as to the proposed enlargement of St. Bartholomew's Hospital on its present site, or whether any better scheme of rebuilding than that suggested by the Governors can be devised.

The International Exhibition at Athens will be opened on April 7, and will continue for six months. All descriptions of manufactured articles will be admissible.

The "Tablet" states that four ancient Byzantine holy water fonts, from an old church in Treviso, near Venice, have been purchased and presented to the Roman Catholic Cathedral at Westminster. One of them is very large, carved in *rosso di Verona*, with characteristic animals climbing down the outside of the basin; the others are equally curious for their Byzantine artistic decorations.

Mr. Fletcher Moulton, E.C., has made his award in the arbitration between the London County Council and the Great Northern Railway Company. A part of the goods station and stables in the East End was taken for a new approach to the Tower Bridge, and the sum of 230,000*l.* was claimed for the property. It is understood that the amount to be paid has been fixed approximately at 150,000*l.*

The Market Hall, Northwich, demands costly reparations owing to subsidence which prevails in the district. The Council cannot seek compensation, and the Local Government Board are unable to sanction loans for the repair of any building which was erected by means of a loan.

A Meeting is to be held at the Guildhall in order that expression may be given to the opposition of the various wards of the City of London to the London Building Act Amendment Bill which will be introduced into Parliament next session.

Mr. Charles Walter Radclyffe died in Birmingham on Tuesday in his eighty-seventh year. He was a landscape painter, both in water-colours and oils. Mr. Radclyffe was one of the oldest members of the Birmingham Society of Artists.

A Commission has been appointed to take steps to secure the walls of Nuremberg, which are falling into ruin.

The Protection of Children Bill now passing through the German Reichstag provides that children under thirteen years of age must not be employed in building operations, brick-kilns, quarries and mines.

The Annual Exhibition of the Glasgow Institute of Fine Arts opened on Tuesday. Several pictures which were seen at the Royal Academy last season have been contributed, as well as some that were at the last Paris Salon.

Mr. William Ballard Cockrill, architect and surveyor, Gorleston, Great Yarmouth, has been returned as town councillor for St. Andrew's Ward for the county borough of Great Yarmouth.



The Architect, February 6, 1903.

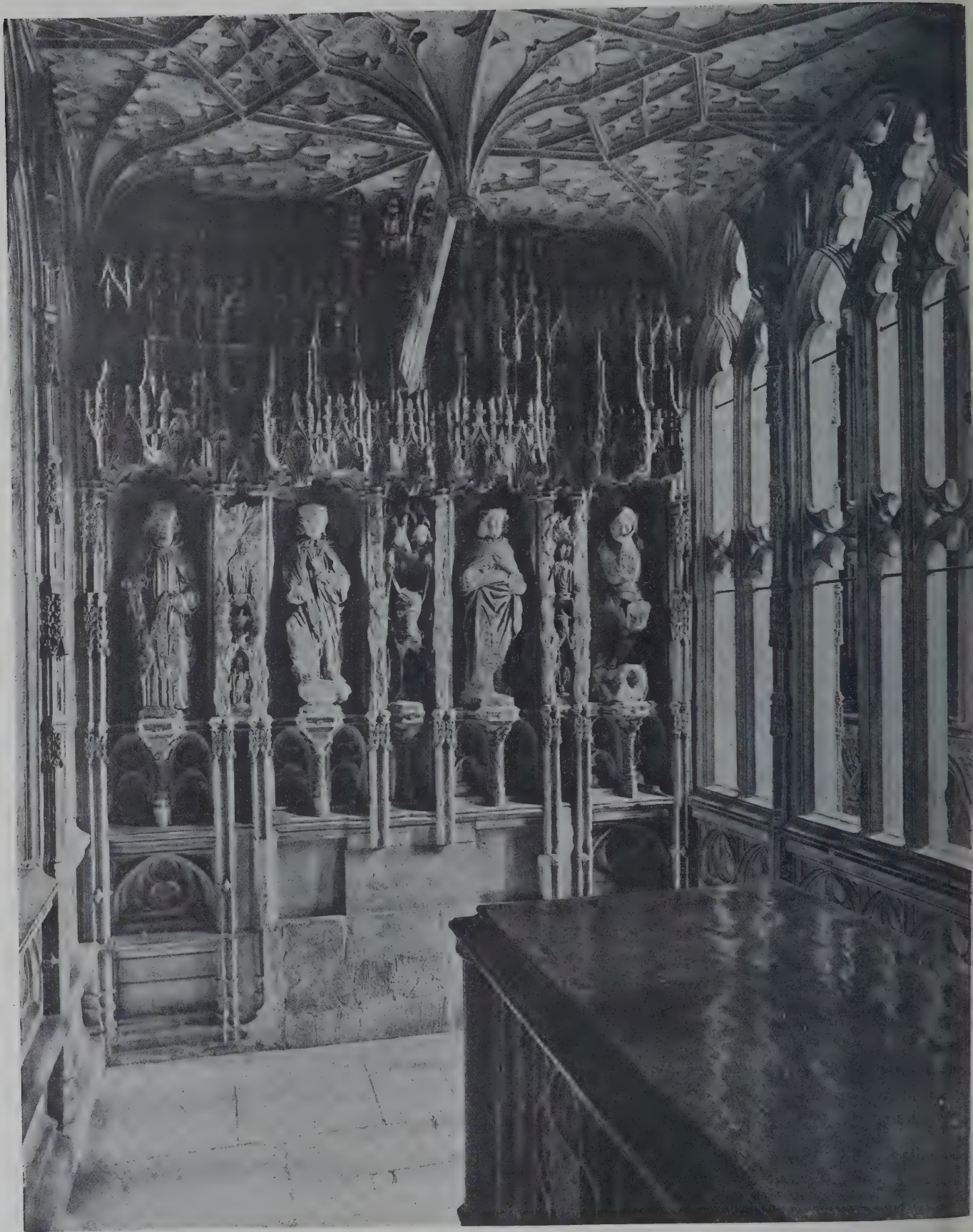
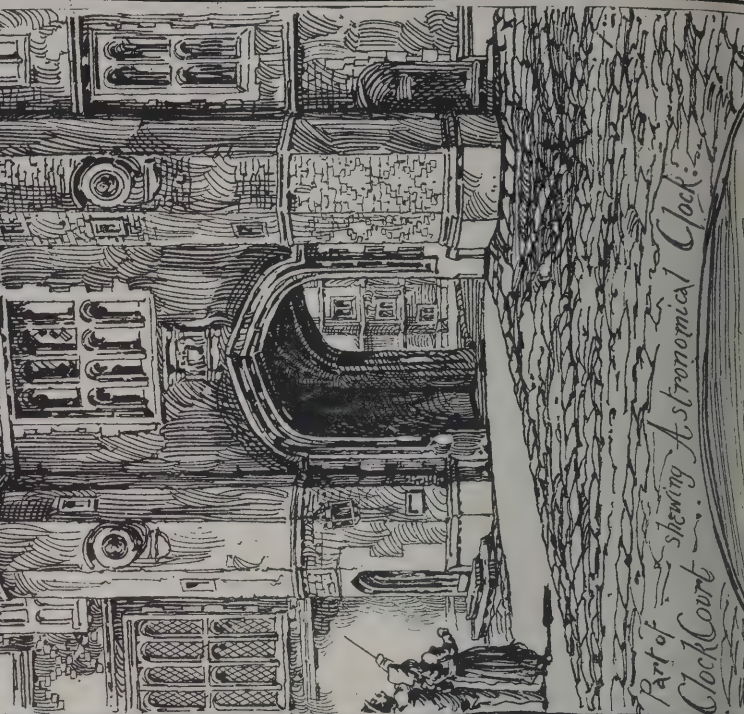
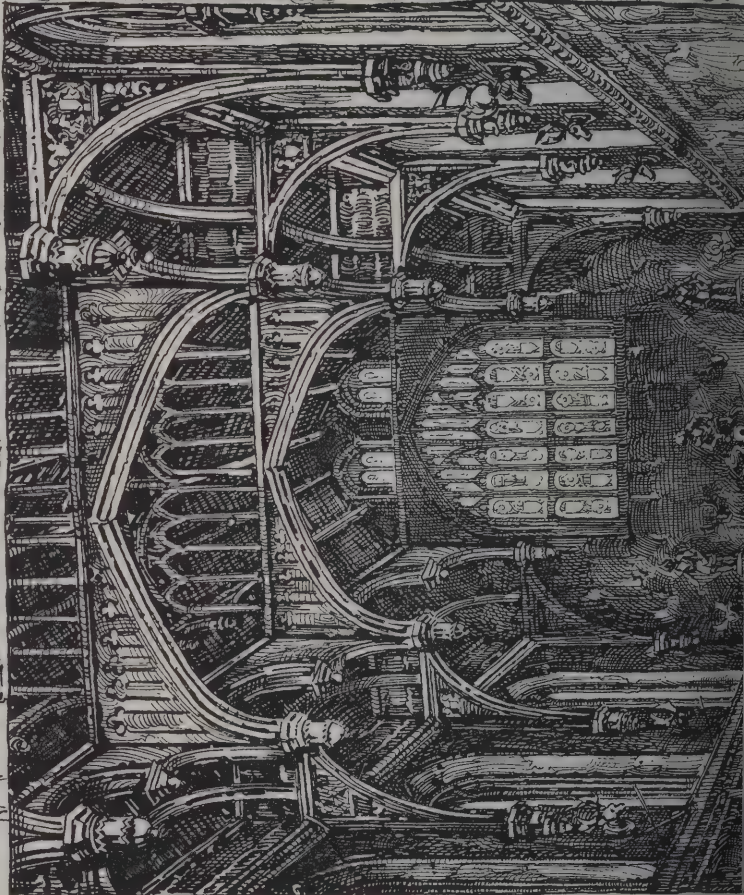


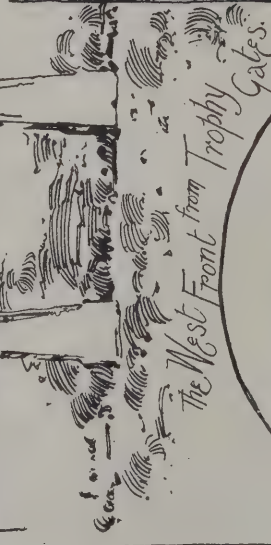
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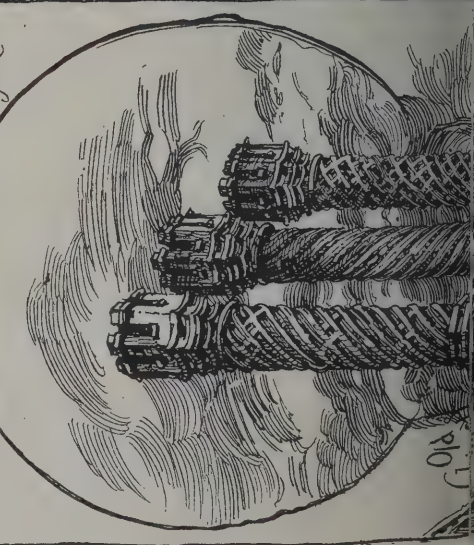
CATHEDRAL SERIES, No. 431.—WORCESTER: EAST END OF PRINCE ARTHUR'S CHANTRY.



Part of shewing Astronomical Clock:
Clock Court



The West Front from Trophy Gates



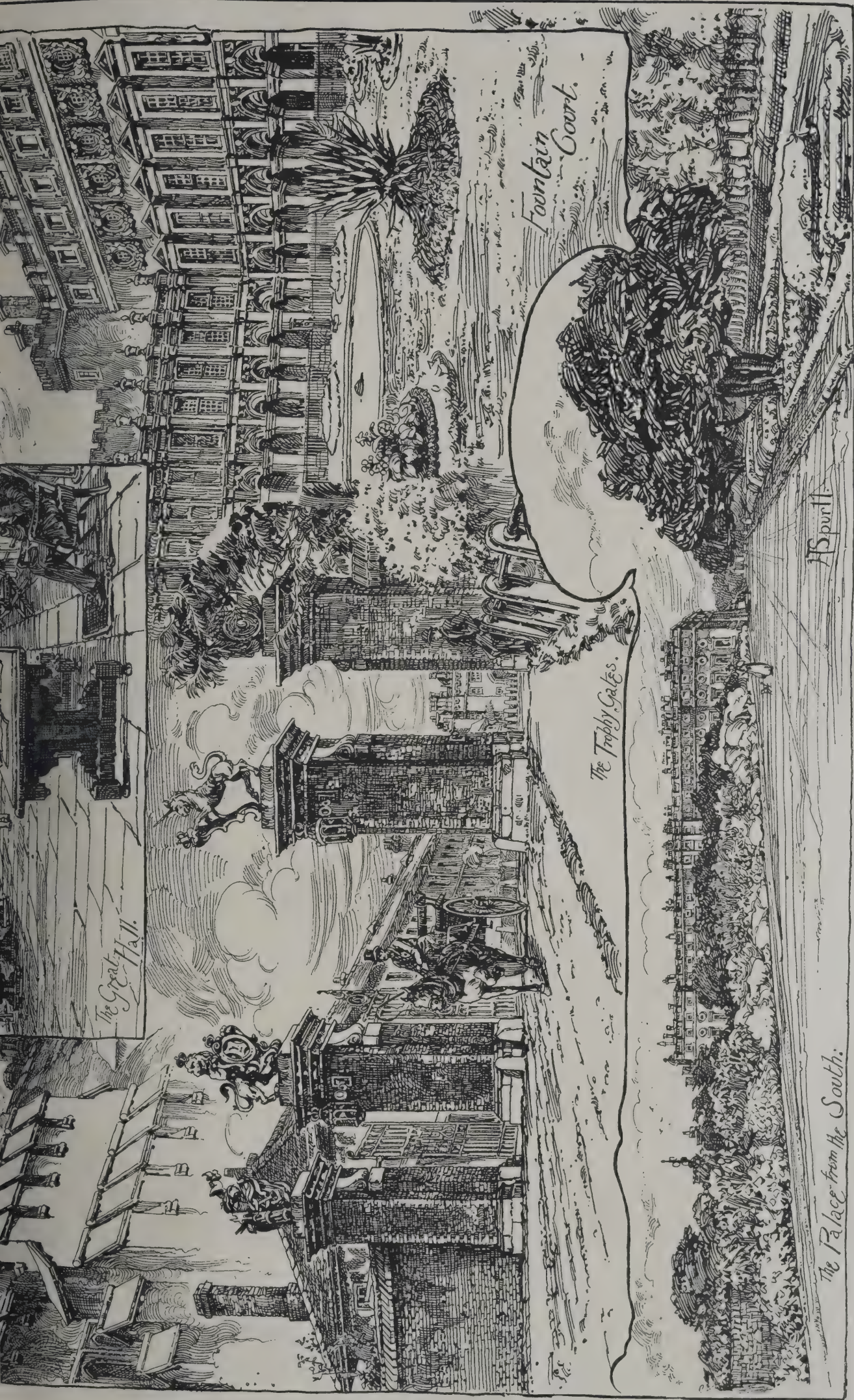
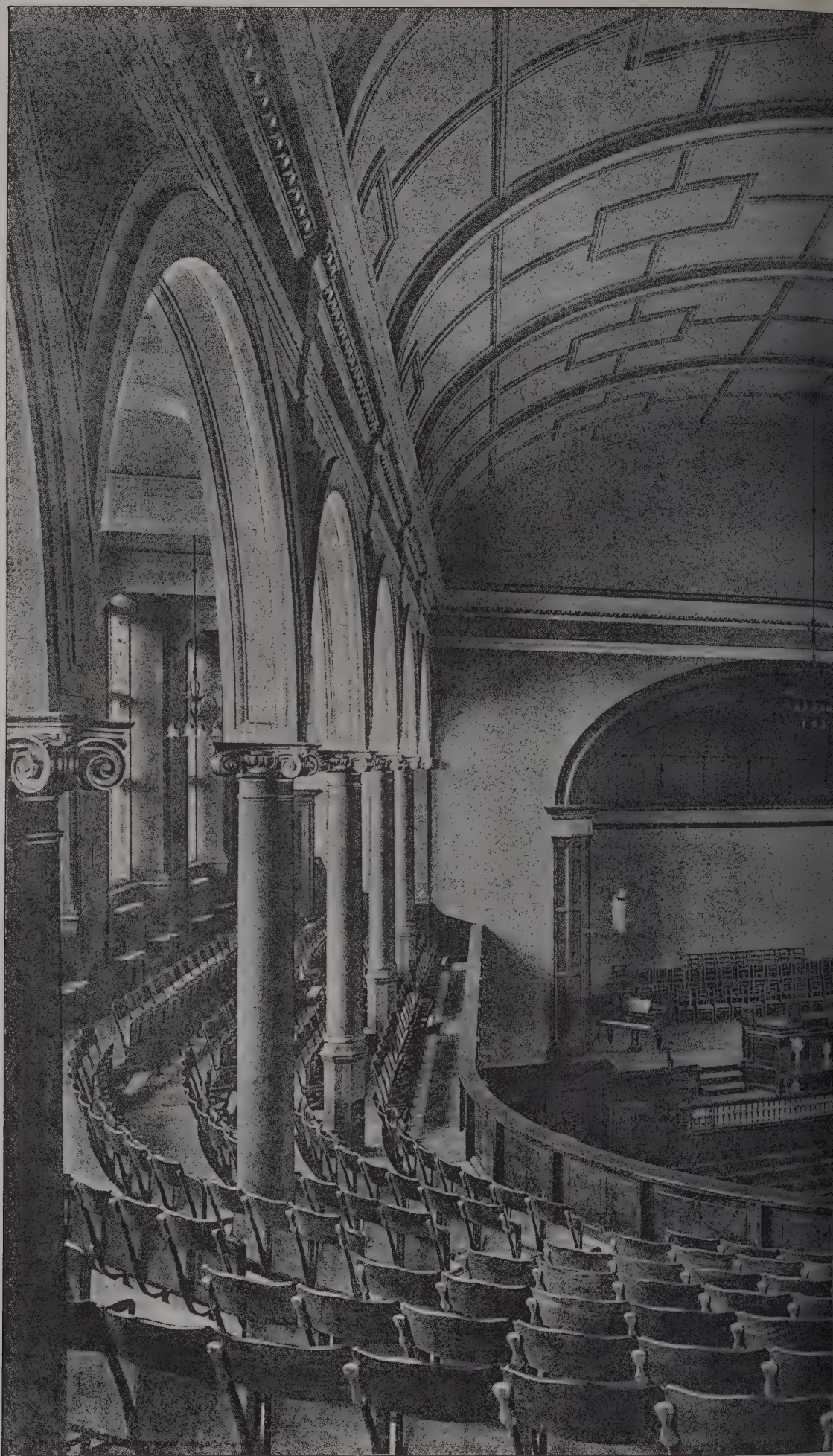


PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

SKETCHES AT HAMPTON COURT.

By H. T. SPURLL.



PHOTOGRAPHED BY S. B. BOLAS & CO. 68, OXFORD STREET, W.



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CATHEDRAL SERIES, No. 432.—WORCESTER: DETAILS OF PRINCE ARTHUR'S CHANTRY.



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DESIGN FOR FONT AND DECORATION.

By GEORGE J. J. LACEY.

THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 5,000l. Premiums of 60l., 25l. and 15l. will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Arrott. Mr. W. T. Baker, town clerk, King Square, Bridgwater.

BRISTOL.—Feb. 9.—The Bristol School Board invite designs for school premises at Moorfields, St. George, Bristol. The competition will be restricted to Bristol architects. Mr. W. Henry Adams, clerk to the School Board, Guildhall.

CASTLEFORD, YORKS.—Mar. 31.—Designs are invited for a free library. Premiums 15l. and 10l. respectively. Mr. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—March 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, Wycombe.

FENTON.—April 30—Designs are invited for a public free library. Premiums of 60l. and 30l. are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—Mar. 31.—Designs in competition are invited for the extension of the town hall. Premiums of 300l., 200l. and 100l. are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

SUNDERLAND.—April 30—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100l., 50l. and 25l. will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

SUTTON COLDFIELD.—Feb. 20.—Designs are invited for the erection of a town hall adjoining the council house, the total expenditure to be limited to 7,000l. Premiums of 50l., 30l. and 20l. respectively will be awarded for the three best designs in order of merit. Mr. W. A. Clarry, C.E., borough surveyor, Council House, Sutton Coldfield.

VICTORIA (HONG KONG).—Governor invites designs, accompanied by reports and estimates of the cost of erecting a building to contain the Post Office and other Government offices in this city. The author of the design placed first in order of merit will be engaged as consulting architect for the work, and will be paid a commission of 3½ per cent. on the actual cost of the building, exclusive of any moneys paid in respect of supervision, which will be provided by the Government. A further sum of 1,500 dollars is offered for the design considered second in order of merit. Particulars may be obtained on application at the Commercial Intelligence Branch of the Board of Trade, 50 Parliament Street, S.W.

CONTRACTS OPEN.

BASFORD.—Feb. 6.—For erection of stabling, &c., for thirteen horses at Basford, for the Midland Railway Company. The Secretary of the Way and Works Committee, Midland Railway, Derby.

BATLEY.—Feb. 23.—For erection of new central stores in Commercial Street, Batley. Mr. Harry B. Buckley, architect, 85 Commercial Street, Batley.

BIGGLESWADE.—Feb. 16.—For erection of a boys' National school at Biggleswade. Messrs. Townsend & Fordham, architects, Cross Street, Peterborough.

BISHOP AUCKLAND.—Feb. 14.—For erection of a laundry and laundry-maids' house at Raby Castle. Mr. F. H. Livesay, architect, 107 Newgate Street, Bishop Auckland.

BRIGHTON.—March 2.—For erection of electric-power station at Southwick, near Brighton. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BURTON-ON-TRENT.—Feb. 19.—For erection of a post office at Burton-on-Trent. Particulars may be obtained at H.M. Office of Works, Storey's Gate, London, S.W.

CHELMSFORD.—Feb. 7.—For erection of a building in connection with the isolation hospital, Baddow Road. Mr. Arthur S. Duffield, clerk, 96 High Street, Chelmsford.

CHELMSFORD.—Feb. 13.—For supplying, fixing, setting to work and maintaining for a period of six months of an air lift pumping plant to lift 5,000 gallons of water per hour, and for other incidental work at the waterworks pumping station, Great Baddow. Mr. James Dewhirst, surveyor, Chelmsford.

SPECIALTY.



ERECTION OF ROUND FACTORY CHIMNEY-STACKS

ON THE

"CUSTODIS SYSTEM,"

With Specially Constructed Patent Blocks.

Johns Custodis Chimney Construction Co., 119 Victoria Street, Westminster.

CHESTERFIELD.—Feb. 9.—For additions to the co-operative stores, Clown. Mr. Fredk. Hopkinson, architect, 40 Bridge Street, Workson.

CHISWICK.—Feb. 11.—For erection of a school for girls and infants. Mr. George Saunders, architect, 111 King Street, Hammersmith.

CHORLEY.—Feb. 16.—For erection of a circular chimney, 60 yards high, in connection with the new refuse destructor works. Mr. Jno. Mills, town clerk, Town Hall, Chorley, Lancs.

CLACTON.—Feb. 18.—For construction of about 3,700 yards of pipe sewers, varying from 9 inches to 15 inches in diameter, with manholes, lampholes, &c. Mr. A. R. Robinson, surveyor, Town Hall, Clacton-on-Sea.

CLEVEDON.—Feb. 9.—For erection of four benches of regenerator furnaces, including foundation and subways, hydraulic and foul mains, &c. Mr. Jos. Harger Pye, engineer and manager, Gasworks, Clevedon, Somerset.

COLCHESTER.—For restoration of Flatford Mill, East Bergholt. Mr. T. West Carnie, art adviser, 58 Bryanston Street, W.

COLNE.—Feb. 14.—For alterations and extensions to tanks, detritus chambers and roads at Swinden sewage farm. Mr. T. H. Hartley, borough surveyor, Town Hall, Colne.

COTTINGLEY.—Feb. 13.—For erection of seven dwelling-houses at Cottingley, Yorks. Mr. Wm. Rhodes Nunns, architect, Market Street, Bingley.

COVENTRY.—Feb. 11.—For alterations and additions to Stoke school. Messrs George & Isaac Steane, architects, 22 Little Park Street, Coventry.

CRAYFORD.—March 2.—For erection of Northend school, Crayford. Mr. C. L. Morgan, architect, 43 Cannon Street, E.C.

DENBY DALE.—For the erection of the Victoria Memorial Hall and Sunday schools, Denby Dale, Yorks. Mr. G. Moxon, architect, Central Chambers, 26 Church Street, Barnsley.

DEVONPORT.—Feb. 13.—For erection of a mortuary chapel at the new cemetery, North Prospect. Mr. John F. Burns, borough surveyor, Municipal Offices, Ker Street, Devonport.

EPSOM.—Feb. 10.—For erection of a boiler-house, &c., at the union infirmary. Mr. H. D. Searles Wood, architect, 157 Wool Exchange, Coleman Street, E.C.

EXETER.—Feb. 19.—For supply and laying of (Section 1) Doulton stoneware conduits; (2) two-phase high-tension twin-core concentric main feeder cables. Mr. H. D. Munro, city electrical engineer, Town Hall, Exeter.

GRANGE-OVER-SANDS.—For erection of three cottages at Allithwaite. Messrs. Settle & Farmer, architects, County Square, Ulverston.

GREAT BROUGHTON.—Feb. 6.—For erection of an infants' school at Great Broughton Cumberland. Messrs W. G. Scott & Co., architects, Victoria Buildings, Workington.

GREAT YARMOUTH.—Feb. 17.—For supply, delivery and erection of one 300 kilowatt steam alternator. Messrs. Preece & Cardew, 8 Queen Anne's Gate, Westminster, S.W.

HALIFAX.—For the conversion of Clare Hall into two residences. Messrs. Richard Horsfall & Son, architects, &c., 22A Commercial Street, Halifax.

HALIFAX.—Feb. 9.—For conversion of Clare Hall into two residences. Messrs. Richard Horsfall & Son, architects, &c., 22A Commercial Street, Halifax.

HALIFAX.—Feb. 11.—For erection of works at Kingston, Hopwood Lane, Halifax, for Messrs. John Whittaker & Sons, comprising bakeries, store and packing-rooms, offices, stabling for eight horses, van shed, joiners' shop, loading-sheds, engine and boiler-house, chimney and appurtenances. Messrs. Geo. Buckley & Son, architects, Tower Chambers, Halifax.

HAMMERSMITH.—Feb. 11.—For erection of a school for girls and infants. Mr. George Saunders, architect, 111 King Street, Hammersmith.

HARROW.—Feb. 10.—For erection of a classroom, &c., at the infants' school at Alperton, Harrow. Messrs. Houston & Houston, architects, 1 Long Acre, W.C.

HAWORTH.—For the erection of a church Sunday school at Haworth, Yorks. Mr. Thomas W. Bottomley, architect, 16 Prince Street, Haworth.

HOVE.—Feb. 18.—For erecting boundary walling, shedding stores, workshops, yardman's house, &c., at the Corporation depot in Sackville Road, Hove, Sussex. Mr. H. Endacott, town clerk, Town Hall, Hove.

HUDDERSFIELD.—Feb. 6.—For erection of a dwelling-house and stabling, &c., in Albert Street, Lockwood. Messrs. J. B. Abbey & Son, architects, 34A New Street, Huddersfield.

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HUDDERSFIELD.—Feb. 12.—For alterations and additions to Ravensdeane, Edgerton. Messrs. John Kirk & Sons, architects, Huddersfield.

HULL.—Feb. 12.—For erection of a relief office in Fern Street, Hull. Mr. T. Beecroft-Atkinson, architect, 11 Trinity House Lane, Hull.

ILFORD.—Feb. 9.—For erection of a boys and girls' school for 960 children and an infants' school for 480 children, with latrines, playsheds, fencing and schoolkeeper's house, &c., on the Highlands site, Cranbrook Park, Ilford. Mr. C. J. Dawson, architect, 7 Bank Buildings, High Street, Ilford.

IRELAND.—Feb. 13.—For erection of two labourers' cottages near the village of Celbridge (townland of Oldtown). Mr. Frank Shortt, clerk, Rural District Council, Celbridge.

IRELAND.—Feb. 28.—For erection of a coastguard station and signal station at Fanad Head, in the county of Donegal. Mr. H. Williams, secretary, Office of Public Works, Dublin.

ISLE OF WIGHT.—Feb. 6.—For erection of new coastguard buildings at the Needles, Isle of Wight, consisting of houses for four men, watch-room, outbuildings, &c. Specifications, &c., can be seen at the Director of Works Office, at the Alum Bay coastguard station, or at the office of the Superintending Engineer, Portsmouth Dockyard.

KENDAL.—For taking-down and rebuilding the retaining wall of the girls' playground in Sepulchre Lane. Mr. John Stalker, architect, Kendal.

KESWICK.—For erection of school, Braithwaite, Keswick. Messrs. Oliver & Dodgshun, architects, Carlisle.

LAMBETH.—Feb. 18.—For alterations and additions to the laundry at the infirmary. Mr. W. Thurnall, clerk, Guardians' Board-room and Offices, Brook Street, Kennington, S.E.

LEEDS.—Feb. 13.—For erection of urinals and conveniences at the Harehills recreation ground. Particulars may be obtained at the City Engineer's Office, Leeds.

LEICESTER.—Feb. 13.—For erection of the generating station, offices, &c., for the tramways committee. Mr. E. George Mawbey, engineer, Leicester.

LISCARD.—Feb. 19.—For erection of a chimney and main flue at the electric supply works, Seaview Road, Liscard, Cheshire. Mr. J. H. Crowther, engineer, Great Float, near Birkenhead.

LITTLEHAMPTON.—Feb. 18.—For construction of underground public conveniences on the Green, near Esplanade,

Littlehampton. Mr. Arthur Shelley, clerk, Town Offices, Littlehampton.

LONDON.—Feb. 10.—For repairs and decorations at 834 Old Kent Road, and drainage works at 844 Old Kent Road, Mr. T. H. Cole, surveyor, 858 Old Kent Road, S.E.

LONDON.—Feb. 12.—For construction of a public underground convenience adjoining Kingsland High Street. Mr. Norman Scorgie, borough surveyor, Town Hall, Hackney, N.E.

MANCHESTER.—Feb. 9.—For alterations to the arches belonging to the Manchester South Junction and Altrincham Railway Company, situate in and Nos. 63 and 65 Whitworth Street West. Particulars may be obtained at the City Surveyor's Office, Princess Street, Town Hall.

MANCHESTER.—Feb. 13.—For erection of a corrugated iron hospital (on brick foundations) in Carr House Lane, Mottram-in-Longendale, near Manchester. Mr. Joseph Lindley, architect, Town Hall Buildings, Hyde.

MANCHESTER.—Feb. 17.—For erection of a police-station and dwelling-houses in Trafford Park. Mr. Henry Littler, architect, County Offices, Preston.

MANSFIELD.—Feb. 9.—For erection of four shops, &c., at Cresswell. Mr. F. Hopkinson, architect, 40 Bridge Street, Worksop.

MIDSOMER NORTON.—For erection of fence and retaining walls at Old Welton and Norton Hill, Midsomer Norton, Somerset. Mr. William F. Bird, surveyor, Market Hall, Midsomer Norton.

MORLEY.—Feb. 9.—For erection of two semi-detached villas in St. Andrew's Avenue, Morley. Mr. Geo. B. Clegg, architect, 2 Peel Street, Morley.

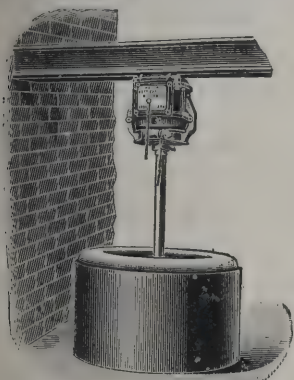
MORPETH.—Feb. 16.—For work in connection with the new cattle market, comprising the erection of offices, iron-bar division fences, cement concreting, forming entrance to market-gates and fencing, &c.; also for the formation and paving of roads from Oldgate Street to the market. Mr. F. Brumell, town clerk, Town Hall, Morpeth.

NEWTON ABBOT.—Feb. 10.—For erection of casual wards &c., at the workhouse. Mr. S. Segar, architect, Union Street, Newton Abbot.

NORTHAMPTON.—Feb. 24.—For widening the West Bridge. Mr. Herbert Hankinson, town clerk, Guildhall, Northampton.

OAKLEY.—Feb. 6.—For erection of pumping and tank houses at Oakley, for the Midland Railway Co. Particulars

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may be obtained from the Company's Architect, Cavendish House, Derby.

OXFORD.—Feb. 13.—For enlargement of the Oxford head post office, for the Commissioners of H.M. Works and Public Buildings. All particulars may be obtained at H.M. Office of Works, Storey's Gate, S.W.

PENZANCE.—Feb. 9.—For preparing and painting Messrs. Lean's offices. Particulars can be obtained on application at the Borough Surveyor's Offices, Public Buildings, Penzance.

POLKERRIS.—Feb. 25.—For construction of a steel-framed lifeboat house, the alteration and extension of the existing masonry slip, &c., upon or near the foreshore in the harbour of Polkerris, near Par, Cornwall. Mr. Herbert E. Cooke, hon. secretary, Penellick, Par Station, R.S.O., Cornwall.

PORTSMOUTH.—Feb. 12.—For erection of an engine-room, annexe and a pumping station, with foundations, &c. Mr. Alexander Hellard, town clerk, Town Hall, Portsmouth.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

SCOTLAND.—Feb. 9.—For plumber and painter's work proposed to be executed at the manse of Kinloss. Mr. Peter Fulton, architect, Forres.

SCOTLAND.—Feb. 16.—For constructing store reservoir on the Brox Burn and filters and tank, and laying and jointing cast-iron pipes and other accompanying works at the Bangour asylum waterworks. Messrs. J. & A. Leslie & Reid, engineers, 72A George Street, Edinburgh.

SCOTLAND.—Feb. 16.—For erection of a post office at Peebles, for the Commissioners of H.M. Works and Public Buildings. All information may be obtained at H.M. Office of Works, Edinburgh.

SCOTLAND.—Feb. 18.—For providing about 330 tons of dry-sand cast-iron pipes, from 18 inches to 10 inches diameter, for the Bangour Asylum Waterworks. Messrs. J. & A. Leslie & Reid, engineers, 72A George Street, Edinburgh.

SCOTLAND.—Feb. 20.—For erection of a drill shed at the Royal Naval Reserve Battery at Wick, Caithness, N.B. Particulars on application to the Director of Works Department, Admiralty, S.W.

SILSDEN.—Feb. 23.—For construction of a complete gas-works. Mr. John Driver, clerk, U.D.C., Town Hall, Silsden.

SOUTHALL-NORWOOD.—Feb. 24.—For supply of granite, lime, aluminiferous, cement, disinfectants, brooms, tools, oils, flints, gravel, &c. Mr. Reginald Brown, surveyor, Public Offices, Norwood.

SOUTHAMPTON.—Feb. 12.—For supply and delivery of a new 25 nominal horse-power portable engine and boiler. Mr. W. Matthews, M.I.C.E., waterworks engineer, 18-19 French Street.

ST. AUSTELL.—Feb. 9.—For alterations and additions to premises in Fore Street, St. Austell, Cornwall. Mr. T. H. Andrew, architect, 1 Trevarrick Villas, St. Austell.

STOKE-UPON-TRENT.—Feb. 12.—For erection of a chimney-stack and foundations to refuse-destructor works. Mr. Amos Burton, borough surveyor, Town Hall, Stoke-upon-Trent.

TICEHURST.—Feb. 24.—For erection of an administrative building at the Ticehurst isolation hospital, and for additions to the hospital buildings and outbuildings, near the Ticehurst Union workhouse, at Flimwell, Ticehurst, Sussex. Mr. J. C. Lane Andrews, clerk, R.D.C., Ticehurst.

WALES.—Feb. 7.—For erection of a residence at Tan-y-Bryn, Abergale, North Wales. Messrs. John Eaton, Sons & Cantrell, architects, Ashton-under-Lyne.

WALES.—Feb. 7.—For erection of eighty-seven dwelling-houses and cottages at Mountain Ash. Mr. T. W. Millar, architect, Oxford Street, Mountain Ash.

WALES.—Feb. 7.—For rebuilding the Cross inn, Rumney, near Cardiff. Mr. Edward H. Bruton, architect, 119 Queen Street, Cardiff.

WALES.—Feb. 7.—For erection of a house at Penygroes. Mr. E. F. White, architect, Grove House, Carnarvon.

WALES.—Feb. 9.—For completion of the new school on the Bettws side of Pontycymmer. Mr. Johns, architect, 223 Oxford Street, Pontycymmer.

WALES.—Feb. 9.—For lighting the new portion of the Swansea workhouse building from the Corporation electricity mains. Mr. Llew. Jenkins, clerk, Union Offices, Alexandra Road, Swansea.

WALES.—Feb. 10.—For erection of a shooting-box, near Pumpsaint, Llanwrda. Mr. David Jenkins, architect, Llandilo.

WALES.—Feb. 11.—For erection of twenty-eight dwelling-houses on a portion of the Ynyslyd estate, Aberdare. Mr. W. Fisher Thomas, architect, Aberdare.

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WALES.—Feb. 11.—For erection of a schoolroom in Pottery Row, Merthyr. Mr. T. Roderick, architect, 50 Glebeland Street, Merthyr.

WALES.—Feb. 12.—For erection of an infants' school and additions and alterations to the existing boys and infants' departments of Barry school, in High Street, Barry. Mr. George Thomas, Queen's Chambers, Cardiff.

WALES.—Feb. 13.—For construction of about 250 lineal yards of 9-inch stoneware and cast-iron pipe sewer at Ynyshir, and construction of a masonry retaining wall at the rear of Dolycoed Terrace, Tylorstown, Pentre, Glamorgan. Mr. W. J. Jones, surveyor, Council Offices, Pentre.

WALES.—Feb. 14.—For erection of sixty houses on the Nantyllyn estate, Maesteg. Mr. W. W. Paddison, architect, Llynvi Offices, Maesteg.

WALES.—Feb. 21.—For erection of a free library at Buckley, Flint. Messrs. John H. Davies & Sons, architects, 14 Newgate Street, Chester.

WALES.—Feb. 23.—For erection of two cottages near Ystradgynlais station. Mr. Daniel Thomas, Railway Terrace, Ystradgynlais.

WALSALL.—Feb. 9.—For erection of a school to accommodate 1,000 children, and a cookery centre and caretaker's house at the Chuckery, Walsall. Messrs. Bailey & McConnal, architects, Bridge Street, Walsall.

WALSALL.—Feb. 18.—For erection of a transformer station in Butts Road. Mr. John R. Cooper, town clerk, Walsall.

WARMINSTER.—Feb. 7.—For erection of reading and billiard-rooms at Christ Church, Warminster, Wilts. Mr. A. F. Long, architect, 53 Market Place, Warminster.

WARMINSTER.—Feb. 12.—For erection of a cottage at Victoria Road. Mr. A. F. Long, architect, 53 Market Place, Warminster.

WHARFEDALE.—Feb. 13.—For construction of a storage reservoir in the parish of Menston, for the Menston Waterworks. Mr. E. J. Silcock, engineer, 10 Park Row, Leeds.

WIMBLEDON.—March 3.—For erection of a central fire brigade station in Queen's Road, Wimbledon. Mr. C. H. Cooper, surveyor, Council Offices, The Broadway, Wimbledon.

WORKINGTON.—Feb. 18.—For alterations and additions to the West Cumberland steam laundry, Workington. Mr. Charles W. Eaglesfield, architect, Gordon Street, Workington.

YORK.—Feb. 12.—For construction of a bridge and approaches at North Lane, York, for the N.-E. Railway Company. Mr. C. N. Wilkinson, secretary, York.

YORK.—Feb. 16.—For sewerage, levelling, paving, metal-ling, channelling, &c., of all private streets required to be made up within the city of York during a period of twelve months. Mr. A. Creer, city engineer and surveyor, Guildhall, York.

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J. Smith, joiner.

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B. Denison, plumber.

Fleming, plasterer.

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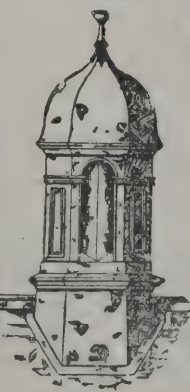
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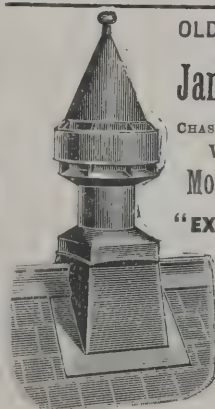
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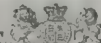
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BIRMINGHAM.

For construction of heating apparatus and of hot-water supply apparatus to the new north and south pavilions at the workhouse, Gravelly Hill. Messrs. WHITWELL & SON, architects, Temple Row, Birmingham.

Paragon Heating Co.	£849	0	0
Brightside Engineering Co.	848	0	0
Mather & Platt	789	0	0
Lea & Warren	769	0	0
B. Parker, Ltd.	644	0	0
Parker, Windus & Achurch	638	0	0
T. Parkes	575	0	0

BURGH.

For restoration of nave, rebuilding north porch, &c., at St. Mary's Church, Burgh, Aylsham, Norfolk. Mr. JOHN B. PEARCE, architect, 15 Upper King Street, Norwich.

J. Holmes	£816	0	0
J. H. Tuddenham	808	13	7
R. Morriss	692	15	6
W. Porter	675	17	9
W. & H. Wade	659	11	2
R. Chapman	647	0	0
R. C. Greengrass	624	0	0
G. E. Hawes	622	0	0
Scarles Bros.	598	10	0
R. Watts	555	13	4
W. Larnier	544	17	1
F. & S. Smith	535	0	0
T. H. BLYTH, Foulsham (accepted)	509	0	0

COBRIDGE.

For alterations and additions to the Sandbach School and Almshouse Foundation, Globe Pottery, Cobridge, Staffs. Mr. ALFRED PRICE, architect, Sandbach.

Birchall Bros.	£1,645	0	0
J. J. Longden	1,524	0	0
G. A. Foster	1,459	0	0
H. Howlett	1,398	0	0
Bennett Bros.	1,392	0	0
J. & C. Grant	1,369	0	0
T. GODWIN, Hanley (accepted)	1,360	0	0

Allowance for old materials deducted in each case.

CHELSEA.

For removal of Lindsey Jetty, Cheyne Walk (opposite Riley Street), and for the construction of a new timber jetty on the site thereof. Mr. T. W. E. HIGGINS, borough surveyor.

G. Webb	£1,510	6	11
Facey	1,315	0	0
Chafen	1,298	0	0
Reader	1,289	0	0
Woodhouse	1,231	13	2
Cochrane	1,100	0	0
Leggett	1,079	0	0
Colwell & Halze	1,010	10	0
C. Wall	975	0	0
Shelbourne & Co.	965	0	0
Grier	933	0	0
London & Tilbury Lighterage Co.	910	0	0
MUNDAY & SONS, 13 Trinity Square, Tower Hill, E.C. (accepted)	874	0	0

CLECKHEATON.

For supply of a motor booster.

PHENIX DYNAMO MANUFACTURING Co., Joseph Street Works, Bradford (accepted).

DARLINGTON.

For pulling-down old and erecting new business premises, 64 Northgate. Mr. W. HARGREAVES BOURNE, architect, Darlington.

Accepted tenders.

J. W. & M. Mackenzie, excavator, bricklayer and mason	£395	0	0
R. T. Snaith, carpenter and joiner	207	0	0
Lishman & Sons, plumber and glazier	74	12	9
W. Lancaster, slater	32	19	0
J. W. & M. Mackenzie, plasterer	24	0	0
Mossom & Sons, painter	8	9	0

DEVONPORT.

For the construction of septic tanks, bacterial filters, buildings, &c., at the Fish Pond, Camel's Head. Mr. J. F. BURNS, borough surveyor.

W. E. BLAKE, Plymouth (accepted) £22,971 0 0

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DUNMOW.

For erection of a block of six cottages on ground adjoining the railway station at Dunmow, Essex.

W. H. Gregson (Plan B)	£1,255	0	0
D. Harwood	1,200	0	0
W. H. Gregson (Plan A)	1,090	0	0
T. A. Goodey	1,060	0	0
S. Wiles & Son	1,050	0	0
F. F. Leach	1,020	0	0
Bush & Co.	990	0	0
Letch & Bowtell	914	0	0
G. Richardson & Co.	900	0	0
Letch & Bowtell (Plan A)	890	0	0
W. H. Gregson (Plan C)	881	0	0
C. E. Hope	780	0	0
W. Lloyd	724	4	0

Note.—Plans varying considerably as to accommodation and construction render task of comparison difficult, and no decision has yet been arrived at as to which is best value.

EASTBOURNE.

For erection of a church in South Street. Mr. HENRY WARD, architect, Hastings.

W. Backhurst	£5,638	0	0
Mark Martin	4,375	0	0
J. Parker	4,100	0	0
Miller & Selmes	3,900	0	0
PADYHAM & HUTCHINSON, St. Leonards (accepted)	3,800	0	0

GUILDFORD.

For enlargement of the bandstand in the Castle pleasure grounds. Mr C G MASON, borough surveyor.

Carling, Gill & Carling	£118	0	0
FILMER & MASON, High Street (accepted)	109	0	0

HARROGATE.

For supply at Masham station, North-Eastern Railway, of a 24-inch by 12-inch stonebreaker, mounted on wheels, with fast and loose pulleys; screen, 12 feet by 3 feet diameter, with shafting for haulage (no elevator required) Mr. E. WILSON DIXON, engineer, 14 Albert Street, Harrogate.

MASON BROS., Brandon Street, Leicester (accepted)	£188	10	0
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HARROGATE—continued.

For sinking shafts and driving headings in connection with 3¼ miles of tunnel under Masham and Grewelthorpe Moors, in the North and West Riding of Yorkshire Mr. E. WILSON DIXON, engineer, 14 Albert Street, Harrogate.

J. WHITEFIELD, Wentwood Waterworks, near Magor, Monmouthshire (accepted).

For supply and erection of a hydraulic water-motor pump capable of raising 150 gallons of water per minute to a height of about 100 feet, with inlet, outlet, waste and suction pipes, valves and other connections, for the Scargill scheme. Mr. E. WILSON DIXON, engineer, 14 Albert Street, Harrogate.

W. H. BAILEY & CO, LTD, Albion Works, Salford, Manchester (accepted)	£360	0	0
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HARROW.

For street and sewerage works on the Headstone and New Bessborough Estates. Messrs. CLARKE & CHARLES, surveyors, Harrow.

Headstone Estate.

G Wimpey & Co.	£872	0	0
C. W. Killingback & Co.	762	10	6
H. Brown	750	0	0
C. Ford	695	7	0
D H. Porter	670	0	0
T Free & Sons	650	0	0
J. C Trueman	640	0	0
G. R. Mann	628	16	5
A. B. Champniss	608	11	0
BRACEY & CLARK (provisionally accepted)	590	0	0

New Bessborough Estate.

C. W. Killingback & Co.	1,098	12	0
H. Brown	897	0	0
G. Wimpey & Co.	874	0	0
D. H. Porter	869	0	0
C. Ford	860	0	0
J. C. Trueman	859	0	0
T. Free & Sons	815	0	0
G. R. Mann	770	0	0
BRACEY & CLARK (provisionally accepted)	762	0	0

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Rosser & Russell	£108	10	0
R. Boyle	107	6	6
Berry & Sons	70	0	0
C. KITE & CO., 132 Euston Road, N.W. (accepted)	65	0	0
Green & London.	55	0	0

HUDDERSFIELD.

For erection of a weaving shed at Thirstin Mills, Honley. Mr. J. BERRY, architect, 3 Market Place, Huddersfield.

Accepted tenders.

W. Brooke, mason.
B. Oldfield, joiner.
H. Webster, plumber.
S. Whitehead, plasterer.
W. E. Jowitt, slater.
B. & J. Thornton, painter.
W. H. Heywood & Co, patent glazing.
Schofield & Taylor, ironwork.

For additions to warehouse and shed at Phoenix mills, Leeds Road. Mr. J. BERRY, architect, 3 Market Place, Huddersfield.

Accepted tenders.

Law, Stead & Sons, mason.
Hampshire & Armitage, joiner.
G. Garton & Son, plumber.
J. W. Bottomley, plasterer and painter.
Pickles Bros, slater.
W. H. Heywood & Co, patent glazing.
E. Wood & Co, ironwork.

IRELAND.

For construction of the seweragework in the town of Ferns, Enniscorthy. Mr. J. W. GARDINER, engineer.

M. Fitzpatrick	£2,050	0	0
G. Dixon	1,783	1	6
W. Goldie.	993	3	6
W. BAIRD, Dublin (accepted)	785	0	0
A. B. Breslan	790	0	0

KENSINGTON.

For erection of additional office accommodation.

W. B. Head & Son	£123	0	0
B. Colley & Sons.	121	0	0
C. F. Kearley	108	0	0
Spencer, Santo & Co., Ltd.	105	0	0
G. & F. Kent	98	15	0
W. Nash *	98	10	0

* Recommended for acceptance.

LEWISHAM.

For construction of about 3,200 feet of 3-feet 6-inch brick and concrete egg-shaped sewer in Bromley Road, Catford.

J. T. GLOAG, Chorley Villa, Felday Road, Catford (accepted)	£3,899	0	0
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MALVERN.

For erection of the Livingstone Memorial Church and parish room, Malvern Link. Mr. D. J. TAPPER, architect, Gray's Inn, W.C.

STEPHENS, BASTOW & CO., LTD., Bristol (accepted)	£8,250	0	0
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MILE END.

For erection of a disinfecting chamber at the workhouse.

Wood	£434	0	0
Neill & Co.	300	0	0
CALCUTT (accepted)	276	0	0
Brown	240	0	0
D. Clayton	198	5	6
Sharper	183	0	0

NEWPORT.

For supply of telephones, street pillars, and 30 station exchange boards for use on the tramway system.

WESTERN ELECTRIC CO, London (accepted).

RUSPER.

For erection of a house at Rusper, Sussex. Mr. JOHN P. BRIGGS, architect, Effingham House, Arundel Street, W.C.

Rowland Bros.	£2,500	0	0
J. Hillman & Murrell	2,267	0	0
J. Ockenden & Son	2,100	0	0
Hull & Redford	2,050	0	0
G. Potter	1,950	0	0
W. Potter	1,930	0	0
POTTER BROS., London Road, Horsham (accepted)	1,749	0	0

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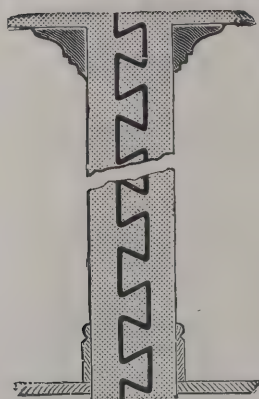
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R. KIDD, Allan Street, Blairgowrie (accepted).

WALES.

For street works in Caerphilly. Mr. A. O. HARPUR, surveyor.

Cardiff Road (A).

J. WILLIAMS, Aber (accepted) £36 0 0

Cardiff Road (B).

J. WILLIAMS (accepted) 130 0 0

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RHYMNEY COAL COMPANY, Cardiff, 17s. 6d. per ton

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JACOB REES, architect, Hillside Cottage, Pentre.

M. MORRIS, Ferndale (accepted) . . . £2,173 0 0

For erection of 37 cottages in Phillips Street, Pontypridd. Mr.

T. R. PHILLIPS, architect, Pontypridd.

WILLIAMS & JAMES, Pontypridd, Glamorgan

(accepted) £4,625 0 0

WALTHAMSTOW.

For erection of stables, loft, &c, in Essex Grove. Mr. G. B.

JERRAM, architect. No quantities.

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A. Fairhead 367 11 0

J. Stewart 357 3 0

Iles & Son 338 0 0

CASTLE & SONS, Lower Clapton (accepted) . . 335 0 0

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WE have received from Messrs. Greenwood & Batley, Ltd., of Albion Works, Leeds, one of their new steam turbine albums. This album is a really artistic production containing a description of the various uses to which the De Laval steam turbine has been applied. It contains some fifty full-page blocks showing examples of works where the De Laval steam turbine is in use. These include many electrical installations for power and light, engineering works, telephone exchanges, saw mills, steam laundries, collieries, chemical works, dockyards, public institutions, steamships and waterworks. Some of the applications of special interest to architects, apart from the generation of electricity, are for driving pumps and other machinery, in sinking of foundations and general power in buildings and civil engineering works, where owing to their high efficiency, portability, small weight (no foundations being necessary) they are very suitable. The De Laval steam turbine may be direct coupled to dynamos, centrifugal pumps, gas exhausters, fans and in fact any high-speed machinery, as well as being suitable for belt or rope driving. Every architect concerned in the application of steam-power for any purpose should, before deciding on the type of plant, obtain from this firm the album in question and general particulars of this steam motor, which has advantages in simplicity, economy of capital cost and working expenses over ordinary (reciprocating) steam-engines for many purposes.

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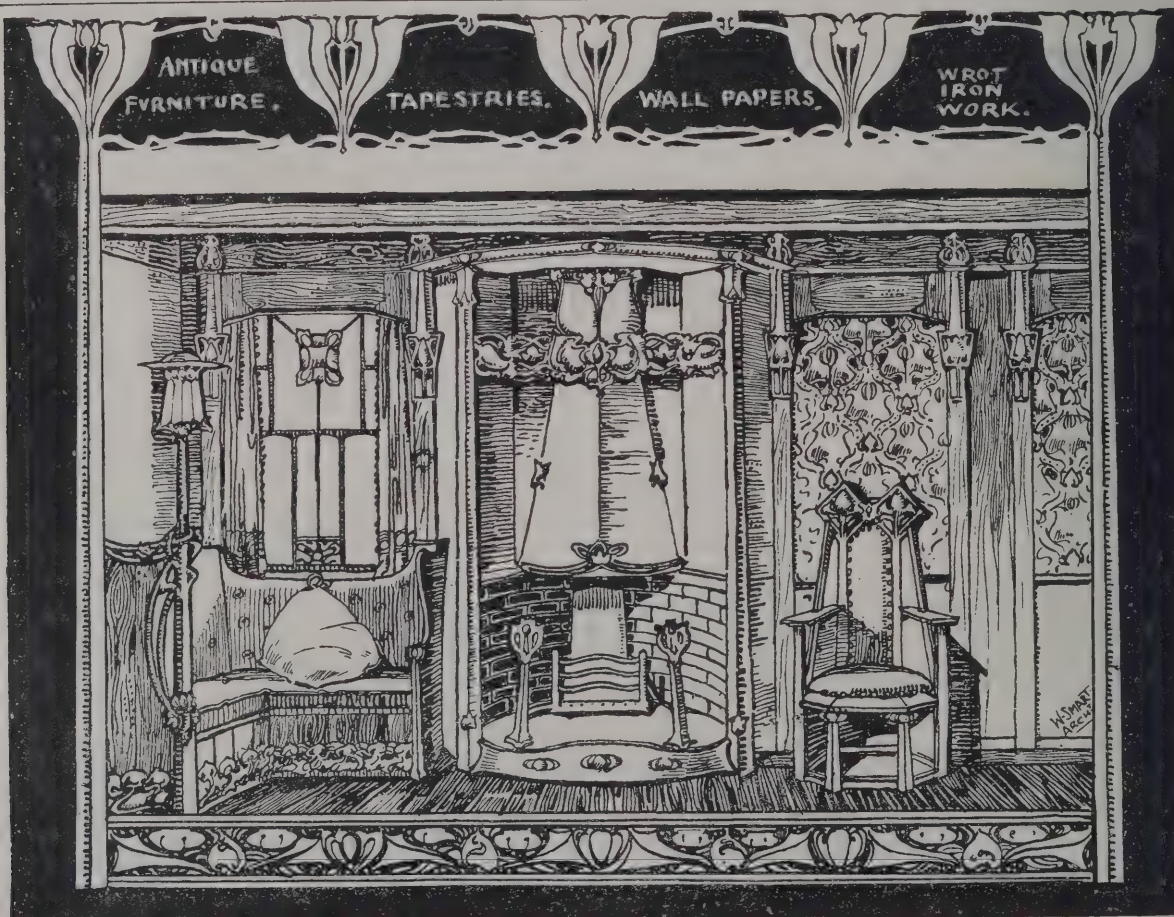
STANLEY HALL, SOUTH NORWOOD.

THE Chancellor of the Exchequer opened on Monday the new hall which has been erected at the expense of Mr. W. F. Stanley, long known as a maker of drawing and scientific instruments, and which is to be presented to the district. In this building Mr. Stanley desired to embody some of the conclusions he arrived at during his long connection with architects, engineers, surveyors and contractors. The professional assistance he sought was limited to what was necessary in the preparation of the plans required by the builders. Solidarity is the characteristic feature of the premises, and the foundations rest upon a bed of concrete 16 feet thick. The hall is entered from a handsome foyer, the walls of which are lined with white marble, while Aberdeen granite, and grey and black marble enter largely into the composition of a magnificent proscenium, the panelling, capitals and other ornamentation of the same being modelled in gilt. There is a parquet floor, and the simple principle adopted in the construction of the roof secures excellent acoustic properties. An art gallery adjoins the assembly-room, and it is the desire of Mr. Stanley that the building shall be vested in a trust for the permanent use of the inhabitants of South Norwood and Croydon, as a centre of education, recreation and entertainment. No conditions of a restrictive character are attached to the gift, and Mr. Stanley's only object in wishing to be personally associated with the administrative body is that he may have the opportunity of perfecting the equipment of the building for all the purposes to which it will hereafter be devoted.

Mr. Ritchie testified to the munificence and public spirit of Mr. Stanley. He said that there had been a large expenditure

anyone who looked at the beautiful building could readily see. Though expenditure was not necessarily judicious because it was large, everyone who saw those premises must come to the conclusion that in this case expenditure had been not only large but judicious; and that not only had a building been erected which was a proper building for the purposes in view, but a building that would long remain a great ornament to the neighbourhood. It had great artistic merit, and that merit was not due to any professional aid which Mr. Stanley had brought in to help him with the task he had undertaken. The artistic merit was due entirely to himself. Having determined to find the money, he determined to find the design; and he congratulated Mr. Stanley on the handsome building which he had produced. It was right and proper that for all time it should be known as the Stanley Hall, and that the busts on the façade should include one of the generous founder. But something would be wanting if the building were to be confined to educational, scientific and literary pursuits; and he was, therefore, glad to know that it would provide also for amusement and entertainment. He was pleased, however, to learn that nothing political was to be associated with the hall; and the busts of Gladstone and Disraeli were added to those of Darwin, Dickens, Tennyson and Faraday, because they were great Prime Ministers and great men, who for many years presided over the affairs of this country, and served the people faithfully and well. In the hope that it might help many in the path of duty—which was the only path to happiness—he had great pleasure in declaring the Stanley Hall open. Mr. Ritchie concluded by expressing his thanks to Mr. and Mrs. Stanley for a gold key which they had presented to him as a memento of the occasion.

ST. PETER'S new Roman Catholic church, Partick, was opened on Sunday last by Archbishop Maguire. The new church and presbytery are situated on the east side of Hyndland Street and south side of Wood Street, Partick. The church is designed in the early style, the nave, which is 104 feet long, consists of seven bays, and the chancel is divided from the nave by a chancel arch 34 feet long, making the total length of the church 138 feet. The presbytery has been built to accommodate five priests. Red sandstone has been used throughout the buildings, which were designed by Messrs. Pugin & Pugin, London.



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NEW CATALOGUE.

THE handsome new catalogue issued by the Electrical Power Storage Company, Ltd., contains, in addition to a mere description of goods and list of prices, a considerable amount of information likely to be valuable to electrical engineers, &c. As regards the catalogue proper, we note that the "K." type has been removed from the list; the company can still supply "K." type sections for renewals, but the "W.S." type has now taken its place, being a more durable type and consequently less expensive to maintain. Diagrams showing sizes of "L," "W.S.," "P." and "O.K." will also be found. The "O.K." type is a new type which gives approximately double the discharge rate and capacity while occupying the same floor space as their "P." type. The "Carzonode" type is manufactured with a new type of negative, and is specially designed for low maintenance rates. The ship lighting "W.T." type, which the company have been gradually improving during the past two years, is now listed, and will be found to contain all the latest improvements in cells suitable for this class of work.

VARIETIES.

ST. CUTHBERT'S Roman Catholic school, Slateford Road, Edinburgh, has been formally opened.

MR. W. K. VANDERBILT'S mansion, "Idle Hour," at Oakdale, is said to be in danger of complete destruction. The foundations were built on sand and are now settling, with the result that the walls are cracking.

A NEW Wesleyan chapel was opened at Broughton Moor on the 28th ult. It has been built in the Gothic style of architecture from plans prepared by Mr. Scott, architect, Workington, to accommodate from 150 to 200 worshippers, the contract price being 720*l.*, which, however, it is expected will be slightly exceeded.

ON the 31st ult. a new church was dedicated and opened in Upper Kennington Lane, Kennington, for the Roman Catholic population of the Vauxhall and Kennington districts. The new building is Gothic, and it provides seating accommodation for a congregation of 700. The cost has already reached 10,000*l.*, but with further embellishments in prospect more will be required. The church is dedicated to St. Anne.

THE South-Eastern Railway Company having agreed to guarantee the interest on Dover Harbour Board's new loan of 1,070,000*l.* for a mail packet marine station and further harbour development, Messrs. Pearson, contractors for the National Harbour, have commenced surveys and soundings in connection with the work.

THE erection of hospitals at Pietersburg, Lydenburg, Boksburg, Middelburg and Standerton will be commenced as soon as the plans and estimates, &c., can be prepared. The cost of the buildings and the maintenance will be provided from Government funds. The charge for the use of single-bedded wards for white patients will be 15*s.* a day, and for ordinary wards 10*s.* a day, exclusive of medical attendance. Government servants will be admitted at reduced rates in proportion to the amount of their salary.

A NOTABLE addition to the interior furnishing of Scarisbrick Hall, the residence of the Marquis de Custegn, is about to be made in the shape of a carved oaken doorway for the nursery. Carved oak is indeed one of the features of Scarisbrick Hall, every nook and corner affording choice examples of old-world carving. The doorway now to be fixed connects the main landing of the hall with the new nurseries for Count Andre de Custegn. The doorway, which is probably 400 years old, shows a complete series of the incidents in the Book of Esther, and is a most marvellous piece of carving. Over the door is an inscription in Gothic text lettering:—"Love God; honour your parents." The large, massive cove which goes around the doorway is filled in with a stem of roses, boldly carved. The spandrels over the Gothic arches had been formed of oak leaves very deeply carved, and a shield with the Custegn crest on one side, and the Scarisbrick crest (a dove) on the other.

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ELECTRIC NOTES.

THE umpire appointed to assess the value of the Metropolitan Electric Supply Company's undertaking in the borough of St. Marylebone, which is to be acquired by that borough, has awarded the sum of 1,212,000*l.* as the price to be paid to the company.

MR. PERCY BOULNOIS, C.E., Local Government Board inspector, has held an inquiry at Lancaster into an application by the Corporation to borrow 25,000*l.* for electric-light purposes, in addition to the 10,000*l.* authorised by the Parliamentary Bill of 1900. Mr. Heald, chairman of the electricity committee, said the application was necessitated by the constantly growing demand for electricity both for lighting and motor purposes, especially in the outer districts.

BUILDING AND BUILDERS.

AT Matlock Bath, certain additional waterworks, including a pumping station, have been agreed upon, the whole cost being estimated at 2,300*l.*, and a Local Government Board inquiry has been held thereon.

A GREAT outlay has been sanctioned by the Government for the building of houses on the Rand suitable to the means of employes and officials. The Government is spending 1,000,000*l.* and has stipulated that in no case shall the rent charged exceed one-sixth of the employee's salary.

THE Wesleyans of Barrow have decided to embark on a great extension scheme which comprises the building of a mission hall in the Hindpool portion of the town to seat 1,200 people, a permanent church in Greengate to seat 400, and a new church at Vickerstown, Walney Island, the cost of the three-fold scheme being about 10,000*l.*

PLANS are being prepared for a new church in the conventional district of St. John's, Hopwood, near Bury. The cost of the church is estimated at 5,500*l.* and the accommodation will be for 500 persons. The new building will take the place of an iron church which has been in use upwards of twenty years.

THE Examiner of Standing Orders in the House of Commons found the standing orders had been complied with by the promoters of the Bury and District Water Board Bill, which authorises the Board to spend 255,000*l.* on extensions. There are to be three new reservoirs at Scout Moor, and these are to

be known as the Scout Moor reservoir, the Scout Moor High-level reservoir and the Newhall reservoir.

THE Evesham Guardians have recently erected a new infirmary, and at the last meeting they passed resolutions consenting to the expenditure of a sum not exceeding 788*l.* in connection with that work, in addition to the sum of 5,500*l.* which had been previously authorised; also to the erection of casual wards at a cost of 3,750*l.*, the reconstruction of the clerk's offices at a cost of 850*l.*, and the expenditure of 317*l.* for lighting the new and old infirmaries. Six tenders for the building of the vagrant wards and offices were received, and the tender of Messrs. Espley & Co., of Evesham (3,774*l.*), was accepted.

THE Bishop of Nottingham, Dr. Brindle, D.S.O., laid the foundation-stone of the new classrooms being erected in connection with St. Patrick's schools, London Road, Nottingham, on the 29th ult. The additional rooms in course of construction on a site adjoining the existing building will provide accommodation for seventy infants, sixty-five boys and an equal number of girls. A separate entrance with a stone staircase leading from Leen Side is included in the scheme, and a small playground and communication with the present schools have been arranged for. The style to be adopted is similar to that which characterises the existing schools, and the estimated cost of the new room is about 2,000*l.* Messrs. Evans & Sons are the architects.

THE Lancaster Board of Guardians have instructed the buildings and properties committee to consider a scheme for extending the vagrant accommodation at the workhouse. It was pointed out that while there is accommodation for 59 vagrants, the average at week-ends for the past year was 70, and on one occasion there were as many as 105. Many came in on Saturday nights ostensibly to secure a bath and a clean bed, and there is reason to believe they appoint a banker outside. Some of the Guardians argued in favour of temporary provision under the impression that when the Heysham Harbour and Manchester Thirlmere Aqueduct are completed less men of the class will frequent the neighbourhood. On the other hand it was urged that, having regard to Lancaster's geographical position, they would always have tramps with them. Lancaster, it was stated, had the largest number of casuals in the country because, owing to lack of accommodation, they escaped tasks. That it was now proposed to remedy.

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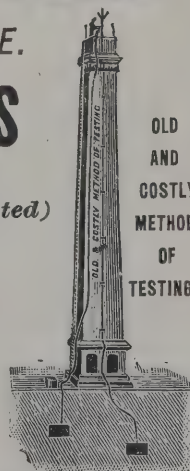
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ETC.

For Index of Advertisers, see page x.

THE Vicar of Wednesbury (Rev. T. W. Wilkes) has received an offer from a donor, who desires to remain anonymous, to bear the cost of erecting a south transept as an addition to the structure of the parish church, a step which it is estimated involves an expenditure of from 1,300*l.* to 1,500*l.* For some time past the mother church of the town has been undergoing alteration and renovation, and during the past twenty years a sum of about 10,000*l.* has been spent on a restoration scheme. A north transept was quite recently built, with the result that a great improvement in the appearance of the church was effected. The completion of the scheme involves the erection not only of a south transept, but also of a north side and clerestory, the total cost being estimated at about 2,500*l.* Much gratification is felt that the munificent offer now received will enable an addition to be made which will greatly enhance the noble proportions of the present buildings, and will also considerably increase the accommodation.

MR. JOHN LANE, general secretary of the Cardiff Painters and Decorators' Union, has given the masters notice of the following fresh demands:—Wages to be 9*d.* per hour (the present rate is 8*d.*); all holidays to be counted as double time (Sundays and Christmas Days only are now so counted); the percentage for overtime between 5 P.M. and 7 P.M. to be at the rate of 2½ hours, and 6*d.* for ordinary days and 1*s.* for Sundays as country money. There are about 400 painters and decorators in Cardiff, but not more than 200 are society men. They appear to be determined to secure the concessions specified, and the masters are said to be equally determined to refuse them. One well-known employer says that the present condition of the trade does not justify the attitude taken up by the men. "Their demands," he said, "are unreasonable, and, if persisted in, a strike is inevitable. They should have waited until next year, when the trade will most probably revive. The hours are fifty-six a week, and between March and September many men earn an average weekly wage of 2*l.* If they would buy their own kit the masters would, I believe, grant them what they now ask, but not otherwise."

THE foundation-stone of the new church in course of erection in Newtown district, Malvern Link, as a memorial of the late Archdeacon Livingstone, who was well known in Malvern, who died in May last, has been laid. It will be known as the Church of the Ascension, being built to plans prepared by Mr. W. J. Tapper, of Gray's Inn, and will consist of nave

and choir, capable of accommodating a congregation of about 400. The dimensions of the nave are 27 feet by 65 feet and 35 feet high. It is to contain four bays, formed by stone arches springing from stone shafts attached to the north and south walls. There are no side aisles; but a stone arcade, built in the walls at either side at a height of some 13 feet from the floor, will form a triforium at that level. At the west end a small tower is to be built, containing a baptistery, organ-chamber and a belfry in its three successive stages. Externally, on the western side of the church, will be a sculptural representation of "The Ascension." The dimensions of the choir are 18 feet wide, by 36 feet long and 36 feet high, and will contain three bays in its length, vaulted with stone and plaster. The choir will have a similar triforium to the nave. The latter will have coupled lancet windows in each bay and the choir single lancets, with a triple-light east window. The natural fall of the ground eastwards makes it convenient for placing the vestries under the choir. Guiting stone is to be used for the designs externally and Farleigh Down internally, the plain surfaces being of brick, plastered. The roofs are to be covered with stone slates. The material used in the construction of the church has been specified to be the best obtainable. Messrs. Stephens, Bastow & Co., of Bristol, are the builders.

AUTOMATIC SPRINKLERS.

THE following letter from Messrs. Mather & Platt, Ltd., has appeared in the *Times*:—

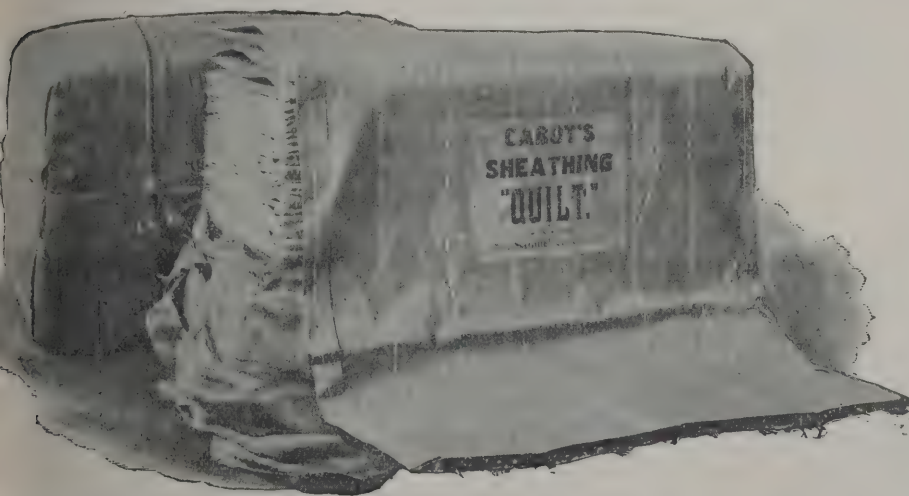
In view of the terrible fire which occurred yesterday at the Colney Hatch lunatic asylum, by which fifty-two lives were lost, we beg leave, through your columns, to bring before the notice of the public the question of automatic protection against fire. Had the annexe of this asylum which was destroyed been fitted with an installation of automatic sprinklers, we firmly believe that those fifty-two lives would have been saved, and the fire extinguished in its incipency by the operation of the nearest sprinkler. We read that the fire appliances available at the asylum were undoubtedly brought into operation quickly, but the fire brigade were unable to save the building. With sprinklers no human agency is required to set them in operation, the fire itself being made the agency of its own extinction.

At the inquest on the unfortunate victims of the fire which recently occurred at the Vernon Cotton Spinning Company's

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mill, Stockport, the jury recommended that sprinklers should be installed in all "fireproof" cotton mills. Surely, if it is considered expedient to protect buildings constructed of concrete and iron, it is even more necessary for premises such as the annexe burnt down at the Colney Hatch asylum (built with corrugated iron, with matchboard sides) to be provided with sprinkler installations.

We make no apology for writing our views on the question of fire protection, as we venture to think that the subject is one of national importance. We wish to emphasise the fact that long ago automatic sprinklers passed out of their experimental stage, and there is no question whatever as to their efficiency and certainty in extinguishing fires. Not only this, but they will accomplish the work with a minimum amount of fire and water damage. They have proved their worth in fire after fire, in all classes of manufacturing risk, and we submit that they are the one and only practical appliance for the thorough protection of public buildings, and especially those where a large number of human lives are in jeopardy.

INSTITUTION OF CIVIL ENGINEERS.

THE fourth meeting of the session of the Glasgow Association of Students was held in the rooms 207 Bath Street, Glasgow, on Monday evening, the president (Mr. C. C. Lindsay, M.Inst.C.E.), in the chair, when Mr. Arthur A. W. Wynne, M.A., Assoc.M.Inst.C.E., read a paper, illustrated by lime-light views, on "Steam Turbine Machinery." After a few introductory remarks, Mr. Wynne mentioned the best-known makes, and described their leading features. Short historical notes followed, showing the development of the Parsons turbine, which is by far the most widely used at the present day. In discussing the science of this engine, the effect of vacuum, superheat and boiler pressure were considered and brought out clearly by the help of curves. Some details of construction were well illustrated by a wall diagram of a 600 horse-power plant. A comparison between the turbine and reciprocating engine followed, in which the striking differences between them were well brought out. The machinery that is driven by the Parsons engine was next described, and included dynamos, fans, pumps, blowers, air-compressors, and, lastly, the propelling machinery for ships, the latter being treated fully, and the results from turbine steamers noted. The important subject of

steam consumption claimed special notice, and in the case of this class of engine was shown to be good. Some account of the running of these machines in everyday work was given and the cost of an installation of turbine engines discussed. An interesting discussion followed, and, on the motion of the Chairman, a hearty vote of thanks was awarded to Mr. Wynne.

SURVEYING BY PHOTOGRAPHY.

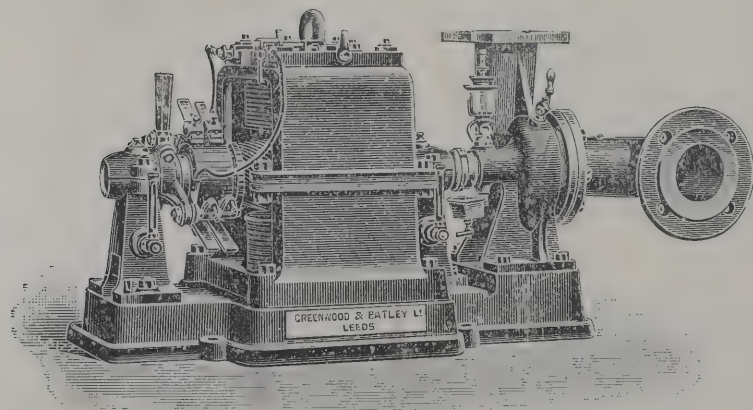
THE fortnightly meeting of the Manchester Literary and Philosophical Society was held on Tuesday evening at the Society's house, 36 George Street, Manchester, Mr. Charles Bailey, president, in the chair. Mr. L. G. Radcliffe and Professor Edmund Knecht, of the Manchester Municipal School of Technology, were elected ordinary members. Mr. C. E. Stromeyer read a paper on "Parallax Determinations by Photography," in which he dealt with the advantages photography offers for rapid and accurate surveys. The principle recommended was to superimpose the image of a photographic negative taken at one position on the image of a photographic positive taken at another position, the parallax, or angle which separates two positions as seen from any of the object in the photographs, being measured micrometrically by shifting one of the images until the object registers and disappears. It was suggested that the best result would be obtained by placing the two photographs in two lanterns and superimposing the images on a screen or into a microscope eyepiece, but the instrument shown was arranged to suit a single lantern, the negative and positive being placed film to film. One of the pairs of slides was a man's face, the eyes, beard and other parts alternately disappearing as the one plate was slid over the other. Another pair showed a landscape at Whitby, from which the distance of various objects could be measured by making them disappear; then followed a pair of stellar photographs, which were of interest as showing how easily the position of even a hazy object, like a comet, can be determined, and the measurements were made of the path of an electric spark. Some practical advice followed as to the best method of preparing the transparencies so as to make them truly complementary to the negatives. Mr. W. B. Baron read a paper on "The Influence of Hydrogen in Fuel in the Composition of Flue Gases."

The President, Professor Lamb and Professor Reynold

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SEND FOR CATALOGUES.

referred to the loss sustained by the Society and by the scientific world in general through the death of Sir George Stokes, an honorary member of the Society and the first recipient of the Wilde Medal.

COST OF LONDON BOARD SCHOOLS.

A STATEMENT was presented by Sir Charles Elliott at last week's meeting of the London School Board relating to the loan to be raised during the next financial year. He said it was the same amount as they had fixed on for borrowing during each of the last ten years, with slight variations. Three years ago they agreed to borrow 700,000*l.*, but as a matter of fact they only raised 550,000*l.*, and in 1898 and 1899 they fixed the figure at 550,000*l.* There had therefore been very little change in the amount spent on school building for ten years, and the anticipation which had sometimes been formulated, that as the child population of London had ceased to increase the indebtedness of the School Board on account of new schools would also stop growing, had proved to be fallacious. On the contrary, the Works Department was probably as full of work now as it ever had been. While the number of contracts given out during the last year, 1902, was nearly as large as in its predecessors since 1894, the number of schemes for building, which would shortly involve the giving out of contracts and the raising of loans, was larger than it ever was in the decennial period, having reached the high figure of seventy-six. There was therefore obviously no prospect of any contraction of their building operations for the present. On the other hand it might be noted that while the weight of their debt increased at the rate of about 600,000*l.* a year, the rate at which they were paying it off increased, and had now nearly reached the figure of 300,000*l.*, or about 1*1*/₂% in the pound. The subject to which he wished to draw special attention on the present occasion was the rise in the estimated cost per child. This was in 1894 15%, in 1895 18%, in 1896-99 20%, in 1900 25%, in 1901 and 1902 28% and in 1903 30%. For the year 1904 it was estimated at 26%. This figure, which was more commonly called the cost per "place," had risen steadily and heavily, and it was now double the sum at which it stood in 1894, though they anticipated a slight decrease in the coming year. This increase had often been made a ground for severe animadversion on the apparent extravagance of the London School Board, and some remarks of this nature which fell from the chairman of the Croydon School Board last autumn had

lately been the subject of an inquiry by a special sub-committee of the works committee. The statistic was one of some importance, for it was commonly used to indicate the cost of building. For instance, in the recent Parliamentary debates, when it was sought to estimate the value of the buildings which the managers of voluntary schools were giving up to the nation, the ordinary method used was to multiply the number of children in these schools by an assumed average cost per "place." It was, therefore, worth while to examine carefully how this statistic was usually worked out, and how it ought to be worked out if it was to be used as a comparative test of the cost of construction. The figures which he had quoted had hitherto been obtained by taking the total amount of the contracts given out two years before, on the assumption that the major part of the expenditure would be incurred two years after, and dividing them by the total number of children for whom accommodation was being provided. But it must not be supposed that the whole of this cost was incurred in providing this accommodation. Part of it was spent on drainage, playgrounds, boundary walls and schoolkeepers' houses; part in centres for manual training, cookery, &c., and the remainder on the school buildings which contained the "places" for the children. All the buildings, however, were not given up to the provision of school places. Besides the classrooms and the halls their schools contained art-rooms and science-rooms, which might accommodate more children if the space were not devoted to these special purposes. In dealing with the cost of building they had not to consider how the space was allocated, but only how much space was provided. And as it was laid down that every child in senior departments required 10 square feet in the classroom and 4 square feet in the hall, he proposed to treat 14 square feet as the equivalent of a "place," and to divide the total expenditure on the school building alone, apart from the accessories mentioned above, by the number of "places" thus defined, in order to calculate the cost of a "place." It was only when treated in such a way that this statistic could be used to compare the cost per place of one year with another, or that of one school or one place with another. Thus, in the year 1901 contracts were given for 15 new schools and enlargements, amounting to 219,968*l.*; and as these schools were to provide accommodation for 7,997 children, the cost per child, including 10 per cent. for furniture and expenses of architect's department, was set down as 30*l.* But the expenditure of 219,968*l.* included, besides 153,218*l.* for school buildings, 7,032*l.* for centres and 59,718*l.* for drainage, playgrounds, &c.; and

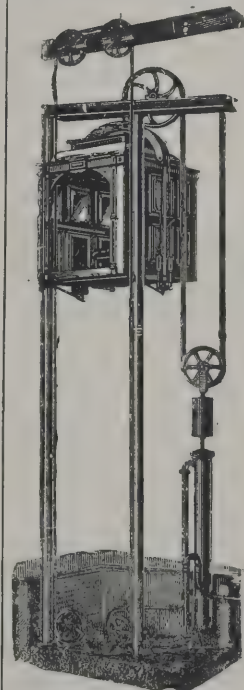
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though room in classrooms and halls for only 7,997 children was arranged for, the art and science-rooms and gymnasias contained additional space for 1,340 children more, or 9,337 in all. Using the number of children thus modified to divide the cost of the building, 153,218*l.*, they found the corrected cost "per place" to be 16*l.* 8*s.* 2*d.*, instead of 30*l.* He had not attempted to revise the whole set of figures on this basis, but, taking those for the first year of the period 1894, he found that the corrected cost per "place" was 11*l.* 8*s.*, and that, while it rose to 16*l.* 8*s.* 2*d.* in 1901, it fell to 14*l.* 15*s.* 1*d.* in 1902. What the explanation of this decrease in the year ending with Lady Day 1902 was, the report of the works committee for that year did not disclose. The figures for individual schools showed that even in 1901 it was possible to construct a school at the rate of 13*l.* 14*s.* per "place," and in 1902 a contract was given for a school building at the rate of 12*l.* 14*s.* 8*d.* As long as rates of this kind were adhered to the London School Board could not be accused of building at an excessive cost in comparison with the expenditure incurred in the adjacent districts. On the other hand, even in 1902 there were schools the contracts for which ran as high as 17*l.* and 17*l.* 10*s.* He was sanguine enough to hope that some day a reforming economist would arise in the works committee, or in what would in future take the place of their present works committee, who would take note of such large differences as these in the expenditure, and would compel the Department either to justify the higher rates or cut them down.

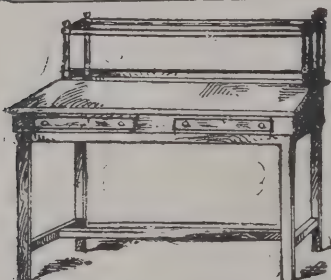
SOCIETY OF ENGINEERS.

THE first ordinary meeting of the Society of Engineers for the present year was held on Monday evening, February 2, at the Royal United Service Institution, Whitehall. Mr. Percy Griffith, the president for 1902, first occupied the chair, and presented the premiums awarded for papers read during that year, viz.:—The President's gold medal to Mr. Thomas Andrews, F.R.S., for his paper on "The Effect of Segregation on the Strength of Steel Rails;" the Bessemer premium of books to Mr. Augustus R. Galbraith for his paper on "The Hennebique System of Ferro-concrete Construction;" a Society's premium of books to Mr. Benjamin H. Thwaite for his paper on "British *versus* American Patent Law Practice and Engineering Invention," and a Society's premium of books to Mr. Brierley D. Healey for his paper on "Recent Blast Furnace Practice"

Mr. Griffith then introduced the president for the present year, Mr. J. Patten Barber, to the meeting, and retired from the chair, receiving a hearty and unanimous vote of thanks for his services during the past year. The President then proceeded to deliver his inaugural address.

After thanking the members for having elected him to presidency, he congratulated them on the membership being 523, the highest number the Society had ever had. In dealing with some of the works which concerned an engineer holding a municipal appointment, he stated they were so numerous that it would only be possible to refer to a few which were of general interest. On the subject of roads, in which the public interest had been revived since cycling became common, it was stated that great improvements had been made in their condition since the establishment of county councils and the maintenance had been under the control of qualified engineers. The use of suitable stone, broken to proper sizes, steam rolling and more judicious application of binding material, had largely contributed to the improved state of the main roads. It was possible to fix the stones on a macadam road by the method advocated by critics of making them "unite by their angles:" even in McAdam's time the fixing of the stones was accomplished by the small particles ground off the loose stones by the traffic. The addition of suitable binding material was necessary even when a steam roller was used for consolidating the new coat of stone with which a macadam road was repaired. Tar macadam formed a cleaner and smoother surface than ordinary macadam, but was more slippery and not suitable for very heavy traffic; it made an ideal road for cyclists and motorists, but its great cost made the formation of a track along the roads improbable. The use of the scarifier breaking up the surface of macadam roads prior to repair enabled them to be done more effectually and at about one-third of the cost of hand picking.

For paving town roads of very heavy traffic granite, asphalt and wood were used, but the former were frequently objected to on account of being noisy, and the second because of its slipperiness; wood being the material most favoured by the public. Jarrah wood, from Australia, was chiefly used for wood-paving, although there were other hard woods equally suitable, but they were not obtainable in quantities. The supply of other woods was a subject deserving the attention of the colonial Governments, but at the same time the plan-



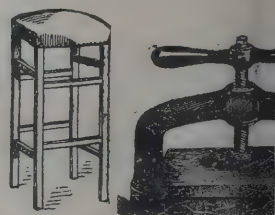
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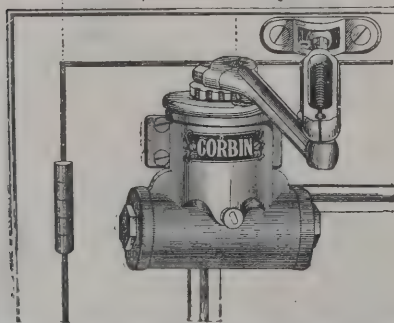


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trees should be carried on in order to make the timber industry an enduring trade.

For the cleansing of roads the horse-scraper and the chine-broom were of great service, and a machine was needed which would sweep mud or dust from a road and transfer it to a vehicle for removal, so as to save the labour and time occupied in forming it into heaps and loading into carts by manual work. The prevention of dust from the roads on the busy streets of a populous town was absolutely essential, the fine particles of refuse and debris from the pavements being very offensive and injurious. Specially constructed vans which would spread water, to which a disinfectant had been added, in a fine spray on the road surface might be tried; and perhaps a machine which would take up the dust from the road by exhaustion, and discharge it into a receptacle containing water, might at some time be invented. Pavements which added to the noise produced by traffic were necessary in the principal streets where business was carried on, and although noiseless shoe for horses did not seem to be practicable, improvements should be made in the construction of vehicles so as to diminish the clatter made by them.

Referring to the disposal of house refuse by means of incinerators, the President remarked that great improvements had been made which had resulted in more perfect combustion of the refuse and the gases from the cells, and that no nuisance was caused in the neighbourhood of properly designed installations. From the clinker paving, bricks and other articles were made by hand or by hydraulic machinery. It was desirable that the dust which filled the air in the incinerator building during the clinkering of the cells should be prevented. From the burning of house refuse steam was raised and used for pumping and other useful purposes.

The improvements in motor vehicles for the haulage of heavy loads were stated to have been the result of the trials which had been made and of the perseverance and enterprise of the makers. But the tare weight of three tons had been found too low for enabling a motor vehicle on four wheels to haul a water load than four tons at a speed of five miles per hour, and the necessity for a tare of four tons being allowed had been indicated by the judges in the Liverpool trials. The practicability of trials being carried out for determining the relative effect of motor and horse vehicles on roads, the most suitable forms of wheels and tyres and other questions connected with the subject of motor traction was pointed out.

Dealing with tramways, the various methods of traction

were mentioned, cable or electric being the only systems likely to be adopted by the authorities in this country. The overhead trolley was chiefly used, although the cable system was not obsolete. In the crowded streets of some large towns the conduit was being selected. Surface contact was a system recently introduced at Wolverhampton. More substantial construction was required for electric tramways than for those worked by horses, and special attention was needed in order to prevent the springing of the rails. An appeal was made for accurate work and attention to every detail of construction.

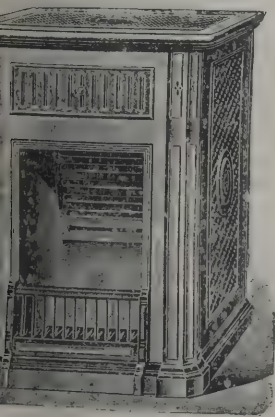
Speaking of sewerage, the President observed that increased knowledge of hydraulics and the manufacture of more suitable materials had enabled engineers to construct better sewers than those of fifty years ago. The carrying away of storm water was a serious problem in rapidly extending towns, and sufficient provision had not been made for dealing with rainfall in earlier schemes of sewerage. The results of many experiments and the actual working of various systems for dealing with sewage had shown the efficacy of bacterial processes for purifying crude sewage.

The address was listened to with marked attention by a large and appreciative audience, and at its close a hearty vote of thanks was accorded to the President.

THE HOUSING QUESTION IN EDINBURGH.

A LECTURE was lately given in the Building Trades Exchange, Ltd., by Mr. James Moscrip, architect, on the housing question in large cities. After reviewing the present state of affairs and enumerating the causes which attracted people to large centres of population, he said that the question had been brought to the front mainly by the wretched condition of the very lowest class of the community. In this connection he noted that it was not always the poorest who inhabited slum areas. He had in his own experience in Edinburgh found families with a combined income of from 2*l.* to 5*l.* per week living under the most wretched conditions in the centre of slums. There were, of course, many others who were really poor, but who yet managed to keep a comparatively comfortable and clean house. The poor might be divided into the thrifty and the very unthrifty, not to call them by a worse name. There was a class of people whom it was almost impossible to house satisfactorily. It had been said, put a pig into a drawing-room and it remained a pig still and would spoil the drawing-room. Some people, if placed amid good surround-

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ings would not keep them in a good condition for more than a week or two. In these circumstances they ought to have some sympathy with the Corporation of Edinburgh in putting up houses which some ratepayers had condemned as byres; he alluded to the so-called model tenements, where the inside work was a disgrace. It was probable that the Corporation had in view the class of people whom they had unhoused, and whom they were compelled to house again, and who were not fit to live in properly equipped dwelling-houses. Discussing the remedy for the problem, he said he did not believe in the taxation of land values; he did not believe in taxing any commodity which was an absolute necessity for the community. Facilities for travelling to the areas outside of the city were all very good, but if such facilities were given the result would be to raise the price of the land in such areas. Henry George's ideas did not find general acceptance in this country, because they did not include compensation to the owners of the land. Mr. Moscrip's suggestion was not to nationalise the land, but to municipalise it. He would have the municipal authorities, as opportunity occurred, acquire land in the outlying districts, paying for it not the owners' price, but the fair market value based on the rental at the time of purchase. The Corporation, becoming thus the superiors, would be able to feu the land to builders at reasonable rates. One result of that system would be that the streets in those areas could be properly laid out in squares, crescents and terraces, as had been done in the new town of Edinburgh. The beautiful arrangement of the streets in the new town of Edinburgh was due to the foresight of George Heriot and his governors who, after George Heriot's death, acquired a huge area on which the new town was built.

The Chairman said he would like the municipal authorities who built houses to show exactly how much they cost per cubic foot. Mr. Paterson said the Heriot Trust had been referred to. That Trust took the highest price for their ground they could get, just as other people did. With regard to the housing of the poor, he thought they did too much for loafers. The more they encouraged the loafing, dirty, lazy class, the more they would encourage pauperism. Mr. Drysdale said that the Heriot Trust were the greatest sinners in regard to the laying out of narrow streets and high buildings, and he quoted Albert Street as an example. He did not know that they could hope to elevate a man by putting him into a bare, ugly dwelling. They need not give him a very fine place, but they might, at least, give a 9-foot ceiling, plenty of floor space and decent walls. As to house farming, the

municipalities were themselves the chief sinners, as they farm out their houses. Mr. Patrick Knox said he agreed with Balfour Waterston that there need be no such thing as a poor man in the city if the people behaved themselves. If man or woman took advantage of the opportunities within their reach, there would be no question of the housing of the poor to deal with. If men and women so far forgot themselves that they could not keep themselves clean, and behaved more like beasts than human beings, then brick walls were quite good enough for them. He questioned whether it was that the community should be taxed to provide houses for such people. Mr. Neil M'Leod thought the Corporation might do very much better than they were doing in housing the class of people whom they had unhoused. They were putting up houses for a class of people who could afford to pay for good houses—people such as masons and joiners, and the community had to pay the difference between what the houses cost and the amount drawn from them.

Mr. Moscrip explained that his address was not intended to deal specially with the housing of the poor, but with the housing problem generally.

THE ASSUAN RESERVOIR.

At the ordinary meeting of the Institution of Civil Engineers on the 27th ult., Mr. J. Clarke Hawkshaw, M.A., president of the chair, the papers read were "The Nile Reservoir, Assuan," by M. Fitzmaurice, C.M.G., B.A.I., M.Inst.C.E., and "Sluices and Lock-Gates of the Nile Reservoir, Assuan," by F. W. Stokes, M.Inst.C.E.

The first paper began with an account of the river Nile and the author stated that, with the exception of the north margin of the Delta along the coast of the Mediterranean, Egypt was a country practically without rain and absolutely dependent on the Nile for its water-supply. The volume of water in the river during the winter months was much larger than was required for the needs of the country, and during summer months the supply was not nearly sufficient. It was therefore not surprising that the construction of a reservoir which should enable part of the surplus winter water to be stored for use during the summer months had been under consideration in Egypt for many years.

The discharge of the Nile fell to about 400 cubic metres (14,000 cubic feet) per second during the summer, and was

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minimum about the middle of May. A slow increase in the discharge then began and continued until the middle of July, after which date the increase became very rapid. By the first week in September the Nile was in full flood, and in an average year the discharge was then about 10,000 cubic metres (53,000 cubic feet) per second, while in a year of very high flood the discharge might rise to 14,000 cubic metres (94,000 cubic feet) per second.

The above dates referred to the Nile at Assuan, which town is about 1,200 kilometres (750 miles) from the Mediterranean. The Nile as it entered Egypt proper at Assuan was the product of three rivers—the White Nile coming from the west of Central Africa, and the Blue Nile and the Atbara coming from the Abyssinian Mountains. The two latter rivers when in flood brought down large quantities of valuable fertilising mud or silt, which was made great use of in the method of irrigation, called in Egypt basin irrigation.

In the construction of any reservoir in the valley of the Nile precautions were necessary to prevent the silting up of any reservoir which might be formed.

At Assuan a masonry dam 2,000 metres (2,185 yards) long and of a maximum height of 39·5 metres (130 feet) had been built across the valley of the Nile, thus forming a huge reservoir extending southward from the dam 225 kilometres (140 miles) into Nubia.

No attempt was made to store water while the Nile was in full flood, when its waters were carrying large quantities of silt. Sufficient sluices were provided in the dam to allow the Nile to pass through when in flood without any appreciable diminution in its velocity, and consequently without causing any deposit of silt in the reservoir. No water was allowed to flow over the dam as the sluice-way was sufficient for all purposes. After the muddy flood had passed and the water had become clear, at which time the discharge of the river had fallen to about 2,500 cubic metres (88,000 cubic feet) per second, the filling of the reservoir was begun by gradually closing some of the sluice-gates. The water then continued to rise in the reservoir until it attained a height of 8 metres (26 feet) above high-Nile level, or 16 metres (52 feet) above low-Nile level. In an average year this happened towards the end of February, and after that time the water reaching the reservoir from the south was passed on through the partially opened sluices. Early in May the sluices were gradually opened, and the normal discharge of the river was increased until the reservoir was emptied early in July. This additional

water in summer would enable a much larger number of crops to be obtained, and would be specially valuable for the cotton crop.

The greatest head of water on the dam would be about 20 metres (65 feet), and the storage capacity of the reservoir was estimated at 1,665 million cubic metres (37,612 million cubic feet).

There were 180 sluices in the dam, of which 140 were 7 metres (23 feet) high by 2 metres (6½ feet) wide, and forty were 3½ metres (11½ feet) high by 2 metres (6½ feet) wide. They were fixed at different levels in the dam, so as to allow the discharge of the water according to the varying levels of the reservoir. Those sluices which had to be worked under a great head of water were fitted with Stoney roller gates, while those working under a small head had ordinary sliding gates. The majority of the sluices were lined with granite ashlar, but owing to the comparatively short season available for building, some had been lined with cast iron, to save time. A hand-winch was fixed over each sluice on the top of the dam, to lift and lower the gates. The dam crossed the Valley of the Nile at the head of the Assuan or First Cataract, and the rock at this point was granite. The dam was built of granite in cement mortar, and all the stone had been obtained within a short distance of the works. Both faces of the dam were built of coursed squared rock-faced granite, the up-stream face being laid in 2-to-1 cement mortar, and the down-stream face in 4-to-1 mortar. All these stones had been laid by steam cranes. The hearting consisted of granite rubble and had been laid by hand and set in 4-to-1 mortar. The bottom 2 feet of rubble had, however, been built in 2-to-1 mortar. A good supply of excellent granite sand had been obtained within a reasonable distance. The average actual weight of the masonry was 2,396 kilogrammes per cubic metre (149·5 lbs. per cubic foot), and the maximum pressure on the masonry with the reservoir full was 4·35 kilogrammes per square centimetre (4 tons per square foot).

All masonry had been built in the dry, and to enable this to be done the river had been dealt with in short lengths, and temporary dams (called in Egypt "sudds") had been built to enclose the site of each portion of the work. These sudds had either been of stone or of sand in bags. It had been expected that considerable difficulty would be experienced in dealing with the leakage through the sudds, and very large pumping plant had been provided; but the amount of leakage had been found to be much less than anticipated. The sudds had only

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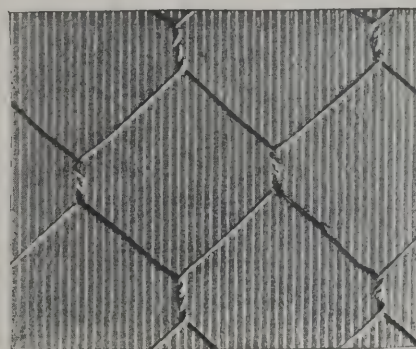
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been made high enough to deal with the work during the time of low Nile, as it would have been impossible to make them strong enough to withstand the Nile in flood.

Great and unexpected difficulties had been encountered in the deep channels, owing to finding the granite quite rotten for a long way below the level of solid rock shown on the contract drawings. In one of the channels the rotten rock had extended 11½ metres (38 feet) below where it had been supposed sound rock would be found. As the non-completion of the masonry between the sumps in each section would have necessitated the remaking of the sumps in the following season, great efforts had had to be made to deal with the unexpectedly increased quantities of excavation and masonry before the arrival of the Nile flood. This had been particularly the case during the months of June, July and August 1900. During the month of June work had been carried on night and day, week-days and Sundays, and 45,000 cubic metres (58,860 cubic yards) of masonry had been built during the thirty days. The average daily number of masons employed during the month had been 353. The total number of men either directly employed or connected with the work, and living on the site of the works at that time, had not fallen far short of 15,000. During the four years which it had taken to build the dam, the great pressure of work had always occurred between April and the end of July. This was the hottest time of the year. The mean shade temperature during the day was about 108 degrees Fahr., frequently going up to 115 degrees and sometimes to 120 degrees. The mean temperature at night was 85 degrees Fahr., and sometimes the thermometer did not drop below 100 degrees during the night. There had been a large number of cases of sunstroke, many of them fatal. All precautions had, however, been taken by means of having cold and iced baths ready to deal with such cases at once.

In addition to the construction of the dam, a canal with a series of four locks had been built so that navigation might not be interfered with. In fact navigation was much more easily carried on than before the dam was built, as it had previously only been possible to get boats up the Cataract for a few months of the year, while now navigation could be carried on at all times. Another subsidiary work had been the underpinning of the Temple of Philæ. As portions of the temple were founded on silt it had been necessary to carry the masonry down either to rock or to the existing saturation-level so as to prevent any damage from settlement.

All the foundation-work of the dam had been completed the summer of 1901, and all the masonry in June 1902. The first stone had been laid by H.R.H. the Duke of Connaught on February 12, 1899. The contract quantity of excavation was 312,000 cubic metres (408,000 cubic yards), and the actual quantity done was 630,000 cubic metres (824,000 cubic yards). The total contract quantity of masonry was 370,000 cubic metres (484,000 cubic yards), and the actual amount built was 538,000 cubic metres (704,000 cubic yards). The quantity of excavation was, therefore, double that anticipated, and the quantity of masonry was 45 per cent. greater than the contract quantity. The work had been completed one year in advance of the contract time.

The second paper dealt with the sluices, lock-gates and general equipment of the Assuan reservoir.

There were 180 sluices, all of which were 6 feet 6½ inches wide, forty being 11 feet 6 inches deep, and the remainder being 23 feet deep. The sluices were placed at varying levels in the dam, the highest having a head of water of 19 feet 8 inches over the sill, and the lowest a head of 60 feet 8 inches. They were not counterbalanced, and were worked by hand-cranks arranged in the roadway on the top of the dam.

One hundred and thirty of the sluices were on the St. Paul principle, i.e. arranged with free rollers, the remaining being simple gates, which could be lowered at times when there was a small depth of water passing through the culverts. Twenty of the culverts of the low-level sluices were lined with cast-iron plates. These had been adopted in order to expedite the construction of the dam masonry.

The paper also described the five lock-gates which were of unusual design as they were arranged in a single leaf, mounted on an overhead carriage travelling on bascule girders, which could be lowered across the lock to carry the gate.

The gates were each 31 feet 2 inches wide in the clear, and were 59 feet, 59 feet, 45 feet 11 inches, 36 feet 1 inch and 26 feet 3 inches high respectively, the drop between each of four locks being about 20 feet. The lock-gates were worked by hydraulic power generated by a small turbine placed in the dam.

A bascule bridge over the locks and also the general equipment of the dam for examining and maintaining the work were described, as well as the separate lock lower down the river for taking boats past the rapids.

The making of the work and its erection in place were described by Messrs. Ransomes & Rapier, of Ipswich, who also described



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The Architect.

THE WEEK.

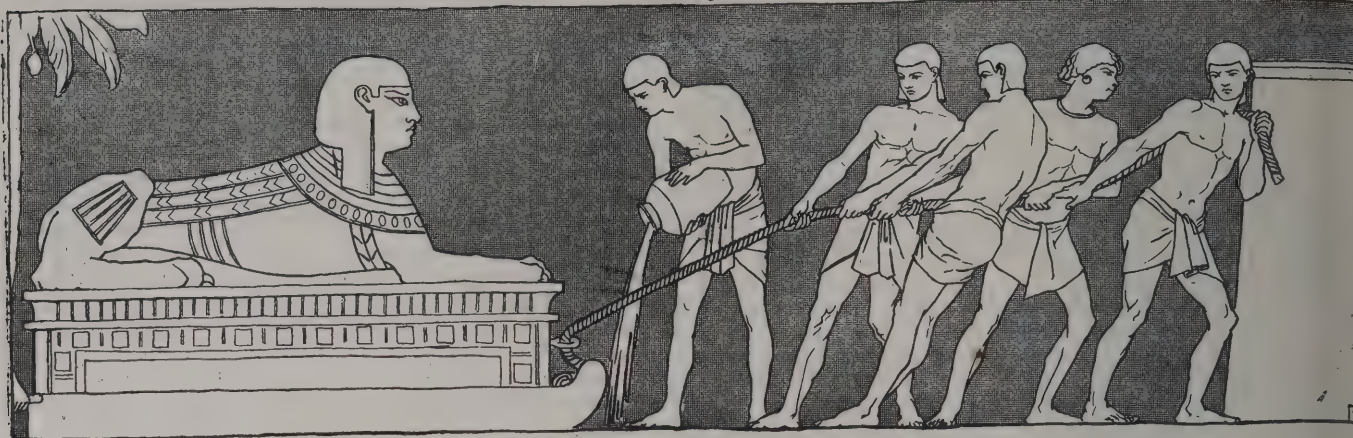
THE career of the late Sir CHARLES GAVAN DUFFY, who died in Nice on Monday last, belongs to the political history of Ireland and Australia. He co-operated with THOMAS DAVIS in the endeavour to infuse a new spirit into Ireland, and DAVIS was an enthusiast for the employment by the State of art as an inspirer of patriotism. When DUFFY found it was no longer possible to overcome the lethargy which prevailed in Ireland he emigrated to Australia, and soon after his arrival in Melbourne the sum of 5,000*l.* was subscribed to give him the property qualification which was requisite in order to enable him to be a member of the Assembly. In a short time he was appointed Commissioner of Public Works. The objection was raised that as he had been all his life a newspaper writer, he was without any practical knowledge of buildings. Subsequently he became Minister of Lands, and eventually Premier of Victoria and Speaker of the Assembly. It was mainly through DUFFY's influence that art galleries were erected and pictures purchased in the Australian cities. His proposals were considered at the time to be only visionary, and it was believed that art could lead to no more than unprofitable expenditure in a young colony. But experience has shown that the progress in Australian cities has, in no small way, been caused by the refining influence which art confers. Like some of his Irish contemporaries, DUFFY held THOMAS CARLYLE in veneration, although so much against the country is to be found in the latter's books. Whenever DUFFY journeyed to London, he made it a duty to visit the philosopher of Chelsea, and on two occasions CARLYLE travelled with him in Ireland. DUFFY, in his "Conversations," tells us how, when walking in Hyde Park, CARLYLE spoke of the chaotic condition of English art. He compared the Albert Memorial to a wedding cake, with a gilded marionette on the top of it. The Houses of Parliament, he declared, wanted the unity of design which is apt to impress one in a work which is a single birth from one competent mind. THACKERAY told CARLYLE there was no reason for the river front coming to a stop, as there was no ending, and it might just as well have gone on to Chelsea. While DUFFY was Minister of Public Lands there was a township established on the Murray River, and this he named after CARLYLE. One street was called Jane Street, after Mrs. CARLYLE, while other streets bore the names of his friends, STUART MILL and STERLING.

It is sometimes difficult to understand the action which is taken by town councils and local authorities when advantageous offers are made to them. A case at Brighton is one of those puzzles. The late W. R. SUTTON, the carrier, left his property, which is estimated to be of the value of at least 2,000,000*l.*, for the erection of dwellings for the poorer classes in London or other populous places. The rents were to be determined by the trustees, and they considered that 2½ per cent. would be a sufficient return. The Sutton Trust are willing to spend some of the money in Brighton, and they have offered 6,000*l.*, or 7*l.* 14*s.* 9*d.* per foot frontage for land belonging to the Town Council. Each plot would cost 127*l.* A house that would cost the trustees 400*l.* to erect would be let for 7*s.* 6*d.* per week. The Town Council could not let a similar house under 11*s.* per week. Now, on the face of it the project seems to be advantageous, but a great many objections to it were raised by some of the members. It was said that property would be alienated which belonged to the town; that a class of tenants would be introduced who could not be considered as poor or belonging to the working classes; that it would be far preferable that a model village were erected on the outskirts of the town, and that more benefit would be realised by the working classes if they received an increase of wages. Eventually the offer of the trustees was accepted on condition that the work should be completed within two years. The experiment is, we believe, the first to be undertaken by means of Mr. SUTTON's savings. Other populous places will no doubt be desirous to have a share of the benefits that can be so

easily obtained. It is to be hoped that they will avoid an imitation of the churlish manner which was exhibited in Brighton. Gratitude, it is said, is a lively sense of future favours, but the conduct of so many members of the Town Council will hardly encourage the trustees to run the risk of building additional houses in Brighton.

THE jug belonging to the church at West Malling, Kent, will be sold by auction on Thursday next, the 19th inst., for the benefit of the church funds. It is described as of Fulham-Delft or stoneware, splashed purple, orange, green and other colours in the style of the old Chinese, and mounted with neckband, handle-mount, body-straps, foot and cover of silver-gilt, and is 9½ inches high by 5½ inches greatest diameter. It is doubtful whether the jug can be considered as a product of the Fulham factory. DWIGHT, who established the works, did not obtain his patent for "stoneware vulgarly called Cologne ware" until 1671, and the West Malling jug appears to have belonged to a still earlier time. There is no doubt the Fulham stoneware was an imitation of that produced abroad. In the first years of ELIZABETH's reign, which would be a century prior to the opening of the Fulham works, jugs and other vessels from Cologne were in favour in this country. They were mounted with English silver finely engraved in the style of the period. It is more likely the West Malling jug is an example of foreign ware, and that the metal embellishments are by English hands.

ALTHOUGH actions against railways for damages to property require the support of architects and surveyors as witnesses, it is doubtful whether so much professional skill was ever before employed as was seen in Mr. Justice RIDLEY's Court during the trial of the case *DAWSON v. The Great Northern and City Railway Company*. The premises in question belong to a draper, who claimed compensation for damages caused by the subsidence which followed the construction of a railway tube. Sir EDWARD CLARKE, who was one of the counsel for the plaintiff, said the case suggested the consequences of an individual having to take action against a wealthy corporation. At first liability was denied by the defendants. When attention was drawn to the cracks, they stated they would follow their usual course of reinstating any injury caused by their operations. The company professed to have only taken an easement of the land as authorised by the Act. In other words, they claimed to be allowed to bore beneath houses, and beyond filling in cracks which might occur in the walls, nothing more was necessary. It was even a part of the defence that the injuries were not caused by the company. When strategy of that kind is adopted it is of course necessary to have overwhelming evidence at command, and that means a large expenditure in fees. The defence might have succeeded, for it is not always easy to prove that the substructure of a building is in a sound state before underground works were commenced. Fortunately for the plaintiff, she contemplated some alterations in her property in November 1900, and Mr. C. R. MITCHELL, the architect engaged, was able to testify to the condition of the building. In 1901 cracks were visible, and the bottom of a pillar was fractured, leaving the shaft hanging from the girder it was intended to support. The company's representatives minimised the injuries, and ascribed them to sewer works in the neighbourhood. Mr. W. WOODWARD, Mr. PILDITCH, Mr. G. F. DEACON, C.E., Mr. H. H. COLLINS and others supported the plaintiff's case. The cost of repairing the structural damage was estimated by Messrs. PATMAN & FOTHERINGHAM at 3,957*l.* The loss of business during the work was said to be 3,208*l.*, and the damage to stock 1,500*l.* For the defence the sums named were—repairs, 500*l.* to 600*l.*; loss of business, 270*l.*; damage to stock, 400*l.* The figures are enough to show how insignificant was the damage in the eyes of the advisers of the railway company. When the divergence between the two valuations was so vast the jury must have been puzzled. They assessed the amount of damages as follows:—(1) For taking the subsoil occupied by the tunnel, 50*l.*; (2) structural damage, 2,000*l.*; and (3) damage to trade and stock, 2,100*l.*; total, 4,150*l.* The sum awarded is, therefore, less than a half of what was claimed. It would be interesting to know what will have to be paid for the law costs.



ANCIENT EGYPT.—BY W. F. YEAMES, R.A.

LOCAL AUTHORITIES AND THE AMENITY OF ENGLAND.

THE difference between the present and the former state of English municipal councils is not sufficiently recognised. It would perhaps be more correct to say that this difference is marked rather by their purposes than by their constitution. There is no doubt the oldest Anglo-Saxon bodies were elected like the town, county and parish councils of our day. Whether such constituted bodies were derived from the Romans or were essentially an Anglo-Saxon institution need not now be discussed. Their creation was almost inevitable. For the purposes of protection as well as for trade, people would endeavour to congregate, and the ancient *byrg* or *borough* is believed to have signified a collection of houses surrounded by some kind of wall which served as a fortification. Naturally each community would choose a head or *cyn*; a word which is supposed in later times to be represented by the word king.

The arrangements which prevailed prior to the Conquest were pushed aside when WILLIAM OF NORMANDY triumphed. The whole island became, as it were, his personal property, and he divided the spoil according to his own notions of rewards for services rendered. All the largest cities and boroughs he set apart for himself, besides some hundreds of manors, in which presumably towns were expected to be formed. Guildhalls were reserved by the King or handed over to his followers as if they were ordinary fields.

In the old days the revenue in towns was collected by a "borough reve," or a "port reve;" he was supplanted by a bailiff who sometimes was appointed through favour, but frequently gained the office by paying liberally for it. The revenue was, in fact, farmed, and the bailiff tried to squeeze as much money as possible from the inhabitants, not merely to enrich the royal exchequer, but to bring profit to himself. Wicked men are often made to serve beneficial purposes, and there is no doubt the rapacity of the bailiffs obliged citizens and townsfolk to combine. Magna Charta is popularly supposed to have been extorted by the force of Norman barons, but citizens co-operated with them, and hence one of the provisions was that all cities, boroughs or ports should be allowed to have their liberties and free customs, or, in other words, avoid irregular and excessive contributions. The monarchs still continued to make in addition claims of tallage, as a personal right supported by Anglo-Saxon precedents. Thus when HENRY II. wished to raise money for a crusade he demanded the presence of the principal citizens of London and York, as well as of the smaller cities and boroughs. A contemporary historian records that "the King took from them a tenth of their properties, according to the estimate of good men and true, that knew what income they had, as likewise what goods and chattels. Such as he found refractory he sent forthwith to prison, and kept them there until they had paid the uttermost farthing. In like manner did he to the Jews within his realm, which brought him incalculable

sums." It will be observed that the monarch did not have recourse to the agency of any corporate body. He simply coerced the wealthiest citizens and they were treated exactly as the foreign Jews.

It would be difficult to say whether the customs or duties of the representatives of the borough were more than obtaining the revenues which were to be paid, and the administration of the laws as magistrates. What the citizens appear to have been most anxious to secure was the privilege of election of those representatives, which seemingly was obnoxious to the monarch. In the time of HENRY III. an effort was made by the Court to force a mayor on the citizens of London without an election, but after a tumult the favourite of the citizens was installed. Besides the Common Council the different trades had their own guilds to look after their interests, but the general good of the inhabitants, it is to be feared, was neglected. The state of the London streets, for example, was for centuries disgraceful. Dirt was accepted as an irremediable evil. We have the testimony of the great scholar ERASMUS about the prevalence under HENRY VIII. of conditions that were fatal to life. He wrote to WOLSEY's physician in the hope of bringing about sanitary reforms and the diminution of deaths by plague. After describing the filth of the houses which sometimes made him feverish, this pioneer of sanitary reform proposed that public officers should be instituted to see that the streets were clean. It was optional with the citizens to perform or neglect that work, for there were no scavengers or sanitary officers, and all ERASMUS contemplated was the appointment of somebody to watch that the citizens did not neglect co-operating. Both HENRY and WOLSEY, like their predecessors, had interests which he deemed to be of more account than the cleansing of the thoroughfares of London, which for several centuries continued to be offensive both on dry days and on wet days when it was said:—

Now from all parts the swelling kennels flow,
And bear their trophies with them as they go;
Filths of all hues and odours seem to tell
What street they sailed from by their sight or smell.

We need no better evidence of the impotence that for generations characterised the London Corporation ædiles than the Great Fire. According to JOHN EVELYN's account, not the least effort was made in the City to stem the flames. Then when there was an alarm about the progress of devastation to Whitehall, the King ordered him to look after the quenching of the fire in Fetter Lane, and the preserving, if possible, that part of Holborn. EVELYN tells us that some stout seamen had proposed to save nearly the whole of the City by blowing up houses, "but this some tenacious and avaritious men, aldermen, &c., would not permit, because their houses must have been of the first." We have also the testimony of PEPYS, who was commanded by the King to tell the Lord Mayor to save no houses, and who, in walking along Watling Street, says:—"At last met my Lord Mayor in Canning Street, like a man

spent, with a handkerchief about his neck. To the King's message he cried, like a fainting woman, 'Lord! What can I do? I am spent; people will not obey me. I have been pulling down houses; but the fire overtakes us faster than we can do it.' That he needed more soldiers; and that, for himself, he must go and refresh himself, having been up all night." The Corporation were unable to deal with trifling works, and it was therefore absurd to expect them to cope with an extraordinary emergency like the fire of 1666. It was not, however, for capacity to deal with public works the members were elected. When we remember that a few years after the fire an Act was passed which made it illegal for anyone to hold the office of mayor, alderman, recorder, bailiff, town clerk, common councillor or other office in any city, corporation, &c., unless within a year he had taken the sacrament of the Lord's Supper according to the rites of the Church of England, it becomes apparent that a religious test and not one of skill or capacity was imposed.

We have another proof in the fact that when in later times the condition of a city or corporate town was supposed to have too much importance to be left to the haphazard attention of individuals, the responsibility was placed upon bodies of another class, which were specially organised. We hear of paving boards, commissioners for sewers, lighting, scavenging, &c., all of them at first being independent of the municipal corporation of the town, although of late years they have been more or less amalgamated with the elected body. The ancient corporations had degenerated and malversation of public money was common. Few of them were compelled to give account of their stewardship, and when in 1833 there was a parliamentary inquiry into the subject, it could not be concealed that in some cases the property of the Corporation was utilised for the private benefit of individual members. In one instance it was found that in order to raise 10,000*l.* to secure an election the property which belonged to the town was mortgaged without hesitation.

Fortunately so wanton a misappropriation of the common wealth is now impossible. Corporations great and small are not afraid of the trouble of acting as administrators as well as directors without the inconvenience of "itching palms." Indeed there is now a danger through undertaking such a variety of duties that all of them cannot receive the desired attention. There seems to be so great an eagerness for work, it was not amazing that Mr. JAMES BRYCE, M.P., should last week deliver a Warburton lecture in Owens College, Manchester, on "What Local Authorities may do for Art and Nature." If such a suggestion were offered to Sir THOMAS BLUDWORTH, the Lord Mayor of London in 1666, we are afraid he would have had another attack of fainting. But the representatives of local government in our time can do a good deal towards promoting general amenity without adding any great weight to the duties which they have to bear. There are now authorities not only in the towns but in the rural districts, and a parish council can sometimes render efficient aid.

Mr. BRYCE asks why some restriction should not be imposed on the setting up of advertisements which diminish the interest of places that possess natural beauties. As he says, all who travel are now accustomed to see big boards with letters in glaring colours stuck in fields, on the edges of copses, on the banks of smiling rivers, among the primroses and hyacinths in places where they ought not to be. The practice was imported from America, but in the States there has been a revulsion of feeling, and many districts enforce prohibitive regulations. It might be difficult to pass a general Act to prevent the spoiling of this country, but Corporations can easily obtain measures no less effective. It is through private Bills that Edinburgh can now be contemplated from one of the surrounding heights without the eye being disturbed by sordid announcements, and the foreigner is no longer forced to believe the English are mercenary by seeing the white cliffs of Dover proclaiming the advantages of certain quack remedies. Holland, Prussia and other States have set us a good example, and we suppose there would be little difficulty in acting on similar lines if it were not for the opposition of that great body, the Bill Posters' Union.

Railways, as Mr. BRYCE pointed out, have done much damage to natural scenery. Seventy years ago WORDS-

WORTH the poet protested against the invasion of every nook of English ground and the sacrifice of peace and beauty to clear a way for steam's triumphal car. But he afterwards seems to have accepted the inevitable, for he realised that crowds of people would be enabled to visit Westmoreland. Of late years railway engineers are more respectful towards nature, but they also are subjected to economy, and in cases where a cutting or a tunnel would be preferred, they have to substitute an embankment. That, too, is one of the reasons which make a common used instead of fields. Mr. BRYCE says that local authorities should be accepted as the guardians of the beauties of their localities, and they should interpose to prevent the wanton destruction of picturesque scenery. It indicates progress that an appeal on that account would be listened to with attention in Parliamentary committee-rooms, although a very few years ago it would be disregarded. Mr. BRYCE is not satisfied with what is done to abate the smoke nuisance. In all cases non-interference does not mean indifference. Wherever there are tall chimneys there are generally a great many people employed, and a summons may sometimes lead to a suspension of works which will cause much misery.

It is the same cause which is assigned for the pillage at the Falls of Foyers—one of the few scenes which surpassed description or pictorial representations of them. But the utilising of the waters of the Anio as they are precipitated at Tivoli—or rather at Tibur, for the Greek name should be respected—is a still greater offence, for a scene is degraded which has received recorded admiration beyond any other in the world. But the Italians, while professing to be as appreciative of the scene as their ancestors, say they cannot afford to dispense with so much motive power. As elsewhere beauty has to succumb to utility.

There is no excuse of that kind available for the neglect of village greens, to which Mr. BRYCE referred. It cannot be said that much improvement has been visible since the establishment of county councils. All that is in most cases to be considered desirable is resistance to neglect; but not even that amount of care is permitted.

The amenity of towns would be enough to occupy by itself a lecturer's attention. Mr. BRYCE, who is laudatory of American institutions in general, would have us imitate the art commissions which are now being formed for any kind of æsthetic work. It cannot be said, however, they have done more than offer suggestions, a kind of contribution which is abundant among us. Mr. BRYCE expects the professorship of architecture in Manchester will form a nucleus for a similar art commission. He considers there should be greater control over designs of buildings by local authorities, but architects will not be found to favour such an addition to municipal duties. Mr. BRYCE is also in favour of a more systematic laying-out of streets, although he prefers the variety of building designs which was common in Mediæval towns to the tedious and monotonous uniformity of such a city as Paris. He admits the difficulty of dealing with a city which has no heights to offer as sites for public buildings. The Manchester Town Hall and Assize Courts, which are among the finest modern Gothic buildings, lose, he says, much of their effect from the flatness of the ground on which they stand.

In conclusion, Mr. BRYCE told his audience there were five requirements essential in every city which aspired to intellectual life. It ought to have its library, in which archives and local records were stored; its natural history museum, with everything appertaining to the geology, the botany and the zoology of the district; its historical museum, in which might be traced the history of the city or district from prehistoric times; its commercial museum, containing specimens of all the industries of the neighbourhood and the natural products used; fifthly and lastly, its art galleries. All these ought to be in an organic relation to each other, and in relation also to two central authorities, one the municipality and the other the university.

The cities of the future are fortunate because they can be laid out to correspond with those and similar requirements. But it is not clear how such a grouping as is suggested could be attained in Manchester unless by an expenditure that is never likely to be at the disposition of the authorities. It is well sometimes to feel our deficiencies, and it may be said with confidence that not one city in

England approaches the modern and visionary ideal. There is, however, some satisfaction in believing that the doctrinaires of the future will also have their ideals which will be unlike any we can now imagine or devise.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER V.

PROPORTION, BALANCE.

IT has been remarked earlier that "the relation that *scale* implies between two adjacent or neighbouring buildings, in regard to size and importance, *proportion* similarly implies respecting the various component parts of each building, one with another."

It is easier by far to satisfy the requirements of proportion than those of scale or perspective effects. It may be readily conceded that the faculties, in a large number of instances, must be trained to an accurate perception of good proportion, and it is one of those lessons that may be learned with comparative facility. The ancient Greeks were masters of accurate proportion, but it is a permissibly moot point whether their treatment arose from scientific or from artistic perception of pleasing effects. It was probably easier for a Grecian artist to obtain his chaste contours and satisfying proportions in a building by his own æsthetic instincts, than it would have been for him to work by rules that one moulding must be $\frac{3}{2}$ of another, and $2\frac{1}{2}$ times the size of yet some other moulding. It may have been perceived that some simple proportional value gave a pleasing effect for certain features, and this may have become a guiding principle for approximating the proportions of masses;

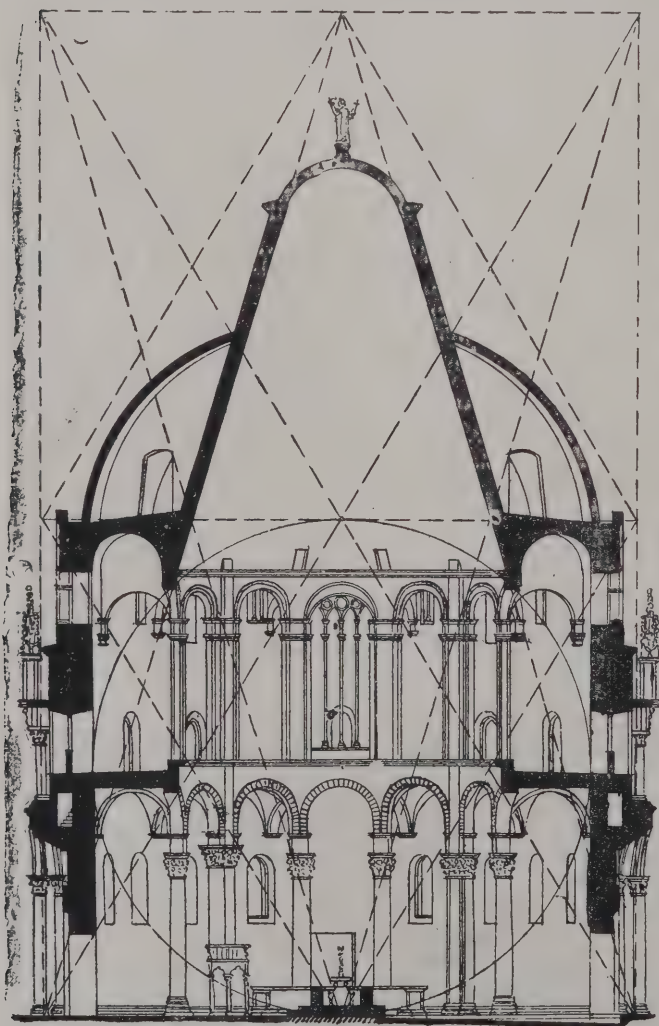


FIG. 33.—SECTION OF BAPTISTERY, PISA.
(From Gwilt's "Encyclopædia of Architecture.")

Showing inconclusive results when juggling with proportional setting-out.

but the attempt to establish a hard and fast system of proportion by the use of numbers, or of geometrical figures, fails even in the examples put forward by the advocates of the various systems. The failure lies in the fact that in spite of the juggling with numbers and diagrams, the results are admittedly inexact. In GWILT'S "Encyclopædia" we read that "a discrepancy between practice and theory, unless extremely wide, must not be allowed to interfere with principles." This is indeed true, but principles and "rules" are two different matters, and should not be confused. If rules of proportion by numbers or by geometrical figures are to be established, it can only be by exactness of examples (not by mere approximation), and by the production as examples of numerous buildings that are admittedly well-proportioned, and not merely by one or two such structures, or, on the other hand, by a heterogeneous collection. To take a concrete example, in the Baptistery at Pisa (fig. 33), as treated by the late EDWARD CRESY, the diagrammatic effect is ludicrous, as the tangential results are frequently at unimportant positions, and these results would be unlikely to recommend themselves to any artist, ancient or modern.

As the outcome of measurements in Lincoln Cathedral, an architect triumphantly stated that, "Very careful measurements immediately above the plinths give voids 1,056, supports 107, or the former *nearly*" (mark!) "ten times the supports, including in the latter the external buttresses and walls; and including in the voids the clear internal area of the church."

Again, we read that "The square and its diagonal, the cubes and its sides appear to furnish the unit on which the system is based. Hence, the numbers 3, 5 and 7 become the governing numbers of the different parts of the building. The unit in the Latin cross, placed at the intersection of the nave, gives the development of a perfect cube. . . . Here are found the number 3, in the arms of the cross and the centre square; the number 5, in the whole number of squares, omitting the central one; and the number 7, counting them in each direction."

This also is not by any means convincing, and the juggling elsewhere referred to is apparent in the arbitrary omission of one square to establish the number 5, and its equally arbitrary inclusion twice over to establish the number 7.

The following quotation, too, bears an interest in the same connection, and recalls the saying concerning the disagreement of doctors. "The number 10 was, according to VITRUVIUS, PLATO'S perfect number; but the anti-Platonists with their 6 (or the radial division of the circle) could, by the working of their centres . . . produce the 10, showing that they were the more perfect (*sic*), as their system combined with all others."

That the ancient and mediæval architects planned their important buildings on geometric forms is most probable and similarly in designing window and other tracery; but to anything beyond this it is permissible to demur. It is not a matter where dogmatic assertions avail, and the production of well-proportioned buildings, if not the result of intuition, may be obtained by careful study of examples ("what to avoid." Artistic proportion and feeling reached their zenith in the age of PERICLES, and declined more or less steadily thereafter, though at the present day there is healthy revival of feeling for good proportion. . . . St. Paul Cathedral is, however, a brilliant example of proportion treatment; had the western towers been loftier to any great extent, it would have proved detrimental to the supremacy of the dome, and indeed the happy proportional effects of this building are apparent from whatsoever point it is viewed. In spite of all contention to the contrary, it is fairly evident that our masters in art, the Greeks, were not too severely fettered by hard-and-fast rules, as a careful inspection of cotemporary buildings of theirs will show.

Mr. GWILT, referred to earlier, promulgates in his "Encyclopædia of Architecture" a series of maxims, some of which are certainly well worth noting and studying; and as, perchance, they may be overlooked amidst the mass of material in that colossal work, they may be aptly transcribed here.

(1) Let that which is the stronger part always bear the weaker.

(2) Let solidity be always real, and not brought to appear so by artifice.

- (3) Let nothing be introduced into a composition whose presence is not justified by necessity.
- (4) Let unity and variety be so used as not to destroy each other.
- (5) Let nothing be introduced that is not subordinate to the whole.
- (6) Let symmetry and regularity so reign as to combine with order and solidity.
- (7) Let the proportions be of the simplest sorts.
- (8) Recollect that nothing is beautiful which has not some good and useful end.

The student is then advised "to test his design by these maxims seriatim, and to strike out whatever is discordant with their tenour"; and Mr. GWILT justly remarks that "in architectural subjects, instability, or the appearance of it, is fatal to beauty."

There may, however, well be a difference of opinion as to the practical value of some of Mr. GWILT's maxims; all look well enough on paper, but it is allowable to question Nos. 3, 6, 7 and 8. No. 3 elevates the art of design into much too rarefied an atmosphere; No. 6 needs elucidation, its meaning being very obscure; No. 7 apparently implies an arithmetical treatment for proportion, and this is to be deprecated entirely, as good proportion is dependent on artistic perception.

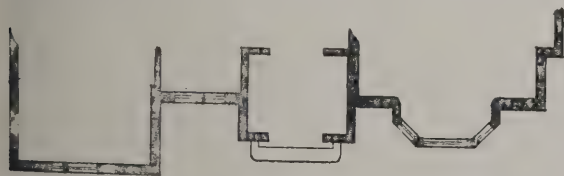
No. 8 is of the same nature as No. 3, and, whilst there is fundamental truth in both, the comprehensiveness they convey is apt to prove misleading. The other four maxims are of the highest value.

In bringing to a conclusion quotations from other writers, it may be interesting to transcribe the following maxims which the late AUGUSTUS WELBY PUGIN held to be the keynote of Christian architecture. Mr. PUGIN's maxims are numerous, but those only are given which seem suitable for works generally:—

- (1) There should not be any features about a building which are not necessary either for convenience, construction or propriety.
- (2) All ornament should consist of enrichment of the essential construction of the building.
- (3) The design should be adapted to the material in which it is executed.
- (4) The external and internal appearance of an edifice should be illustrative of, and in accordance with the purpose for which it is destined.
- (5) It is a defect to make the two sides of a façade correspondent if their purposes differ.
- (6) The elevation should be subservient to the plan.

It needs constant experiment to obtain just that happy effect of proportion that will satisfy the eye of the educated observer, and that will tend to educate the untrained. It is but writing from personal experience to remark that it requires infinite pains to be taken in order to obtain the exact pleasing proportion for some specific object. For mouldings of all kinds, an architect will be well advised to avoid "stock" varieties whenever possible, and to design the mouldings to suit their position.

If proportion is a desirable consideration, so also is *balance*. This quality, as its name implies, denotes the possession of equilibrating effects in any object. For example, referring to fig. 34, the plan, though very irregular,



Façade Plan of Irregular Outline

FIG. 34.

has a well-balanced elevation in fig. 35; had the bay window been merely utilised on the ground floor, and had the porch been carried up to form a bay, the effect would have been very different and far from satisfactory; in fact, it would constitute a "want of balance" (see fig. 36).

Balance, like proportion, is a quality that cannot be satisfied by the observance of any hard-and-fast rules. It holds for architecture a similar place to the requirement in

pictorial design of "composition"; whilst certain features should have a certain degree of prominence given to them, none should be so pronounced as to destroy the unity of the whole conception; each and all should act for the common good. Nor does this preclude the enjoyment of



Elevation emphasizing previous Plan.

FIG. 35.



Want of Balance

FIG. 36.

varied treatment, but rather tends to encourage it. "Unity with Variety" is a desideratum in all design, whether pictorial, plastic or architectural. The story of the contention for precedence that arose between the various members of the human frame is an old one, and is applicable generally.

The *variety* will not be disputed amongst those who are cognisant of the formation of the human frame, and the *unity* is apparent when fair play is allowed to the functions of the different organs.

Where a design is kept absolutely or approximately symmetrical, balance follows as a natural result; nor need a symmetrical façade be tame, as many notable buildings testify.

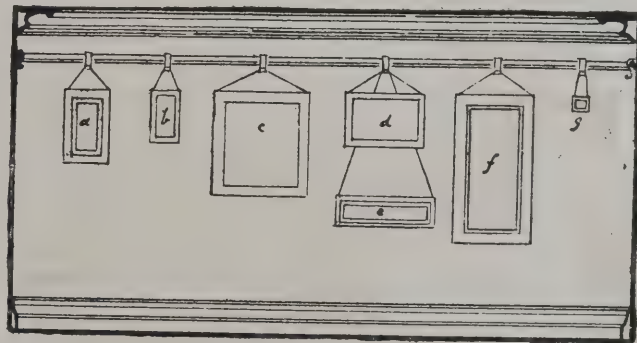


Diagram illustrating Want of Balance.

FIG. 37.

The following illustration may help to explain—to crystallise the meaning of the term "balance." If a pair of scales be unequally loaded, having, say, 1-lb. weight in one scale and 5 lbs. in the other, the difference in level will create a feeling of unrest, of dissatisfaction, in an onlooker. In order to obviate this, it is quite immaterial whether balance is obtained by one 5-lbs. weight being placed in each scale, or by equilibrating to, say, the higher figure, by means of two or more of smaller denomination.

Consider, again, another illustration. If it be desired to hang several framed objects on a wall, the sizes varying indefinitely, it may be impossible to obtain symmetry (whether desirable or not may for the purpose be disregarded). Fig. 37 shows the result that might easily arise from hanging the objects without method or artistic perception. The "want of balance" is pronounced (it may be remarked that the first shapes that came carelessly to the pen were jotted down for the purpose). It is of course at once apparent that a symmetrical arrangement cannot be

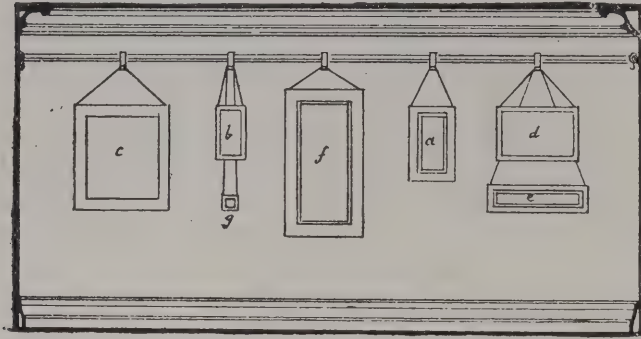


Diagram illustrating Attention to Balance.

FIG. 38.

produced, but some such method as illustrated in fig. 38 will give proper balance.

(To be continued.)

THE GEORGIAN PERIOD.*

IT is easy to understand how artists and writers who have been engaged in the representation and description of buildings in the newer cities of the Northern States of America should, on arriving at the South, be loath to quit districts where genuine examples of eighteenth-century work have survived. We have already noticed the part of the "Georgian Period" relating to North Carolina, which presents buildings that are attractive to English eyes. In 1662, when CHARLES II. made the grant of the great district known as Carolina, and extending from north to south for about 300 miles, there was an expectation that the loyal cavalier principle should thrive there on a scale that was no longer attainable in England. But people were somewhat slow in emigrating. It was not until 1680 that the fine site of Charleston on the coast became a settlement. As we stated on a former occasion, JOHN LOCKE prepared a scheme or constitution for the region. But in 1719 it was necessary to have a separation between the two divisions of Carolina, and each became more closely connected with England, which was looked upon more than ever as the supreme authority.

A glance at the map is sufficient to suggest the character of South Carolina. The coast-line is indented with a number of small bays, into which rivers run. The chief of them are the Pedee, the Santee and the Savannah, and they receive the water of numerous tributaries. Under such a sky it is hardly possible to have low grounds and large rivers without luxuriant swamps. But the adjoining plains are most fertile. For agriculturists there could not well be a more favourable district. The English gentlemen who emigrated there must have found much to compensate them for their exile. THOMAS DRAYTON, for example, who had lived in Barbadoes, having obtained a grant of several thousand acres, settled on the banks of the Ashley River, and named the place "Magnolia on the Ashley," owing to the magnificent trees that were profuse there. Drayton Hall, which was founded by his son, was called after the family estate in Northamptonshire, and it is the only old family mansion in the district which was not burnt down in SHERMAN'S invasion. The history of it may be taken as applying to some other mansions:—

The hall itself cost 90,000 dollars, all the materials being imported from England. It is still in excellent preservation although unoccupied, and is built of red brick with columns of Portland marble. The staircase, mantel and wainscot, which extends in quaint fashion from floor to ceiling, are of solid mahogany richly carved and panelled. Over the mantel are stationary carved frames for family portraits and heraldic devices; and the great fireplace is inlaid with antique coloured tiles. To this day many stories are told of the dinners and balls held at Drayton Hall in the great old days, when the house would be ablaze with a thousand tapers, and carpets were laid down the staircases, front and back, and across the gardens, so the ladies might alight from their carriages and enter the hall without soiling their delicate slippers or the airy lace and satin of their robes.

The houses were planned in order to allow of the exercise of a generous hospitality. The Englishmen of those days were not disturbed by a vast variety of architectural examples. When they said to their architect or builder they wished to have an "English mansion," the phrase was sufficiently definite. The commission was carried out with so much success that if a great many of the residences shown in the plates were presented without tiles and with less luxuriant vegetation as surroundings, they would be accepted as buildings which still survived somewhere in the English provinces.

The Englishmen were not without imitators. A colony of French Huguenots was established on the Santee River. Such family names as HUGER, PORCHER, RAVENEL, LEGARÉ, ST. JULIEN, PRIOLEAU, DU BOSC, DE SAUSSURE, LAURENS, MAZYCKS, MANIGAULT, are yet met with in the district. The foreign immigrants do not appear, however, to have introduced any French features in their buildings, and perhaps they found that the English mansion sufficiently met the requirements of the time and place.

There is no mistaking the two churches reproduced, St. Michael's and St. Philip's in Charleston. They are of the orthodox Classic type, and were unquestionably derived from the eighteenth-century churches in London. One was opened in 1723, the other in 1761. St. Michael's has been attributed to a pupil of WREN'S named GIBSON, and a contemporary description of the feast at the laying of the foundation-stone in 1752 says:—"The church will be built on the plan of one of Mr. GIBSON'S designs, and it is thought will exhibit a fine piece of architecture when completed." The "Charleston Year Book," however, of 1886 states:—"The name of the architect is given as GIBSON, a name of which we can find no mention elsewhere, but JAMES GIBBS was the designer of St. Martin's-in-the-Fields, London, and a legend tells us that our church is a copy of that building. A glance at the pictures of the two shows this to be an error, and one is puzzled to account for the story. If, however, they were planned by the same person we can see how the error arose. Add to this the similarity of GIBBS and GIBSON, and the fact that the spires of both churches spring through the roof, and the further fact that GIBBS lived until 1754, and we think there is little doubt that St. Michael's was the work of GIBBS." The church does recall GIBBS'S style, and it should be remembered that in 1728 GIBBS published a large folio of details which would enable an architect in Charleston to make plans of a building possessing some affinity with St. Martin's. St. Philip's Church is not the original structure, which was, it appears, an imitation of GIBBS'S building. That church was destroyed by fire in 1835. The congregation resolved that the building should resemble St. Martin's-in-the-Fields, especially in the interior. The steeples of the two churches during the siege of Charleston served as targets for Federal guns, and several shells entered St. Philip's.

The question is discussed where the bricks came from which were used in the buildings of South Carolina. It is a common belief in the district that English bricks were employed. Colonel ESMOND, according to THACKERAY, freighted ships from New York with Dutch bricks, and imported mantelpieces, cornices, sashes and glass. It is now maintained that bricks could easily have been made in South Carolina, for suitable clay is found in many places. They may not have been "sound, hard, square, well-burnt truly-shaped, ringing bricks free from flaws and other defects," and from the circumstance that the exterior of the buildings are covered with rough-cast it is not unlikely

* *The Georgian Period.* Being Measured Drawings of Colonial Work. Illustrations by E. Eldon Deane, E. P. Morril, C. M. Bell. Part XI. (*American Architect and Building News Company.* London: B. T. Batsford.)

there was a desire for concealment. Notice is taken of one church at Old Wamboro in French Santee as the best existing example, "for it is a consistent piece of brick masonry from end to end; walls, floors, steps, bases, shafts, capitals all are of brick laid with such care and skill as evidently to have required little attention and repair since the original builder struck the last joint in 1768."

Besides the illustrations in the text there are twenty-five plates in the eleventh part. They represent the secular and ecclesiastical buildings of the Georgian Period which have come down to us. There is no design that can be regarded as the work of extraordinary genius. The charm is that they should preserve so many characteristics of home at a time when South Carolina could not be reached without undertaking a long and inconvenient voyage. It is English architecture beyond the Atlantic which is again presented, and deserves to be recognised as such in both continents. There seems to be a likelihood that the southern buildings are destined to be supplanted by others of modern type, for in many of the rooms we see no evidence of use. On that account it is well to have records of the admiration which the colonists of South Carolina and their descendants bestowed on English work, and of which they made models for imitation in building their patriarchal mansions.

WEST WINDOW, EXETER CATHEDRAL.

THE following letter from Mr. Stuart A. Moore, F.S.A., has appeared in the *Times*:—

There seems to be a chronic mania in the authorities of Exeter Cathedral for destroying every relic of ancient art in that wonderful building whenever an opportunity occurs. It is now proposed to destroy the glass in the great west window, which is the best work of William Peckitt, of York, the glass-painter who did his best with the materials at his hand to keep alive the art of glass-painting in England. In doing so he did what scarcely any modern glass-painters have done, that is, he considered the necessities of the lighting of the building and subordinated his window to the intention and design of the original architect by erecting a light-giving but decorative window which allows the full effect of the beautiful groining and decorated columns of the cathedral to be seen. The glazing of the cathedral can be traced in the fabric rolls. The bills for the glass show that the highest proportion of colour to white glass was one-fourth of colour, while in the side windows it was even less. The designs of them were traced by Mr. Drake, the glass-painter of Exeter, by piecing together the fragments which remained, and there can be no doubt that Exeter, as glazed by its original architect, was brilliantly and suitably lighted. Peckitt must have observed this, and has done his best endeavour to treat the west window in the same spirit. It would be a grievous thing if such an example of his work, so suitable to the building, should be swept away to make room for the usual modern painted blind.

When the cathedral was restored by Sir Gilbert Scott the authorities nearly persuaded him to remove the great east window with its ancient glass, which is one of the glories of the place, and to replace it by a wheel window of his own design; but I showed him the entry in the records which ordered the erection of the Perpendicular window, and showed its date, and he thereupon declared that nothing should induce him to alter a piece of dated work, and the window was saved. The Freeman memorial window in the south chapel would have been swept away but for the protests of the late Archdeacon Freeman and myself. It is the most perfect piece of decorated glass in England. I found in a loft above the minstrels' gallery almost the whole of one of the original clerestory windows of beautiful grisaille work, and ample remains to insure its perfect restoration. I offered to restore it on condition that I might employ my own glass-painter, but this was refused, and I now hear that the window has disappeared altogether. I have vainly endeavoured to get the authorities to have drawings made of the original designs of the side windows in the choir so that they might be restored when opportunity arose, but without success, and very unsuitable windows have been erected in their place. To take out the glass of the west window would be the worst possible way of erecting a memorial to Archbishop Temple, and one that I am sure would have been very distasteful to him, for I well recollect pointing out to him when he was at Exeter the singular beauty of the glazing of the cathedral, and he remarked upon the brilliancy and suitability of Peckitt's window to me at the time. Surely if the proposed memorial is to take the form of a stained-glass window some other window can be chosen, and if it be chosen I trust that the authorities, and the

glass-painter whom they may employ, will have the modesty to consider the character of the ancient work, and to erect a brilliant light-giving window which shall not blot out the light and destroy the beauty of Exeter Cathedral as has been done in so many other places. One could wish that Milton had never penned those lines about "storeyed windows richly dight," which "shed a dim religious light." A dim religious light may appeal to some members of the clergy, but those unlucky lines, misunderstood, have been the curse of glass-painting and the destruction of the beauty of most of our cathedrals.

ROMNEY AND HIS WORKS.

AT the Royal Institution, Sir Herbert Maxwell gave a lecture on Friday night on "George Romney and his Works." At the outset, he said it was remarkable how many men had risen to eminence in the fine arts from humble birth and narrow means, and at first it was not easy to see the reason of this, as it would appear easier to start a lofty flight from a first floor front than from a dark basement. It would seem as though one should look to those of leisure, competence, and, above all, of liberal education. But, as a matter of fact, it was time, which the leisured could not give with that wholeheartedness which was required for excellence. Those who shrank from making complete sacrifice could not attain excellence, and the man who had most to sacrifice was the one most likely to shrink. Genius was not the monopoly of one class of life. He would not, however, go into the abstruse question of genius. Thinking that as names of humble people often come from places, he had searched for such in the North of England, where the surname Romney was not uncommon. But he found no such place, and it had been suggested by one who bore the name that it was originally Romany, for when gipsies were liable to be hanged some four centuries ago they collected much in the border counties. Then Sir Herbert Maxwell sketched the career of his subject from the time he found his father's trade of carpenter distasteful and through his schooldays, his youth, when it was doubtful whether he would follow the muse of painting or muse of harmony, to that when he was apprenticed to Steele, an eccentric artist who had learnt from Carl van Loo, and who inculcated some sound principles, especially with regard to grinding and mixing colours. Then followed the well-known story of Steele's elopement with an heiress, and of Romney falling ill, when his landlady's daughter nursed him and in gratitude he married her. He was then twenty-one, and having no means he soon after decided to leave her at Kendal and seek his fortune, feeling that he required wider acquaintance with the world, and giving eager audience to the voice of ambition. No complaint seems to have been made by the wife of quiet presence; but it had not been demonstrated that the common report was correct as to his having deserted her. Romney, however, all through his life was resolute only to one thing—his art. He sold a score of his pictures for 100*l.*, and, giving his wife half, he came to London with the rest, and soon had a few sitters. He felt his disability from not knowing foreign art, and, with his friend Green, spent six blissful weeks in Paris. His personality was one of intense shyness, with none of that charm which Reynolds had in exceptional degree. It was said that Romney was, of all persons, the easiest to wound. When relieved from pressure for money, he began to see how unsuitable his wife would be in such environment as his, and his life became a lie, for it was not known he was married, and to a nature so reticent as his this secrecy was disastrous. When he paid Kendal a visit he found one of his two children dead, and his wife and the boy living at her father's. He went on to Lancaster, and had as many commissions as he could do, but injudicious friends persuaded him Reynolds was his enemy, and he never sent to the Royal Academy. He went to Rome with Ozias Humphry for two years, and worked with energy, and soon after his return to London executed that lovely group of the Gower children. Sir Herbert Maxwell then spoke of Romney setting up in Cavendish Square, of the Lady Hamilton infatuation and of the many charming canvases she had furnished in her own and in fancy characters. That Romney was not wholly selfish was shown by his having relieved his brothers from serious money difficulties.

Many of his most lovely pictures, "Mrs. Lee Acton," "Lord Westmoreland," "The Seamstress," "Mrs. Carwardine" and others were thrown on the screen, and interesting facts were given with regard to the original price or the first auction price of some of these and what they obtained when last in the sale-room. Of the exquisite full-length, Mrs. Lee Acton, it was said it brought the painter 120*l.*, and the present owner refused an offer of 16,000*l.* for it the year before last. Sir Herbert wound up with touching words regarding the beauty of Mrs. Romney's character.

NOTES AND COMMENTS.

THE difficulty of finding titles for the new streets between the Strand and Holborn can only be estimated by those who have attempted to discover them. In the first place, it would be allowable to suggest the connection of the County Council with the work. In the next place, there are historical associations with the district traversed which deserve to be signalled. In the third place, the time of the commencement or the completion of the undertaking has also a claim. A great many names were brought forward, but they did not meet with popular approval. The general purposes committee of the London County Council have hit on a solution which has much to recommend it, and it was adopted on Tuesday. "Wick" or "wich" is a familiar termination in place names, and originally it seems to have signified a village, or, in some cases, a bay or creek. It is supposed that "wych" is the same word, although it was more often used in connection with trees. The name Wych Street was a survival of the title of an ancient street or road known as "Via de Aldwyche," which some believe was applied not only to the street which opened into the Strand, but also to Drury Lane. It may have originally referred to a Danish settlement called Aldwyche. The committee suggested that it should be applied to the curved street at the southern end of the improvement. The name in itself appeared to be suitable in every respect. It was short and simple, thoroughly English in form, and did not conflict with any other street name in London. For the main street no better name could be found than Kingsway, which, strange to say, is not employed in any other thoroughfare in the Metropolis. It is not only an opportune title, but to the County Council and others it may express the superiority of the new highway beyond most others. We hope care will be taken that the buildings erected in Kingsway and Aldwyche will be worthy of such distinctive titles, and will not be of a commonplace character.

WE have already mentioned that a commission was given by the King of the BELGIANS to M. CHARLES GIRAULT, the French architect, for the enlargement of the palace of Laeken. The plans are now complete, and excavations have been commenced for the foundations of the new buildings. Laeken is about 9 miles from Brussels, and the palace was erected as a summer residence in 1782 by the Archduke ALBERT. The additions now proposed will consist of two wings, each of which will be more important in an architectural sense than the main building. The right will contain the royal apartments, the chapel, riding-school, stables and coach-houses. In the left wing will be found rooms for the receptions, a *salle des fêtes*, a picture-gallery and a grand staircase, which will be connected with a special branch railway in communication with Brussels. The King of the BELGIANS is so great an admirer of French art, his subjects were not surprised at the employment of M. GIRAULT. At the same time it seems extraordinary that among the numerous and clever architects of Belgium not one is held to be capable of producing a suitable design for a palace.

THERE is no race more disposed to appreciate metamorphoses than the French, and consequently their history is a series of transformation scenes. M. FORMIGÉ, the architect, has been enabled to become the agent in one which is particularly interesting to the mind of the people. Having undertaken to design the pedestal for the statue of GAMBETTA about to be erected in Bordeaux, he went a few days ago to examine the site selected for the work. The weight of the memorial will be so heavy too much care cannot be taken with the foundations. Accordingly M. FORMIGÉ ordered some boring to be done. It did not take long before it was discovered that a hard stratum existed. The ground was opened and then it was ascertained that the same site had been chosen for a large equestrian statue of NAPOLEON III., and the foundations had been prepared when the empire collapsed. The people of Bordeaux had forgotten their imperial enthusiasm in little more than thirty years. The GAMBETTA memorial will thus exemplify the temporary triumph of republican

ideas. But there is likely to be misgivings that they in their turn will be superseded.

THE Institution of Electrical Engineers have issued through Messrs. E. & F. N. SPON a "form of model general conditions recommended for use in connection with contracts for plants, mains and apparatus for electricity works." To it are appended a form of tender and a form of agreement. Suggestions from it might be derived for those undertaking works of other descriptions. For instance, the ordinary complaint about misunderstanding the meaning of specifications or drawings is obviated by the following clause:—"If the contractor shall have any doubt as to the meaning of any portion of these general conditions or of the specification he shall, before signing the contract, set forth the particulars thereof and submit them to the engineer in writing, in order that such doubt may be removed." The engineer is expected to express in writing the reasons for his decision in case of dispute:—"In respect of all matters which are left to the decision or certificate of the engineer, the engineer shall, if required so to do by the contractor, give in writing a decision thereon, and his reasons for such decision, or if he shall withhold any certificate then his reasons for so doing. All decisions of the engineer shall be subject to the right of arbitration reserved by these conditions." The general recognition of arbitration is more fully defined by another clause, which says:—"If at any time any question, dispute or difference shall arise between the purchasers or their engineer and the contractor, upon or in relation to or in connection with the contract, either party may forthwith give to the other notice in writing of the existence of such question, dispute or difference, and such question, dispute or difference shall be referred to the arbitration of a person to be mutually agreed upon, or failing agreement, to some person appointed by the President for the time being of the Institution of Electrical Engineers." Works of electricity have become so common in connection with buildings, the advantage of the model conditions to architects is apparent without any further commendation.

ILLUSTRATIONS.

COMPETITION DESIGN FOR HARROGATE MUNICIPAL BUILDINGS.

WELLS ROAD BOARD SCHOOL, BRISTOL.

THIS school was erected at Wells Road for the Bristol School Board, from designs prepared by Mr. H. DARE BRYAN, F.R.I.B.A., of College Green, Bristol.

Accommodation is provided for 810 children (560 in the mixed department and 250 in the infants'), and an enlargement is possible by the addition of two classrooms for 50 children to each department. The architect, in accordance with instructions from the Board, has made good use of the basement of the school by providing a centre for the teaching of household management. Not only have a cookery-room and a laundry-room been provided, but also a model sitting-room and a model bedroom. Attached to the school is a wood workshop for the boys. One of the chief features of the scheme is the fine central hall of the mixed school, 80 feet by 35 feet, which, in addition to educational purposes, can be used for public meetings of ratepayers and similar functions.

The building has stone walls faced with red Cattybrook brick, with Bath stone dressings. The roofs are covered with red tiles, and the floors generally are of wood blocks on concrete; the playgrounds are asphalted, and surrounded by a dwarf wall with railings and gates of wrought-iron. The buildings are warmed on the low-pressure hot-water system, with ventilating radiators at convenient points.

BUTCHERS' HALL, EASTCHEAP, E.C.

CATHEDRAL SERIES WORCESTER.—LOOKING NORTH-WEST ACROSS THE NAVE

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. H. T. Hare, president, in the chair. The following were elected as members:—Messrs. W. Sykes George, T. C. Mannoch, P. H. Keys, Gordon Williams, I. C. Goodison and J. W. Simpson. Messrs. A. B. Burnell and H. Kerr were reinstated members. Professor G. BALDWIN BROWN read a paper entitled

What is the Real Value of Greek Work to the Modern Artist?

In one sense no apology is needed for introducing before an architectural audience the familiar subject of the artistic work of the Greeks. The supremacy of the Greeks in some of the branches of the plastic and constructive arts, their excellence in all, are universally admitted, and the advantage for the modern practitioner of a study of acknowledged masterpieces cannot possibly be gainsaid. But one remembers the old story of the Athenian citizen who voted for the banishment of Aristides, because he was weary of always hearing him called "the just." It is possible that in like manner some who are here present may be a little tired of having the unapproachable excellences of Greek statues and buildings set continually before them as a sort of reproach to modern shortcomings. If voting could be quite secret, and no one could know who had put in the black balls, a ballot among the younger and more ardent members of the professions of architect or statuary might result in something like a temporary ostracism of Pheidias and Ictinus, who could be followed into exile by Vitruvius and all his Renaissance imitators. It is quite possible, at any rate, that there is latent in some minds a certain feeling of impatience with regard to the exalted claims which are sometimes put forward on behalf of the arts of Greece, and it should be said at the outset that this paper is not written from the point of view of the professed classicist, in whose judgment the ancients could do no wrong. There will be some attempt, at any rate, to discriminate between what is of lasting and universal value in Hellenism, and what was for the time only or was imperfect, or even on faulty lines. At the same time it is to be feared that the "justness of Aristides" will figure very largely in what follows, and those present must put it down to the nature of the subject rather than to the writer's intention if he fall at times into the sermonising vein. The theme of Greek work is not a "subject of the day." It does not "palpitate with actuality" or "bristle with points of controversy." It does not offer the interest of a fight. A generation ago this kind of interest would have attached to the subject, for there was then a pronounced antagonism between the votaries of the classical and romantic ideals, that is now quite out of date. In the first half of the last century romanticism in literature and in architectural practice was militant. Its attitude towards the neo-classicism of the previous generation was an aggressive one, and in France, at any rate, where they take these artistic questions seriously, the adherents of the two schools nearly came to blows. This intensity of personal feeling belongs to the past, and the Law Courts at Temple Bar represent perhaps the final effort of the Gothic revival as a form of artistic propaganda. In the present day we have settled down to a reasonable eclecticism that sees good in most of the established traditions.

This eclecticism is not a symptom of decadence, it is not a Laodicean indifference, but rests on an easy confidence that we are the "heirs of all the ages," and, from our place "in the foremost files of time," can survey the past and appropriate from it whatever seems to suit our personal needs. No one in the present day will break his lance upon the Greek façade in the spirit in which Ruskin tilted against it in his "Lectures on Architecture and Painting." The opposition which in the present day the votary of classicism will have to meet is not a militant opposition. He will find in some quarters people who are slightly bored by Hellenic achievement, and though they accept it as beyond the reach of criticism, decline to trouble themselves to analyse its qualities or to assimilate its standards. He will find in other quarters a tendency to accept Greek work in a somewhat patronising spirit, with the proviso that it must have got a little fuzzled and warped and wavy through the lapse of ages, before the sensitive modern eye can take delight in it. Is it not the case that the Mediaevalist will sometimes offer a sort of apology for his admiration of Greek work, on the plea that, as we now possess it, its charm is so largely aided by the mellowing touch of time? The sculptor of to-day will sometimes tell us that the corroded condition in which works like the Elgin marbles have survived is to their advantage as works of art, and that they look better with the texture that time has given to most of the surfaces than they can have appeared in their pristine freshness. Mr. Walter Pater threw out the somewhat paradoxical suggestion that Michel Angelo left his marble figures unfinished in order to obtain the same sort of effect that he saw in time-worn antiques. The notion in itself is, of course, absurd, for the state in which so many of

Michel Angelo's works have come down to us is due partly to his own temperament and partly to the circumstances of his career; while he imparted at times the most exquisite finish to marble, as in the Pietà at Rome, or the torso of one of these very same unfinished works, the "Slave" of the Louvre. The notion, however, though in itself absurd, is very characteristic of "romantic" art criticism.

There is, indeed, not a little affectation in the modern worship of the undefined, and to this a right understanding of Hellenic work supplies a much-needed corrective. It is a first principle in the study of that work that it must be accepted as it was at the moment of its completion, absolutely clear in its definition and thorough in finish. The finish that the Greek craftsman put on his work is the secret of some of its finest qualities. It is precise and smooth, while it yet shuns the rigidity and lifelessness that some of the neo-classic styles in the modern world have taught us to know and to avoid. It is, however, only shapes that are perfect in their beauty and expressiveness that can bear the pitiless exposure which exact finish carries with it. If form be not really fine and studied in all its contours, then "sensitiveness of surface," "suggestion" and "texture" make a very pleasing and attractive substitute. But it is only a second-rate achievement to cheat the eye with a vague impression of the artistic in broken colour and light and shade. The Greek artist would have looked on this device with something of contempt, and we can imagine how Lucian's satire would have played about the work of the artistic genius who did not quite know his own mind.

Greek work, accordingly, may be taken or may be left alone, but in any case, the qualities by which it must be judged are those it possessed when it left the artist's hand, and not certain adventitious qualities it may have derived from the accidents of the centuries. Quite enough of this work has come down to us practically untouched for us to be able to judge how the work looked under the sun of Hellas. Though a good deal of the marble sculpture is corroded, of the bronze encrusted with patina, though the buildings have descended to us in a state of ruin, yet there are specimens or portions of each kind of work that are almost perfectly preserved, while smaller objects, such as coins, small bronzes, gems, gold ornaments, are sometimes as fresh as if they had just come from the workshop. No doubt there is an indescribable charm that may be given by "the mellowing touch of time"; and certain forms of Greek art, such as the terra-cotta statuettes, owe not a little to the broken tints, the dimpled surfaces of the age-worn material. These particular works were always, however, rather sketchy in style, and do not properly illustrate the point at issue. There are, on the other hand, many kinds of work in which we give no value to these accidental graces. A perfectly preserved Greek coin—and the world holds no more beautiful work of art—is always more admired by an artist than a coin to which time has added "texture," and the contours of a hydria are not improved when one of the handles is broken off.

What now is the true value to the modern artist of Greek work of this kind, frankly accepted in the Greek spirit?

The answer to this question in its broadest aspect is already conveyed by implication in the query itself. It is obvious that the answer must be, to a great extent, an expansion of the simple thesis that it is the spirit of Greek work rather than its outward features which will be found of real value to the modern practitioner. The classical orders have supplied, it is true, a repertory of ready-made details that have been usefully employed in Western European buildings from the time of the Renaissance downwards. The forms in question are, in themselves, arbitrary forms, meaningless to the modern intelligence, and their continued employment in modern work is by some strenuously opposed. The movement known as the New Art Movement, for which Scotland, to its pride or to its shame, seems to be in some part responsible, aims at substituting for these conventional forms other forms devised on each occasion by the constructing artist. These forms, whatever else may be said about them, are, at any cost, original, and it is claimed for them that they are more interesting than the time-honoured exemplars which, for three or four centuries since the Renaissance, each succeeding generation has tamely accepted from the last. So far as at present appears, the Classical Orders seem likely to hold their own; but it is quite an open question whether this is due to any inherent æsthetic virtues which they possess, or merely to the innate conservatism of the human mind. In other words, there may be a real, even a profound and cogent, artistic reason for the continued employment in certain kinds of work of classical forms; and if this reason can be made clear, then the forms are no longer dead forms, but living, in that they answer to the living needs of the present hour. On the other hand, the forms may be only retained as a mere matter of tradition, and if this be the truth, it may fairly be argued that they have become a sort of incubus on architectural practice, and by their deadening pressure flatten this into the academic.

The question here posed of the artistic value of the stock of material features handed down to us from the antique is only a

sub-question embraced within the larger inquiry formulated in the title to this paper. On the sub-question some words may be said later on, but it is well to begin by regarding the subject in its wider aspects, and to discuss rather the spirit of Greek work than the practical models which it supplies to the builder of to-day.

The spirit of Greek work can be best understood if we contrast the most characteristic artistic expression of the Hellenic mind, the Doric temple, with a monument that embodies as perfectly the opposite artistic tendencies which have been already referred to under the term "Romantic." The French cathedral of the thirteenth century shares with the Greek temple the distinction of representing the highest development of which architecture has shown itself capable. The two buildings are complementary to each other, each possessing characteristic qualities that the other lacks. Each is the expression of the ideal of an age.

The pedestalled isolation of the Classical fane, the clear-cut precision of its parts, where every ratio of size and place is studied, every profile matured with fastidious attention, are characteristically Hellenic; and by their own language these architectural features convey the central idea which in the moral life, in society and in the State the best of the Greeks were for ever striving to realise. Against this Hellenic definiteness and lucidity may be set the comparatively mystical temper of the Middle Ages, and the cluster of multitudinous details, that in picturesque illusive outlines enfold the thirteenth-century cathedral, are creations just as characteristic of the romance and enthusiasm of the North.

Much of the impressiveness of Mediæval buildings depends on the suggestion of mystery. Their interiors are amplified in effect by a disposition of the masses and the voids, which offers a "something beyond" in whatever direction we turn our eyes. Professor Freeman has remarked about the Gothic church:—"Place yourself where you will, the view is boundless, nothing occurs to force a limit on the eye in any direction; interminable rows of columns branch away to every point, arch is seen through arch, every feature suggests something beyond itself . . . even the apertures of the triforium and the narrow passages of the highest range give a hint of something yet further, of interminable mazes leading you know not whither."

Through this characteristic Mediæval buildings appeal to the imagination to an extent unparalleled in the more severely bounded classical structures, and they derive from this their special hold on our sympathies. Robert Louis Stevenson said somewhere that he liked a great cathedral; it was the form of mountain scenery that suited him best. This is a whimsical way of putting the important æsthetic truth that the forms of architecture have not a little in common with the grander aspects of natural scenery.

The effects of mass, of height, of vastness, the charm of complex detail, the mystery of light and shade we find on the one hand among the hills and forests, and on the other amid the towers and the aisles of our great Mediæval monuments. In both cases the æsthetic impression is largely due to varying effects of lighting. Shadow, which by its suggestion of the unseen increases apparent magnitude, is a potent element in the sublime effect of the masses of both nature and art. We are accustomed to study our great churches in the broad light of day, which fills their empty spaces and pitilessly exhibits to our view the fragmentary monument, the bare altar slab, the ruined shrine. Those who are fortunate enough to visit some of these immense interiors in the gloaming, or at night when they are only partially illumined, know how they gain in the half-light both in added vastness and in the suggestion of complex beauty in details that we cannot fully explore.

It is at such times that we can reproduce to ourselves the aspect that the church wore in Mediæval days better than in the full light of morning, or while the simplified modern rites are being performed at the rifled altar. The imagination then will readily travel back to the ages of faith and enthusiasm, when these colossal fanes were reared and embellished, with never-ending extensions of their spaces and ceaseless elaboration of fittings and enrichment. If placed alone at nightfall in an interior like Canterbury, or Lincoln, or Durham, the most pronounced classicist would surrender himself to the mystical suggestion of the scene, and recall the memories which the ancient walls enshrine. At such times we can fancy in the gathering darkness that there are altars and shrines along every aisle, and that every altar has a carved and painted canopy, each monument its screen of cut marble or of gilded iron. We see in imagination the last rays of the fading daylight enter subdued, but enriched, through the glowing windows, every pane of which is blue, or sanguine, or green, or gold. Anon the silver lamps and the iron cressets will be lit up, and we watch the faint radiance as it steals along the aisles, kisses the clustered pillars and dies away into darkness below the fretted vault. Next, the voices of the singers and the mellow notes of the wooden organ-pipes peal out for evening prayers; and then, still later, when all are gone, silence and gloom settle down upon the measureless spaces of

the interior. But it is not wholly dark nor all untenanted. There at the extreme eastern end a light is set within the window niche, that through the night its rays may make dimly visible to the watchers the costly treasures piled around some venerated tomb. In their chamber hard by sit the guardians of the shrine, and now and again the footsteps of other vigilant custodians of relic or of treasure wake the echoes of a distant chapel as they tend a lamp or make fast a door. The hours pass away, and there is a stir among these ghost-like denizens of the mysterious shadow-land, and soon from the central tower the deep notes of a muffled bell sound forth the nightly summons to prayer. Pendant lamps are lighted above the altar. One or two ministrants enter the church and pass on into the revestry to robe. Then along the vaulted aisle or from the southern transept, perhaps still half asleep or moving as if in dream, glide the dark-frocked monks or white-stoled canons to their office of vigil or of matin. The voices rise in the psalm and echo along the dim and cavern-like nave.

With this general impression in our minds of limitless complexity, of surroundings only partly apprehended, that offer from every side some fresh appeal to the imagination, let us contrast the opposite impression of absoluteness and lucidity which we receive from the severely bounded forms of the Greek architectural monument. For this purpose we must select a building as nearly as possible complete. A ruined temple like the Parthenon is of little help save for the study of details, because it has lost just that characteristic of absolute symmetry and evenness which is the quality with which we are for the moment concerned. The comparatively perfect temple beneath the Acropolis, the so-called Theseum, is on rather too small a scale when measured with the rock-like masses of the Parthenon overhead to produce a full architectural impression. A large temple, however, of an early period, roofless, but on the exterior otherwise well preserved, stands at Pæstum in Southern Italy, and this is happily the best known and most accessible of all extant examples. The great temple at Pæstum is so situated that one comes upon it suddenly after walking a few hundred yards from a bustling little railway station whither a crowded local train has transported us along five-and-twenty miles of hot and dusty railroad from Salerno. It bursts into view in a moment as we round the corner of a wall—a vast, clearly-defined mass, golden in the sunlight against the grey green vegetation of the plain and the blue of the distant promontory. Its platform rises shapely on every side from abundant tufts of the beautiful *Acanthus mollis*, from which is derived the leafage of the Corinthian capital, while in regular and continuous order the ponderous Doric shafts are ranged upon its topmost level, and bear above them the great horizontal incubus of the entablature. The brilliantly-illumined columns alternate with darkened interspaces, and in monotonous succession they follow each other in diminishing perspective along the receding face. Side corresponds exactly to side, end to end, and above the columns there is everywhere the horizontally bisected entablature, with the alternating triglyphs and metopes. The strong shadow cast by the projecting cornice and the gleaming strips of the corona crown the whole with an unbroken sky-line.

The impression is at first one of overpowering magnitude and the secret of this effect it would be interesting to trace. As a fact, the length of the building is much less than half that of the National Gallery in Trafalgar Square, yet no one ever received from the latter any impression of size. It is not, however, an impression of complexity, for the similarity of the alternating forms, by which we measure the bulk, forces itself on our attention, and we cannot escape obtaining from each of these forms a perfectly clear and definite impression, both in itself and in its relation to the other forms with which it is combined. The satisfaction which the eye receives, at first from the general mass and next from the forms in themselves, and in their relations, is so complete that we ask for nothing more. We do not realise, or at any rate do not lament that the building is absolutely plain, devoid of every touch of ornament, and of any colour save that of the actual material in which it is wrought.

There could be no more convincing refutation of Ruskin's famous paradox that the function of the architect is merely to supply a framework for the display of decoration in carving and colour. The artistic effect here is purely one of form, and the example supplies a potent argument in favour of those who contend that both architecture in its monumental aspects and sculpture are arts of form and of form alone. From the natural colour and texture of the materials employed they derive all the value that is possible, but, except in the interiors of buildings where other considerations come in, they do not ask to be painted. Architecture, moreover, again in its monumental aspects in exteriors, as an art of form, is independent of ornament. No one to whom Pæstum comes as a vision of power and beauty ever troubles about the untenanted pediment or the empty metope slabs. The austere plainness of the fabric only brings into clearer relief its inherent qualities of form and perfection.

For the secret of the effect of a fine monument of Grecian architecture is due first of all to the studied relations of form and size among a number of similar and often repeated parts.

Proportion, it need hardly be said, is the primal secret of the æsthetic effect of architecture, and no builders ever understood so well as the Greeks how to compass this effect by the simplest means. When the first overpowering impression of majestic repose we receive from a fine Greek monument has passed from the mind we find ourselves balancing part against part, the uprights against the horizontals, the architrave against the frieze, the triglyphs against the metopes, the height of the column against its thickness, and finding everywhere the most absolute satisfaction in relations which we feel could not be more harmoniously combined.

As mere forms, through their shape and size and relations, the parts of the Greek façade give this satisfaction to the eye and to the sense, but we receive a further impression, and one of a more complex and intellectual kind, when we note the clearness with which each of these parts proclaims its place and function in the organism of the whole. Furthermore, a closer study directed towards the features in themselves, apart from their relations, exhibits each form worked out to the minutest detail, so as to satisfy alike the eye by its contour and the intelligence by the fitness of its shape for the work it has to perform.

If we try to express now in a word some of the more practical benefits to a designer of a study of Greek work in this most monumental form, we may claim that it illustrates in the clearest and most convincing fashion some of the more important tectonic principles that apply to construction and decoration in general. Of tectonic principles Greek work is, indeed, the compendium. The Greeks are by no means always right, but their practice in these respects is more consistent and logical than that of any other artistic people. As a general rule they conceived with singular clearness the conditions of the artistic problems with which they had to deal, and were alert to seize and give effect to the suggestions of the material and the process which appeals so often in vain to the opinionated modern craftsman. But this expression "tectonic principles" must be further defined and illustrated.

(To be concluded.)

METHODS OF MOSAIC CONSTRUCTION.*

It is now more than sixty years ago since the revival in this country of mosaic as an architectural adjunct may be said to have begun. In 1840 Mr. Blashfield endeavoured to produce decorative pavements, and in this endeavour he was assisted by Mr. Minton and Messrs. Maw & Co., who succeeded in making excellent material for that purpose. Following Mr. Blashfield (and to a certain extent working in co-operation with him) came Sir Digby Wyatt, who, in 1848, published a work on the subject, and gave much practical assistance to the manufacturers who were engaged in producing the tesserae. Their efforts appear to have been mainly concentrated on the production of pavements geometrical in design, and made of such materials as asphalt, coloured cement and compressed china clay. The results obtained were so satisfactory that on the announcement of the intended exhibition of 1862, Messrs. Maw & Co. decided to move a step in advance of what had hitherto been done, and to produce a pictorial pavement in several colours. They therefore commissioned Sir Digby Wyatt to design a pavement of that character for them which they executed in tesserae of nearly a hundred different tints made by themselves, and as Sir Digby Wyatt states, "this was the first practical effort to revive pictorial mosaic amongst us."

Such was the position of the mosaic art in England in 1862. It shows that a certain interest in the art had been created, and this interest was stimulated by Sir Digby Wyatt, who in that year read a valuable and most interesting paper before the Royal Institute of British Architects on "Pictorial Mosaics as an Architectural Embellishment," dealing with the subject (as he himself states) from the point of view "from which we may best realise what architects have to learn and to do in order to effect a practical revival of the art at the present day," and with this aim in view he gave the main historical phases of pictorial mosaic, and dwelt upon the various scopes and difficulties of the art in its production and application.

Many artists and architects now gave serious attention to the revival of the art. The improvement in public taste, aided by an increased feeling for colour and decoration, gave encouragement to those who were interested in the revival, and it was not long before several eminent firms in this country succeeded in producing mosaics in enamel. The names of Messrs. Simpson & Sons, Messrs. Rust & Co., and Messrs. Harland, Fisher & Co. occur to me, as some of their full-

length figures are to be seen in the principal hall of the South Kensington Museum. But not until some years later were any important enamel mosaics executed in this country.

In Italy the traditions of the workers in mosaic had been handed down through centuries, and although the art had fallen low, it had never altogether died out. About the year 1860 a poor glassblower of Murano, named Lorenzo Radi, with the love of his art strong within him, made efforts to improve the manufacture of enamels, and especially of gold mosaic, and in his necessity he applied to a Venetian lawyer, Dr. Salviati, who found the means to enable him to continue his efforts in the production of the smalti (or enamel), by means of which Radi was endeavouring to revive the mosaic art in Venice. In a small way these efforts were successful, but for want of means and prestige they would have resulted in failure had not an artist of high merit and great social position extended to them a helping hand. I refer to the late Sir Austen Henry Layard—a man who was not only an artist in the highest and broadest sense of the term, but who was also a distinguished diplomatist and archæologist. From the moment he extended his protection to the revived industry, the success of that industry was assured. He, together with a few other English gentlemen, provided the necessary capital. The business which had been established by Radi and Salviati became their property, and was speedily merged into the concern which they then formed under the title of the "Venice and Murano Glass and Mosaic Company."

The first important commissions obtained by the company were the decoration of the Wolsey Chapel at Windsor and that of the Albert Memorial in Kensington Gardens. The general designs for both works were by Sir Gilbert Scott, and were carried out under his directions from the cartoons of Mr. John Clayton, of Messrs. Clayton & Bell.

About this time also were executed for the South Kensington Museum several full length figures from the designs of the late Lord Leighton, Sir Edward Poynter, P.R.A., Mr. Val Prinsep, R.A., and other distinguished artists.

In Westminster Abbey the "Last Supper," over the communion table, was executed from the design by Mr. Clayton; and in St. Paul's Cathedral two of the large spandrels under the great dome were covered with mosaics from cartoons by Mr. George Frederick Watts and the late Alfred Stevens.

From that time to the present day much excellent work has been done in various parts of the United Kingdom, in the Colonies and America by several well-known English firms of mosaists as well as by the Venetians, and the demand for mosaic decoration is steadily increasing. Of that there is no doubt; and the question of the hour is not whether mosaics should be executed, but how they should be executed so as to obtain the best results at the least possible cost. It is with a view to elucidating this question that I have prepared some notes on the methods of mosaic construction which I hope may be of interest, and may at the same time tend to remove misconception and prejudice.

Speaking broadly, there are two methods of construction:—

1. The old method, viz. that of fixing the tesserae on the wall directly and one by one.
2. The new method, whereby the mosaic is first executed on paper, and thence transferred to the wall.

The old method is simple enough; the wall destined to receive the mosaic is prepared with cement, the cartoon is outlined on the cement, and the mosaists, with the cartoon before them, proceed to place the tesserae on the wall one by one.

It is needless to say that under certain conditions the very finest mosaics can be—and even in recent times have been—produced by this method. The ancient mosaists, it would seem, invariably employed it, and probably no other process was known to them.

The first works executed in England by the Venetian mosaists were so executed, and the result was entirely successful, but it was soon made clear that unless some less expensive and more expeditious means could be devised for executing and fixing mosaics very little could be done to advance the art either in this country or elsewhere.

Anyone possessing a knowledge of mosaic art knows that it is futile to expect the production of a really good mosaic unless the work is carefully supervised by a properly qualified artist. Men no longer "work for the angels," and even the best workmen require the supervision of the master. Where the artist is designer and mosaist in one, as were so many of the ancient mosaists, and where time and money are secondary considerations, the principal disadvantages of this method disappear; but it is rarely indeed that such a fortuitous combination of circumstances is to be met with. The artist who by reason of his genius and reputation would be commissioned to design a scheme of mosaic decoration for some large cathedral or public building would probably not be a mosaist in the sense of possessing a close technical knowledge of the art, and if he were he could not be expected to overlook for several hours each day the workmen who are placing the tesserae on the wall. Even supposing it were possible to secure so con-

* A paper by Mr. W. L. H. Hamilton, read at the meeting of the Society of Arts on the 4th inst.

siderable a part of his time, the cost would necessarily be enormous. His designs and intentions have therefore to be carried out by another, who must be both artist and mosaist. Such men are not easy to find, and when it is remembered that any large firm of mosaists working by this method would require to retain on their staff many such artists, it will be seen that the difficulty presented is a very formidable one indeed.

Another difficulty which presents itself in the application of this method is the necessity of sending workmen from their homes to any part of the world where a mosaic is to be executed. In the first place it is difficult to get first-class workmen to leave their homes, and if this difficulty be overcome by increasing their remuneration, the necessary expenditure for travelling and maintenance adds largely to the cost of the mosaic.

Then, again, where the mosaists have to work on the spot, only a very limited number can work on the cartoon at the same time, and on such days and at such times as the condition of weather and light will permit, so that the work must necessarily proceed slowly.

These are difficulties which directly affect the cost of the mosaic. There are also difficulties which may, and in many cases do, affect the quality of the work. The conditions under which a mosaist working on the spot has to carry on his work are frequently well nigh insupportable. He is dependent on the climate of the country in which he finds himself, and even under the most favourable atmospheric conditions he must work in the imperfect light which comes to him through the shrouds and scaffolding by which he is surrounded: in winter he is chilled by the cold, and in summer he is half suffocated by the heat; he has to lie in all sorts of uncomfortable positions—sometimes on his side and sometimes on his back; and in spite of all these difficulties he is expected to exercise to their best his faculties and skill in reproducing not only the design but the exact colours of the cartoon which he is engaged in copying. What wonder if, under these circumstances, when the scaffolding and shrouds have been removed, the mosaic is discovered to be faulty and that some parts have to be demolished and begun all over again, or, worse still, the defects are permitted to remain because the expense of removing them would be too great?

There are in addition technical difficulties into which I need not enter. Those I have cited are sufficient to indicate the reason which led the mosaists who thirty-five years ago revived the art to the conclusion that unless some other process could be found little progress could be made either in this country or abroad.

When one remembers how much that is beautiful in mosaic art has been produced by means of this ancient method, it seems natural enough that it should have the affection, and even veneration, of many mosaists. To abandon it is to break with the past, and artistic sentiment is conservative, but

The old order changeth, yielding place to new,

and there are many indications leading to the conclusion that, except with reference to small works in which the designer is interested as mosaist, this venerable method will not survive the stress of modern conditions, and that the existing wave of opinion in its favour will, after a few costly experiments, subside.

In expressing this opinion, I do not forget the important work recently executed in the choir of St. Paul's Cathedral, but in that case the work was carried out under all the conditions necessary for the successful application of the method; there was no want of money, no limitation as to time, and the mosaists were under the direct control of Sir William Richmond, who designed the cartoons. It would be quite out of place here to criticise the result, but it would be interesting to know the cost, from first to last, of each square foot of mosaic executed, including the fees paid to the distinguished artist who superintended the work.

I now come to the new method. The Venetian mosaists having decided to abandon the application of the old method to the construction of decorative mosaics, adopted, developed and after many costly experiments brought to perfection the method which has become associated with their name, and which they have applied to nearly all the large decorative works executed by them during the past thirty years. This method, or process, was explained by the late Sir Austen Henry Layard in the following passage of a paper read by him at a meeting of the Royal Institute of British Architects:—

"The necessity of working on the spot is now avoided by an ingenious process which, however, is only applicable to decorative mosaic, and cannot be used when much delicacy of execution and extreme nicety in the gradation of tints are required. The workmen reverse the cartoon, and place the tesserae with their proper faces downwards. The tesserae are fastened with common paste to sheets of coarse brown paper, on which the cartoon is traced. When the work is finished it has only to be fixed with cement upon the wall destined to

receive it, and the brown paper is then removed from the face of it. This process requires considerable skill and practice, especially when figures have to be executed, but is perfectly successful. Thus the decoration of any number of square feet of surface can be forwarded from Venice to any part of the world—to America or to India—with safety and at little cost."

To go a little into detail; the studio should always be well lighted and well ventilated.

The workers are under the control of an artist who is also an experienced mosaist—indeed, his qualification for the post is that he possesses a large and varied experience in the practice of mosaic art.

The working mosaists are divided into grades or classes. The workers in the first grade work on those parts of a mosaic which require the most careful treatment, such as the faces, hands and feet of a figure; those in the second grade work on ornaments and drapery; those in the third grade have given to them the execution of simple backgrounds, and so on—each man being given that work which he is best fitted to perform.

When a cartoon is brought into the studio it is traced and reversed on coarse brown paper. This reversed tracing is then cut up into pieces of irregular shape, and these pieces are distributed among the various grades of workers. The cartoon is then hung up so that it may be seen by all, and the workers, being comfortably seated at their desks with a small anvil, small hammer, some paste and the enamels they will require on their side, the work begins. Each worker having carefully noted the colours and the size and shape of the tesserae required for his part of the cartoon proceeds to cut the enamels accordingly, and to place them with their proper faces downwards on to the plain tracing before him, and to attach them thereto with common paste.

With the exception of the tesserae used for metal backgrounds (to which I shall refer later on), each tessera is the same in colour throughout, and all the tesserae are of equal thickness, and are evenly shaped from top to bottom. When, therefore, they are placed on the paper "face downwards" there remains under the eye of the worker the exact counterpart of the work he has executed—the design being carried right through the tesserae—and he is thus able to judge of the effect of his work, and to make any necessary alterations or corrections as it proceeds.

Metal backgrounds sometimes require a slightly different treatment. Owing to the construction of "metal cakes," the metal is only visible from the front or face of the mosaic. As that the worker can see when he has placed the metal tesserae face downwards on the paper is the glass by which the metal is backed. In the case of a plain gold or silver background no modification of the method is necessary, as the worker, by long experience, knows exactly the effect which is being produced on the face of the mosaic. When, however, a background is to be composed of various shades of gold or gold and silver, a treatment requiring the exercise of great skill and judgment, it is constructed face upwards, so that the worker may see the effect of each tessera as it is laid; then paper is pasted over it, and it is ready to be packed.

On the screen I give an illustration—taken from a photograph—of the "wrong" side of a mosaic executed by this method. It will be of interest to those critics who have condemned the process on the ground that the worker cannot see the effect of his work as it proceeds, and it may be of some interest to others as being the first illustration of the "wrong" side of a mosaic which has ever been published.

In a very interesting paper contributed by Mr. Cleme Heaton to the Journal of the Royal Institute of British Architects, he states that he was told at Venice it was impossible to do figurework without grinding. I do not know from whom he obtained his information, but I can assure him that not one single tessera in this mosaic has touched the grinders.

The artist who controls the studio is in constant touch with all the workers, and in the course of his frequent visits to each one advises or corrects as he watches the progress of the work. It is he who divides the cartoon and distributes the pieces among the workmen, and in this connection it may be observed that sometimes a mosaic is required to be executed by a certain date much within the ordinary limit of time given to a work of the kind. It is impossible to hurry the workers, for that would be detrimental to the quality of the mosaic. The cartoon is therefore divided into smaller pieces than usual, and a large number of workers are employed on the work; and by this means, without hurry or injury, the mosaic is executed within the time allowed. Under the old method an expeditious treatment is not possible.

It may seem at first sight as though the employment of many workers on one design would produce inequalities in the workmanship which would mar the harmony of the work; but it must be borne in mind that the superintending artist controls the whole work and imposes his interpretation of the cartoon on all the workers. The slight variations in style

which he would permit would only tend to add an interest to the mosaic without in any way disturbing the harmonious blending of its parts.

Practical mosaists know well how difficult it is to avoid the intrusion of bits of enamel of the same colour, and possibly even from the same cake, which, when seen in a particular light or at a certain distance convey one tint, but in another light or at another distance convey a different tint; this may be due to some slight defect in the enamel, so slight as to be unobservable to the worker when placing the tesserae. Again, enamels which in one light appear to match exactly the colours of the cartoon, when seen in another light produce a different effect. Now here again we have an advantage over the older method, for the mosaic can be viewed at any angle of light while the work is in progress and before the tesserae are fixed on the wall; and any defective parts can be removed with ease and at little cost.

When all the tracings forming the cartoon have been covered with enamel they are collected and placed in a frame, so that the whole design now translated into glass comes before the artist and workers, and is again critically examined under various lights. In this final examination the artist has the assistance of all those who have been engaged on the work, an assistance which is of great value to him, for the eyes of the workers, trained by long experience in the practice of their art, are able to detect the least variations in colour, and the chances of a defective tessera escaping their notice are few indeed. When, therefore they and the artist agree that the colours of the mosaic correctly interpret the colours of the cartoon, and fulfil the conditions (if any) imposed by the designer, it is passed, packed and sent to its destination ready to be fixed.

In recent times there has been in certain quarters some disparaging at this method; but the only important objections—and important only by reason of their wide-spread acceptance—are two:—(1) That by this method the workmen are working in the dark, so to speak; cannot see what they are doing, and are unable therefore to correct their work as it proceeds. (2) That because the tesserae are placed face downwards on to the paper resting on a flat surface, the surface of the mosaic must necessarily be flat.

The first objection has been disposed of in the description of the process already given, and there remains nothing further to be added.

As regards the second objection, it is difficult to understand how the fallacy came to be propagated and accepted by many as an article of faith. Even the latest writer on mosaics, Mr. E. Baldry, in his charming book on "Mural Decorations," repeats it and condemns the method on that ground. Some months ago the Royal Institute of British Architects held a meeting to hear a paper read on the practice of pictorial mosaics, and the particular objection under consideration was stated, with considerable assurance, by the reader of the paper. Fortunately there was present at the meeting the eminent artist, Mr. Walter Crane, whose wide experience in every branch of decorative art had brought him into contact with mosaics executed by this method. He took exception to the statement, though seeming somewhat mystified by the assertion of his friends which contradicted his own experience. Referring to certain mosaics which had been executed from his cartoons by this method, he said:—

"He was very much astonished at the facility with which his designs were reproduced. . . . The tesserae were given the utmost exactitude, and the matching of the colours, allowing for difference in translation of the dead colour of the cartoon into the brilliant colours of the glass mosaic, was simply extraordinary; and even when designs were worked on his method he believed they had some method of giving a little push to the tesserae, in parts, to get more variation of effect in the gold of the background."

Mr. Walter Crane was right. The fact is, the placing of the tesserae face downwards on the paper does not in any way affect the surface quality of the mosaic, which is regulated at the time the tesserae are being fixed upon the wall.

When the mosaic is brought to the wall which is destined to receive it, the wall is prepared with cement, and the pieces on which the mosaic has been divided are taken from their frames and the work of fixing begins.

If one fixer only is working on a panel, about 4 feet of mosaic can be placed on the wall at a time. The tesserae are pressed into the cement, and after a few minutes the paper is stripped off and the mosaic discovered. It is at this stage that the character of the surface is determined. There is no need to hurry while the manipulation of the tesserae is proceeding, the cement used does not set firm for some hours after the paper has been removed, and there is no fear of the tesserae sagging, as they are laid from the bottom and not from the top in the old method. If, therefore, the designer is also a critical mosaist, and wishes personally to undertake the work of fixing, this method affords him facilities for stamping the work in its final stage with his individuality by giving to the

tesserae with his own hands that "little push" to which reference has already been made.

To facilitate fixing in localities where skilled fixers are not to be met with mosaics intended to cover flat surfaces are sometimes set in cement before they leave the studio. The process is as follows:—A bed of cement about $\frac{1}{2}$ inch thick is laid upon a smooth wooden surface, and before the cement has set an iron frame of ingenious construction (the invention of a Venetian) is pressed into it. This is then covered with an upper layer of cement prepared to receive the tesserae which are placed upon it in the same manner as, by this method, they are placed upon the wall. When the work is completed its appearance is that of a slab of marble, rimmed with iron and covered on one side with mosaics. It can then be placed in position by any competent mason, and for that reason this special construction is suitable for mosaics intended for India or the Colonies. The colossal figure of *Minerva* in the Library of Congress at Washington was so constructed, and the result is perfectly satisfactory. Large panels are divided into sections, to facilitate packing, and these sections (like the sections into which the cartoons are divided) are irregular in shape and follow the lines of the designs, so that when fitted together no joints are visible.

It must be distinctly understood that the "face downwards" method is applicable only to decorative work, and cannot be used (to quote Sir Henry Layard) when much delicacy of execution and extreme nicety in gradation of tints are required. In such cases the work is always executed "face upwards," and when finished is taken up on to paper from the front.

This, then, in brief, is the method which is now known as the Venetian method. For its successful application considerable skill and practice are necessary, but the experimental stage has been passed long ago, and experience has shown that the Venetians are capable of good work. They smile at the notion of a return to the older method, for they know that by the means they employ a mosaic of equal quality can be executed at half the cost and in less than half the time, and so they are content to allow the "battle of the methods" to be fought out in their absence, while they continue to raise higher and higher the standard of quality, being convinced that with the two masters, time and money, on their side their views will prevail.

In the course of this paper I have called the working mosaists "workers" or "workmen," but, in truth, those in the higher grades are entitled to be more suitably designated. They have studied every style of mosaic construction and thoroughly understand the possibilities as well as the limitations of the material with which they work. Their wide practical experience has given them freedom and assurance in shaping and placing the tesserae, and in adding all those subtle touches which mark the difference between a mere slavish copy of a design and a work of art. To make my meaning clearer, I will read a letter received from Cavaliere Giovanale, architect to His Eminence Cardinal Rampolla, on the completion of the mosaics recently executed for His Eminence, and now placed in the crypt of Sta Cecilia in Trastevere at Rome, and while doing so I shall ask my assistant to place on the screen one or two of the mosaics to which Signor Giovanale refers:—

"The mosaics are a perfect copy of the cartoons, reproducing with fidelity not only the outlines, but retaining in the treatment of light and shade, and in the expression of the faces, all the intentions of the artist who designed them, and truly interpreting the scheme of colouring expressed in the small sketches which accompanied the cartoons. Nor must I fail to express my admiration, and the admiration of those who have examined these mosaics, at the perfect technique and wise distribution of the tesserae by means of which all the most delicate effects of modelling and colouring have been obtained. This proves the artistic taste and technical skill of those who executed the work."

Men who can produce work of this kind are, I think, entitled to be called artists, and in this opinion I am supported by the late Sir Edward Burne-Jones, who addressed the following letter to the chief of some Venetian mosaists who had executed mosaics from his designs:—

"To the artists at Venice, who have been so indefatigable in carrying out my designs, I owe much gratitude, and I should be obliged to you if you would convey to those who executed the work some expression of my delight at the result of our co-operation and my trust that it is only a beginning of our labours together. Will you kindly do this for me, because I know their skill and workmanship have been of an unusual kind." Such words, addressed to them by such an authority, go far to establish the claim of the Venetians to be the best mosaists in the world.

The Liverpool Architectural Society will hold its fifth members' meeting at 13 Harrington Street on Monday next, the 16th inst., at 6 P.M., to hear a paper by Mr. I. P. Abercrombie. Subject, "Leonardo da Vinci." Illustrated by limelight views.

ARCHITECTURAL ASSOCIATION OF IRELAND.

A PAPER was read at a late meeting of the above Society by Mr. Crawford Smith on "Heraldry and Heraldic Ornament." Mr. F. G. Hicks, president, occupied the chair. The paper was illustrated with heraldic drawings and examples of heraldic tapestry, lent by Mr. Story, of London. Mr. Crawford Smith said the subject of his paper he thought was not much studied. That was doubtless largely due to local and historical circumstances. He regretted that, partly owing to these facts, he was unable to furnish many illustrations of his subject. Heraldry, he said, was the art of explaining by way of forms, symbols, badges and colours, the achievements of persons and families, individually and collectively, according to their various ranks of life. Such originally appertained to arms, trappings, liveries and robes of state and office, and by extension were employed pictorially, and in sculpture or stone, wood, parchment, &c., thus signifying in days when reading and writing were unknown to the general people the wearers' rank, station and history. Heraldry was, in fact, the hieroglyph of chivalry. As to its origin, some form of representation akin to heraldry was coeval with primitive man, but it was not raised to a science until comparatively recent ages. For the early inspiration of heraldry they should look for its origin in symbols adopted by personal taste, pride and convenience, as marks of honour, rank and position of state or family, but these implied no heraldic signification according to present canons. Crests of various designs and forms were to be found in Egyptian, Assyrian, Mexican and other sculptures, bas-reliefs and paintings. These, however, varied with the user, and except in a few instances could hardly be said to descend from father to son. A brief description of the terms used in heraldry was given, and Mr. Smith pointed to examples to be seen at Canterbury in connection with the armour of the Black Prince, and mentioned the coloured drawings in the British Museum of the ceremony of the entombment of Edward the Confessor. The historical mention of heraldry might begin with the period of the Norman Conquest, the general and regular use of heraldic device spreading about the end of the eleventh century. The beginning of the twelfth century marked the rise of the most brilliant heraldic period, which lasted through 300 years. The reader then dealt with the armorial windows in the great hall of Hampton Court Palace, and also with other historic buildings. He said it was to A. W. Pugin they owed most in this field of research, and about the finest monument of heraldic decoration of modern times, the Houses of Parliament, formed a fit memorial of his industry and genius. The lecturer then dealt with the arms and crests of sovereigns and nobles of England, and with the robes of the Garter, Bath, Thistle, &c., and in conclusion he urged the necessity for a thorough knowledge of the principles and practical application of the science in connection with architecture.

On the motion of Mr. Bradbury, seconded by Mr. Geoghegan, a vote of thanks to the lecturer was passed amid applause.

ACADEMY SCHOOLS.

IN the course of his lectures at the Royal Academy, Mr. Gilbert urged the students to disregard time spent in the schools in any other light than that of a novitiate, but to lay their studies to their hearts for future occasion. Next, he told his hearers, says the *Standard*, not to concern themselves at all about outside opinion, or that of their neighbours. He disavowed any combative intentions, for he had never had to complain of criticism against himself, but he had known artists abashed by "the person who had learnt to write, but never worked at all." He would have the students go ahead where their instincts led them, uninfluenced by expressed opinions, for so would they hand down their own ideals to posterity. He was trying to prevent their being ghosts of other folk, and he wanted them to recognise that they were not working in order to produce, but to gain knowledge for achievement in the future. For this there was no school—and he knew all—equal to their own, and if they regarded it as a training ground they would show fruit of that given them in seed. There was a time when he thought the training in these schools gave scope for alteration; but he was now convinced it was the best that could be had, for diversified teachers were less likely than personal ones to bring out imitators and mannerists, and it gave wider expression of various individualities. When he had at times drawn inferences between sculpture and painting, he was neither disloyal to his own branch of art nor wanting in respect for the other; but youthful aspirants in sculpture were apt to think they could do what they liked, and he would have them understand they could not. They were to reverence painting, but they had not canvas or colour, and instead of presenting one view as a painter did, the sculptor was a hewer of pictures which were to be seen all round, each

side being a complete picture and of varied outline, yet having relation to the front view. If this was not done a model was only a mud pie, with an attempt at a design on one side it. The one art was of tangible, the other of visual effect. Prinsep had shown that the painter was more restricted than the poet, as he had to take a particular moment for artistic purpose, whereas a poet could roam over a century, was a sculptor more restricted than a painter, for he had colour and his design could not be so all-embracing. He had just been round the adjoining galleries in the hope of getting inspiration for his address, as he was anxious to be one-sided, and the visit had more than ever decided him to speak to the students as a body who were not sculptors only. To do so would be an arduous task, as the temperament determined to conquer in a broad sense rather than a narrow one made them "artists" whether they were to be painters or sculptors. Later he showed how sculptors can learn from paintings, for he said Turner's picture, No. 12 at the Masters Exhibition, and Crome's "Mousehold Heath," were the best pictorial examples of what sculptors should go to. These two great pictures were pre-eminent, and should appeal to sculptors more than any others in the exhibition, for he never came across such pictorial representations of a sculptor's temperament. It was not the colour, the movement or the value of the pictures were placed upon the canvas, but because "you could go all round them." In the Turner work was on the starboard was as well realised as when it was on the port side of the ship. Painters might say this was not suggested, but as a sculptor he felt and he would tell the sculptor students it was the best example of how to venerate and use paintings. There was none to equal it except the Crome, which had marvellous solid extraordinary verification of fact, though there was no base; everything was elevated and beautiful. These pictures had no sordid realism of detail; they spoke of consummate thought and well-studied intention. It proved how highly he regarded the sister art that he fell upon those two fine paintings to accentuate his remarks on building up a sure foundation. There was no excuse for narrowness in practice or conception in a country like theirs, where every form of tradition from the Greeks onward could be studied. To obtain subjects, there was the source of their splendid art library, for they could create from suggestions derived from books, and if he had his way he would compel students to pass an hour a day in the library (and a test in literature), as a week there was worth a month in the schools.

Mr. Gilbert, in another lecture, said he would justify his assertions by stating why the teaching was so good, besides advising the students as to use of them. Casual visitors were better than a machine-planted teacher, for students could take the experience of men whose works they saw, and they were not hampered by dogmatic and didactic assertions of an individual. The schools were not a kindergarten; all the knowledge when they entered, and their studies were corrected by visitors, who were bent upon and bound to do the best. Possibly, if the students had the choice themselves, they could not find better men. There might be some fault, but in a body like theirs it took time to mend them, and he was absolutely convinced that the greatest fault of all was entirely their own. It lay in a lack of that *esprit de corps* which to a soldier meant everything, to be wounded was death to a sailor, and was of untold value to every calling. He said there was too much consideration of how to do the most work in the least time to win a prize for it. Pot-hunting in art led nowhere, and made only heroes of a moment not of hereafter. They should think that possibly the most unsuccessful man at prize-taking might become a great luminary. They should lean on one another, and to the elders he would say they were there both to learn and to teach. By elders he meant the advanced students, for there was practically no age limit to admission, and he knew by experience what a stimulus it was when the quasi-ancients gave help. The one who was able to launch out could say more to his fellows than hours of teaching would impart, and he was not sure this was not the best instruction they could have. There were always one or two much more advanced than the rest—pre-eminent in some degree—from whom such help should come. Much could be derived by contact with seniors, and it was but a forestall of what men and women get in after life by rubbing shoulders. Emulation he liked to see, but rivalry was hateful, and it was most terrible of all when it came between artists. They should fight for the glorification of their art and the upholding of the schools as superior to anything in Europe. This, too, would be remuneration of those who taught them, and whose judgment should be used, and they said should be taken in, and whose word should be obeyed, though the student's conceit might lead him to his own opinion first. They should remember Shakespeare's words, "Conceit in weakest bodies strongest works." He was as forcible as he could be, for he could not demonstrate

in art, and, indeed, he had come to the conclusion he knew nothing about it, after his more than thirty years' work; but his question of dealing with want of *esprit de corps* had been smoldering, almost boiling, in his mind for a long time. After vain eulogising the sculptural qualities in the Turner and some pictures referred to, Mr. Gilbert said he would refer to three others who were loyal to themselves, and who were represented in the neighbouring galleries, and all of whom, oddly enough, had at first given more time to sculpture than to painting—Vicat Cole, John Brett and Ridley Corbet. Corbet was a fellow student at the Academy, and Mr. Gilbert had watched him for years. He was thorough in all he did. He would sit for hours making drawings of every little detail of his pictures, hence his distant hill forms were such as were not found in the ordinary everyday smudge of a landscape. As a student, Corbet was older than most who were there, yet he looked on the juniors as juniors from whom he could learn something, and, when he was more proficient himself, and his then juniors were his inferiors, he was ready, in his turn, to give what advice he could. He was an example of what a student should be, never thinking of himself. Ego was not in his vocabulary. Vicat Cole gave scientific attention to durability of colour, but his private and personal predilection was for scientific inquiry for form, and he told Mr. Gilbert that the best clue to painting a tree was to dissect a leaf of it. Brett was a great realist, fearless in every way to what he did artistically, and he was a goldsmith, having much respect for his material. Then Mr. Gilbert said the members of the Academy were elder students, and their *esprit de corps* was evinced in many ways, and he added that affection and *esprit* were at the bottom of what he had spoken, but which they might seem like a sermon. He knew the why and therefore of shortcomings in art, and that it came about by an consideration of who shall have this or that statue. Finally, he conjured them to think more of becoming better artists than of making an ugly truth.

TESSERÆ.

Mason the Poet, and Sir William Chambers.

THE love of landscape gardening and of simplicity by Sir William Chambers, the poet, appeared in 1773, in a sprightly production, "An heroic Epistle to Sir William Chambers." A poet by descent, but born in Sweden, having come to England in his infancy, Chambers had risen by good fortune, enterprise, talent and the patronage of Lord Bute, from the supercargo of a Swedish vessel (in which he visited China) to the post of Royal Architect and Surveyor-General of the Board of Works to His Majesty. In this capacity he was engaged in laying out the royal gardens at Kew, in which he showed a striking regard for Mason's ideas of the picturesque. In a work published about the same time, he expatiated on the wonders of Oriental gardening as displayed in the imperial gardens of the Pasha of Minn Sven, near Pekin, and more than implied a contempt for the simple natural-imitating system, and no great respect for nature herself. Mason, whose temper was by no means free from suspicion and jealousy, perhaps thought that a poem in four books, called "The English Garden," was directed upon him, or he might think that to criticise the Court architect was a good method of satirising the Court, to which his politics were strongly opposed. The method he adopted to ridicule the Orientalist was simple and effectual. He just versified the most glaring paragraphs, and subjoined the original prose as a running commentary. Sir William Chambers, in his preface, wrote:—"Nature affords but few materials to work with. Plants, water and ground are her only productions, and though both the forms and arrangement of these may be varied to an incredible degree, they have but few striking varieties, the rest being of the nature of changes rung upon bells, which, though in reality different, still produce the same uniform kind of jingling, the variation being too minute to be readily perceived. Art can therefore supply the scantiness of nature. Our larger works are only a repetition of the smaller ones, like the honest chelors' feast, which consisted in nothing but a multiplication of his own dinner: three legs of mutton and turnips, three roasted geese and three buttered apple pies." Mason's opinion was:—

For what is nature? Ring her changes round;
Her three flat notes are water, plants and ground:
Prolong the peal, yet spite of all your clatter,
The tedious chime is still earth, plants and water.
So when some John his dull invention racks
To rival Boodle's dinners or Almack's,
Three uncouth legs of mutton shock our eyes,
Three roasted geese, three buttered apple pies.

Post-Alexandrian Sculpture.

In the various kingdoms which arose out of the conquests of Alexander the arts were more or less cultivated, and not

only were the great master-works of former times copied to adorn the new capitals, but new schools of artists sprang up in several of them. Alexandria, Pergamus and Seleucia rivalled each other in art no less than in literature. At Pergamus the celebrated groups were composed which represented the victories of Attalus and Eumenes over the Gauls. It is believed by some that the so-called dying gladiator at Rome is a statue of a Gaul, which originally belonged to one of these groups. Ephesus also had a flourishing school of art, which appears to have followed in the main the style of Lysippus, and excelled like that of Pergamus in the representation of battle scenes. The Borghese fighter in the Louvre is supposed to be the work of an Ephesian, Agasias, and to have originally formed a part of such a battle scene. In Syria too art flourished at Antiochia until the time of Antiochus IV., before whose reign a number of statues had already been carried away by Scipio. In these new monarchies statues of the gods were seldom made, and when they were executed they were in most cases copies from earlier works, as the character in which the gods were represented had gradually become fixed, and few artists ventured to alter the forms which had become typical. Portrait statues of kings increased, on the other hand, to a great extent. The vanity of the kings and the flattery of the artists created a new kind of statues: the princes were frequently identified with certain deities, and were consequently represented as such with all the requisite attributes. In many cases the mere bust of a king was put upon the body of a statue of a god. This was a most dangerous rock for artists; for the simple representation of a king in the shape of a god, which commenced as early as the time of Alexander, was soon thought an insufficient mark of veneration, and art degenerated into a mere instrument of the most vulgar flattery; pomp and show and tasteless ornaments were mistaken for art. Flattery towards the great was also shown in the monstrous number of statues that were erected to one and the same individual. Demetrius Phalereus had 360, or according to others 1,500 statues erected to him. When the honour of a statue ceased to be considered as a high distinction, and when it became necessary to produce such numbers of statues, the workmanship naturally became worse in proportion as the honour sank in public estimation. During this time it became customary to combine with the statues of kings and generals symbolical representations of towns.

Influence of Basilicas.

The basilican style seems at once to have revived the architecture of ancient Rome, and to have purged it from many of its corruptions. The original germ of Roman architecture differed totally and essentially from that of Greece. The one was founded upon the pier and arch, the other upon column and entablature. The high respect which the Romans entertained for the arts and literature of Greece led them from an early period to engraft her architecture, which had already been brought to perfection, upon the infant nucleus of their own—a union which corrupted the one and checked the development of the other, so that the architecture of pagan Rome can only be said to be really beautiful in those cases in which, as in the finest of her temples, the Grecian type was almost strictly followed, and in those great engineering works, such as the aqueducts, in which it was entirely excluded. It was reserved for Christian Rome to give scope and freedom to the original germ of Roman architecture by freeing it from the incongruous overlayings of Grecian art, so far at least as the principle of the column and the entablature can be considered its essential feature. The difference between the latest works of pagan and the earlier works of Christian Rome is strikingly expressed by the following detached passages from Mr. Hope:—"The architecture," he says, "of the heathen Romans, in its deterioration, followed so regular a course that that which most immediately preceded the conversion of its rulers to Christianity is also the worst," while the early Christian buildings, he says, "from their simplicity, the distinctness, the magnificence, the harmony of their component parts, have a grandeur which we seek in vain in the complicated architecture of modern churches."

Drawing and Painting.

Of the several branches or divisions of the painter's art, separately considered, design or drawing is undoubtedly the most important, for on drawing not only form, but action, expression, character, beauty, grace and greatness chiefly depend. Colour represents nothing, and lights and shadows have no meaning till they are circumscribed by form. Drawing is therefore evidently the foundation and first element of the art, without which all the others, ideal or practical, are not merely useless but nonentities. Hence it is clear that drawing must have existed before any other branch of painting, and that drawing must still have precedence in the order of acquirement, and hence we can be at no loss to account for the enthusiasm with which it has been spoken of, nor for the zeal with which the study of it has been enforced by all teachers of

the art. "He," says Sir Joshua Reynolds, "that is capable of delineating fine forms, even if he can do nothing more, is a great artist." And Annibale Carracci was wont to say to his scholars, "First make a good outline, and then (whatever you do in the middle) it must be a good picture." Many more expressions to the same effect and of equal authority might be quoted, but we have yet another proof, infinitely superior to the opinion of any individual, however exalted, of the supreme necessity and comprehensive utility of drawing; for in all the various schools and academies that have been instituted, in every place and country in which painting has obtained a local habitation, what has been invariably their object? Has it not been design alone? How little, if any, has been the attention bestowed on other branches of the art. If you ask them, "What is the first requisite in a painter?" will they not say, Drawing? "What the second?" Drawing. "What the third?" Drawing. They tell you, indeed, to acquire colouring, chiaroscuro and composition if you can, but they insist on your becoming draughtsmen. After this, to doubt the importance of drawing would be as absurd and arrogant as to doubt whether the institution of academies have in any degree contributed to the advancement of painting.

Brick Churches of North Italy.

The brickwork of North Italy may be studied in a large number of buildings in almost all the towns and cities in the valley of the Po, though at the same time other districts afford many remarkable examples. In Venice, Verona, Mantua, Piacenza, Cremona and Milan, and beside these in Pisa, Sienna, Lucca and Bologna, most of the Mediæval buildings are almost or altogether built of brick, and afford examples of almost every kind of use of the material, both by itself and in combination with stone and marble. Almost all the buildings display more or less sham construction. At Cremona there are examples of this in the transept fronts of the cathedral, where an enormous screen wall is carried up high above the roofs, and pierced with rose windows of elaborate character, but of no possible use. The east end of the church of San Fermo Maggiore at Verona is an instance of an apse treated in a similar way, each of its sides being surmounted by sham gables, the grouping of which, with the pinnacles between them, makes undoubtedly a most picturesque *tout ensemble*. The usual arrangement of the façades of these Italian churches is, however, fairly real and constructional. Buttresses of flat projection mark the internal divisions, and the real roof lines (always of flat pitch) are strongly marked by elaborate cornices of moulded brick. The buttresses are generally carried up to, and are also finished by, these cornices, and above them are frequently light pinnacles. San Francesco, Pavia, affords a fine example of this type, applied to a church consisting of nave and aisles. Here the buttresses are some of them moulded, and some covered with brick tracery, and all finished with delicate circular brick pinnacles. San Pantaleone, in the same city, is of the same type, but of five divisions in width, these divisions answering to the nave, aisles and chapels beyond the aisles inside. Of the treatment of the eastern ends of Italian churches those of Venice afford, perhaps, the finest examples. In that of Santa Maria Gloriosa dei Frari we have a central apse lighted by two tiers of windows, and a series of chapels on the east of the transepts, each with two windows on the same level as the lower tier of the central apse. The division between the two stages of the latter is strongly marked by a bold cornice, occupying the place which in England would be held by a simple moulded string-course; and this is one of the ever-recurring evidences of the fact that the Gothic architects of Italy never so thoroughly and entirely shook off the old Classic traditions as did those of our own country. Another class of fronts very often seen is that in which it has been intended to cover the whole with marble; and in these cases the walls are first of all built very roughly in brick, with courses projecting at intervals for the sake of affording bond to the marble. In the majority of cases the marble fronts have never been built above the base mouldings, so that these rough unfinished fronts are quite characteristic of the country. In the vast church of San Petronio, Bologna (which if it had been completed would have been the largest church in Europe), we have one of these west fronts, and in Sant' Anastasia, Verona, another. Both these churches are, on other grounds, worthy of admiration.

GENERAL.

The Society of Oil-Painters, Piccadilly, have elected the following members:—Messrs. L. R. Garrido, Moffat Lindner, Harrington Mann, A. T. Nowell and E. Borough Johnson.

Mr. George Cadbury has given 120 acres more to the Bourneville Village Trust. He states that now the Education Act has been passed the schools will be erected.

The Memorial to the late Bishop of St. Albans is to consist of a bishop's throne in the choir of the cathedral, together with the completion of the choir stalls.

The Annual Exhibition of the Royal Amateur Society will be held at Surrey House, Marble Arch, from March 19 to March 22 inclusive. A loan exhibition of miniatures will be held in connection with it.

Mr. Forsyth, the sculptor, has completed the memorial to General Sir Samuel Browne, V.C., which is to be placed in St. Paul's Cathedral. Mr. Forsyth is engaged upon a replica for Lahore Cathedral. The design of the memorial contains a figure in relief of a Punjab cavalryman, and was modelled from one of the men who came to England for the Coronation procession.

The Site of the Royal Infirmary in Manchester may be used for the erection of a free reference library and art galleries. A part of the land would also be required for the widening of streets.

The Liverpool Cathedral Committee completed the purchase on Monday last of the St. James's site from the Corporation. The conveyance was signed and the money paid by the treasurers. The question of site has therefore been determined in the most practical manner.

Sir Weetman Pearson, M.P., the contractor, and Lady Pearson are presenting an electrical organ to Worth parish church, Sussex, together with a valuable altar cloth, in commemoration of the coming of age of their son. This event takes place soon after Easter, by which time the organ, which will cost over 1,000*l.*, will have been erected.

The Cambridge University Library have issued a report on the Acton Library. They recommend that a general approval be given to the plans and specifications prepared by Mr. W. C. Marshall, architect, for making certain structural alterations in the rooms on the ground floor at the west end of Scott's Building, and for furnishing them with bookcases, and that the syndicate be authorised to carry out a portion of this work during the current year, subject to any modifications of detail which may appear to them advisable, at the estimate cost of 2,300*l.*

At the Northern Architectural Association's rooms, 36 Northumberland Street, Newcastle-upon-Tyne, the Royal Institute of British Architects' annual selection of prize drawings, together with the intermediate and final examination testimonies of study, will be on view on Monday next, February 16, from 3.0 till 4.30 P.M., and from 7.0 till 9.0 P.M.

The Marlow (Bucks) parish church tower and spire restoration fund has now been closed. The subscriptions, &c. amounted to 2,533*l.*, and the expenditure involved was 2,528*l.*

The Metropolitan Asylums Board have received a letter from the Local Government Board with reference to the expenditure incurred by the managers in connection with the Grove Hospital, and stating that the Board, having regard to all the circumstances, would not withhold their sanction to the expenditure and borrowing of 16,724*l.* in excess of the sum 255,116*l.* previously authorised.

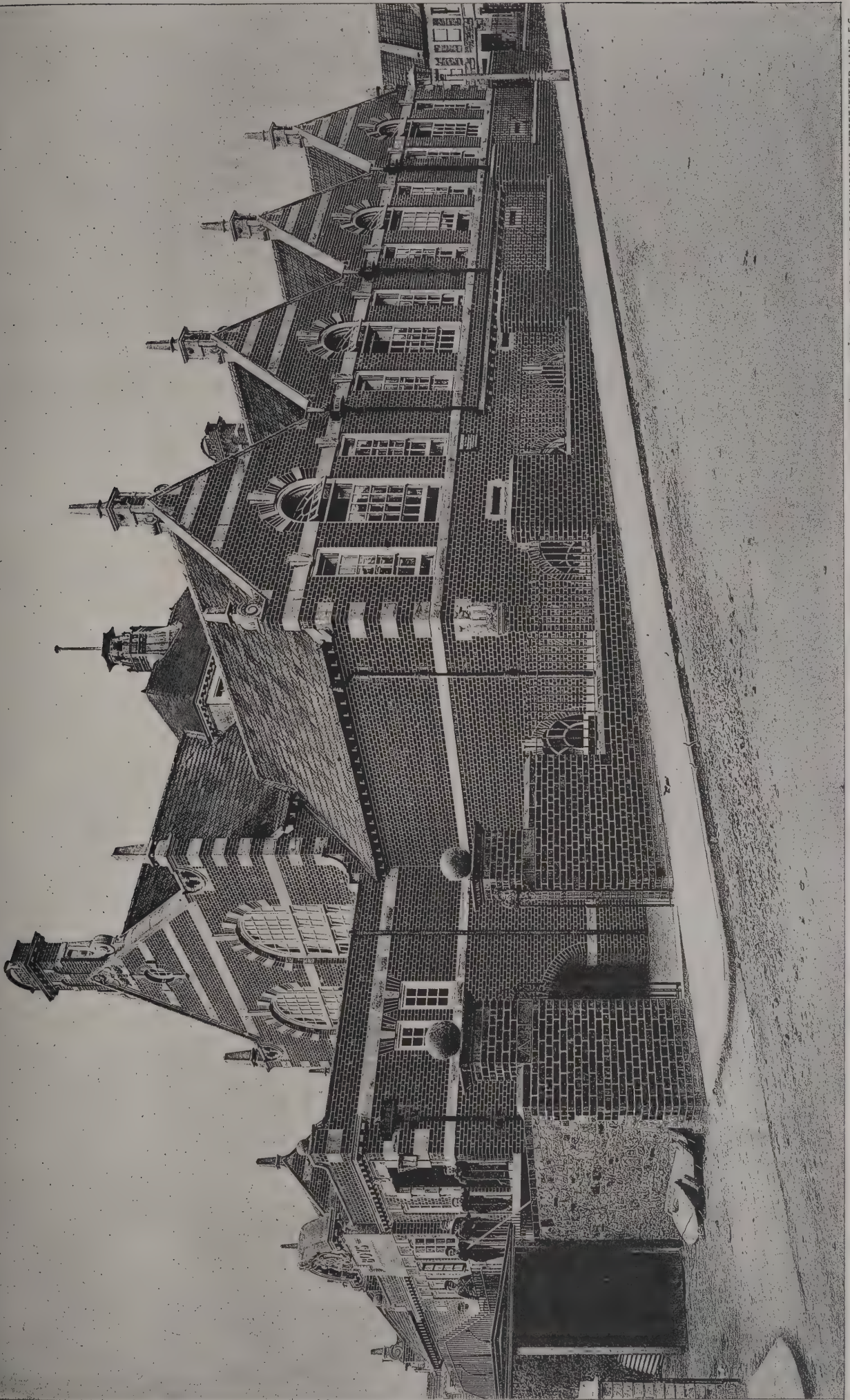
Standing Orders have been complied with in the case of the Bristol, London and Southern Counties Railway Bill, which proposes to incorporate a company with 4,500,000*l.* capital and 1,500,000*l.* borrowing powers, to construct at an estimated cost of 4,929,166*l.* a series of railways eastwards from Bristol to Bath, with a total length of 75 miles, which, worked in connection with the lines of the London and South-Western, Midland Somerset and Dorset, and Dorset, Midland and South-Western Junction Railways, will provide an alternative route from Bristol and Bath to London.

The Building By-laws Association held their first general meeting last week, when the articles of association were adopted. The first of them provides that the objects of the Association shall be—(a) Where building by-laws and regulations are in force, to promote amendments so that official control of private buildings shall not extend beyond the demands of public health and safety, and thus to prevent encroachments on individual liberty; (b) where it is intended to adopt such by-laws or regulations, to secure that those adopted shall satisfy the above conditions; (c) to assist as far as possible in suitable cases those who may be unduly interfered with by building by-laws or regulations.

The Picturesque fourteenth-century church of Kislingbury, Northants, was formally opened by Bishop Mitchinson on the 2nd inst., after the completion of the first part of the restoration. A large scheme of restoration has been devised at an estimated cost of 1,000*l.*, and the first portion now completed was confined chiefly to the chancel, and cost 300*l.* An old pulpit and new priest stalls and choir stalls to match have been erected. The second scheme is estimated at 700*l.*, and this will include the reseating and reflooring of the church. The present old-fashioned square but picturesque pews will give place to modern seats. In addition, it is proposed to remove the disused western gallery, to place the handsome font in its proper position, and to restore an ancient piscina.

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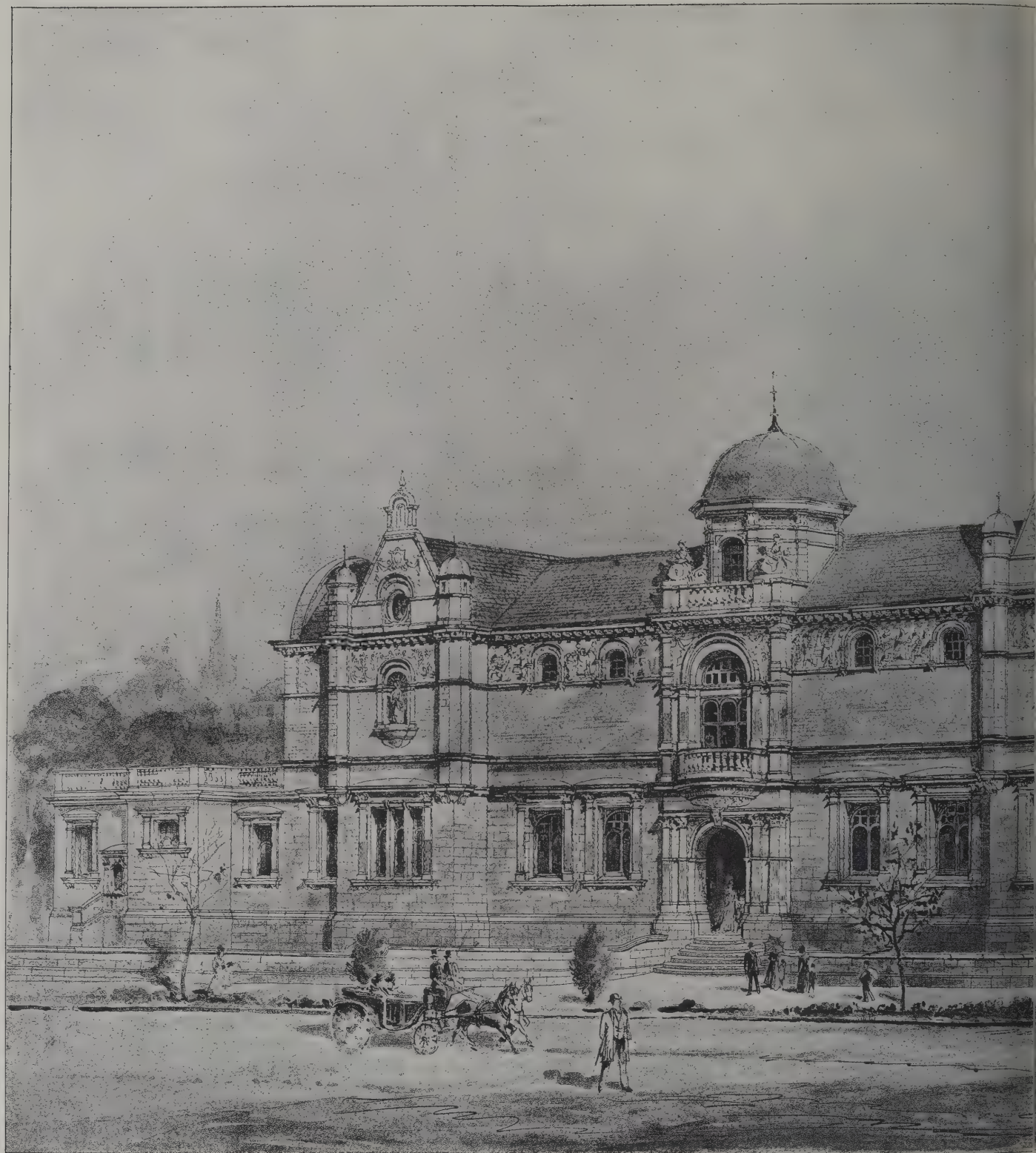
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HENRY DARE BRYAN, Architect.

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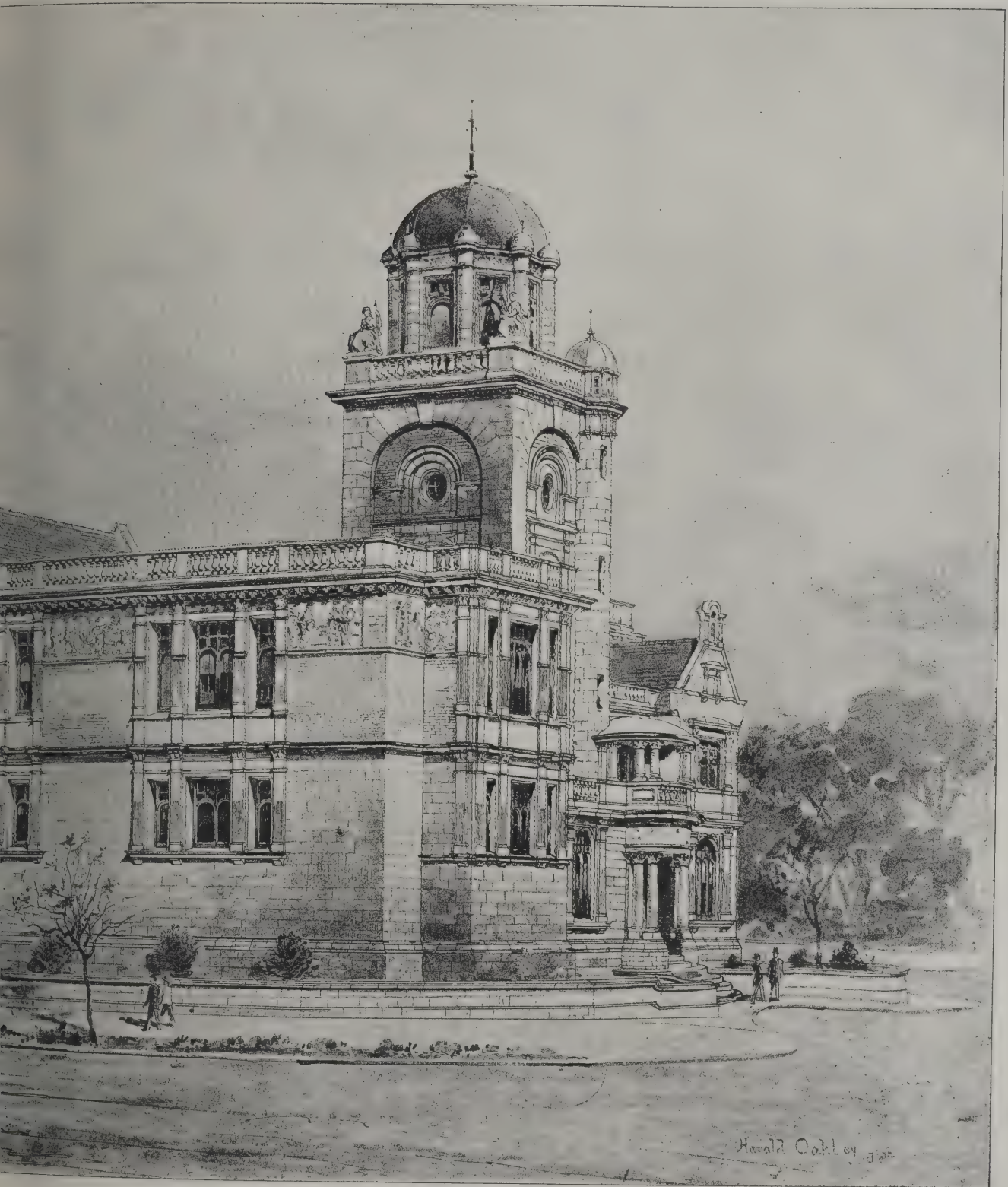
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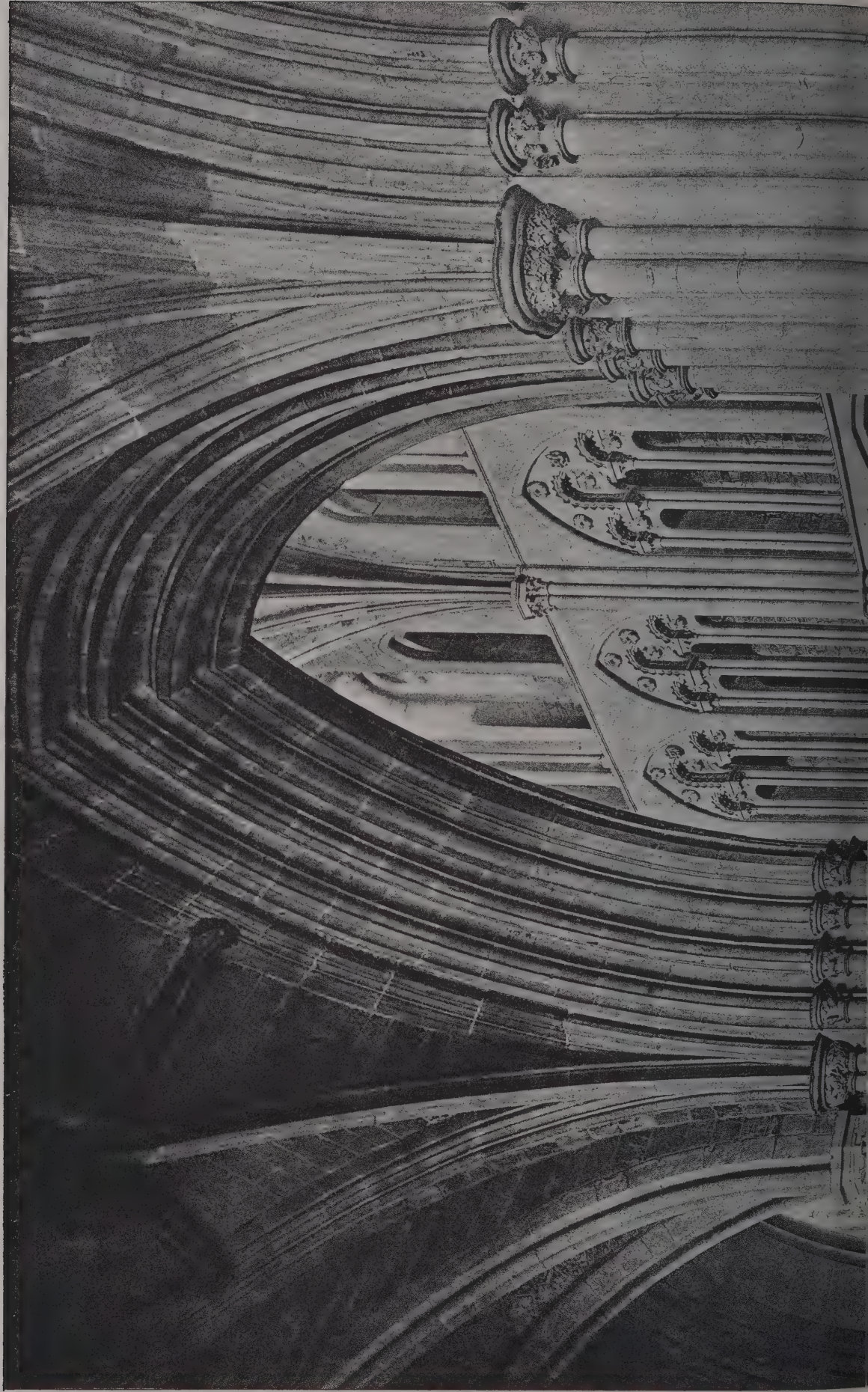
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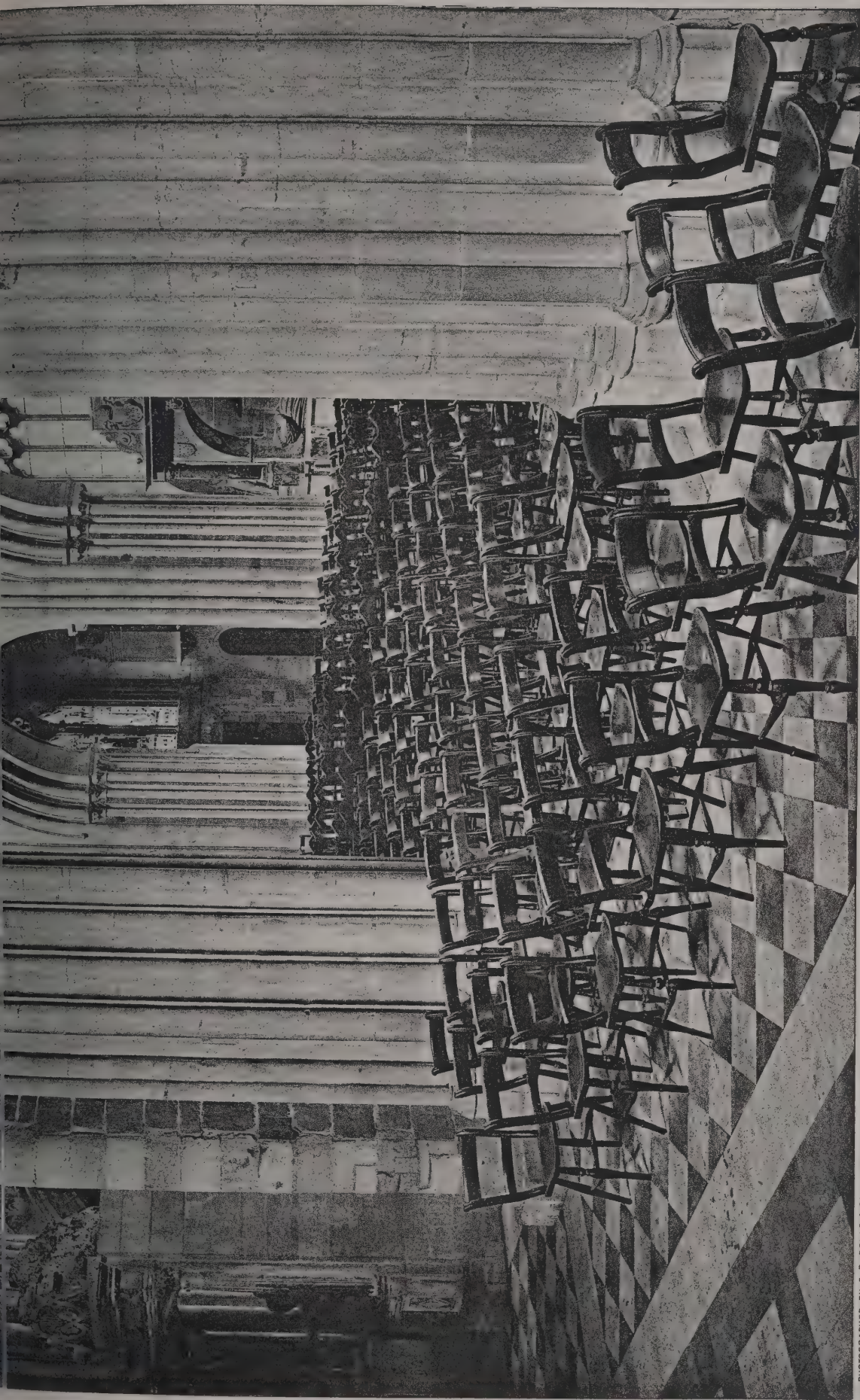
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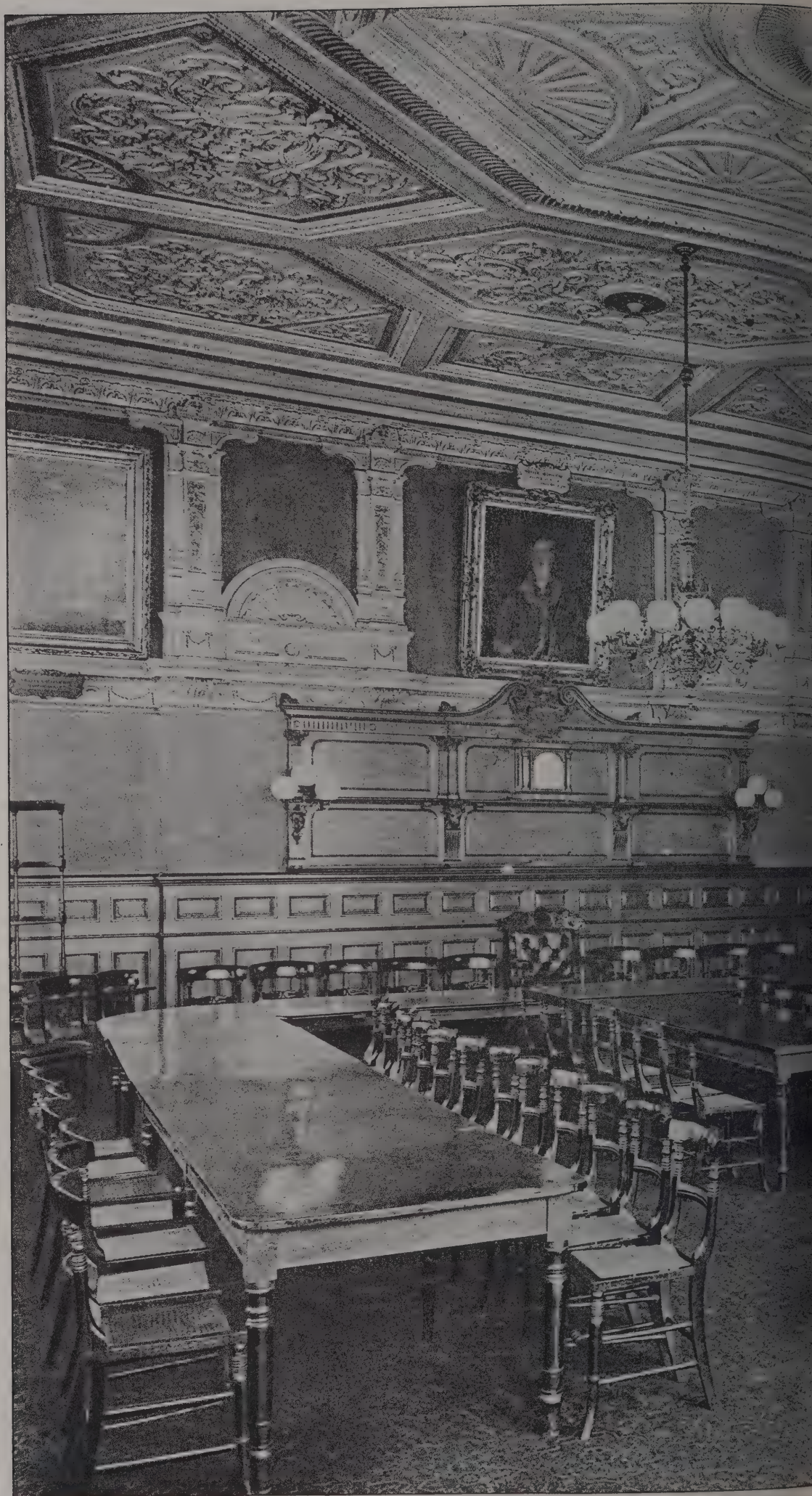
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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** * As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

ACTON.—Feb. 17.—Designs are invited for erection of public offices and a town hall. A fixed sum of 50*l.* will be paid to each selected competitor as a contribution towards the expense involved in the preparation of his design. Mr. Alex. Hemsley, clerk, 242 High Street, Acton.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 15,000*l.* Premiums of 60*l.*, 25*l.* and 15*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Parrett. Mr. W. T. Baker, town clerk, King Square, Bridgewater.

CASTLEFORD, YORKS.—Mar. 31.—Designs are invited for free library. Premiums 15*l.* and 10*l.* respectively. Mr. H. I. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—March 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60*l.* and 30*l.* are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—March 15.—Designs in competition are invited for a memorial of the Hull soldiers who fell in the South African war. Mr. E. Laverack, town clerk, Town Hall, Hull.

HULL.—Mar. 31.—Designs in competition are invited for the extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000*l.* Premiums of 75*l.*, 50*l.* and 25*l.* respectively will be awarded. Mr. James Fildes hon. secretary, Quay Street, Manchester.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100*l.*, 50*l.* and 25*l.* will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

SUTTON COLDFIELD.—Feb. 20.—Designs are invited for the erection of a town hall adjoining the council house, the total expenditure to be limited to 7,000*l.* Premiums of 50*l.*, 30*l.* and 20*l.* respectively will be awarded for the three best designs in order of merit. Mr. W. A. Clarry, C.E., borough surveyor, Council House, Sutton Coldfield.

WALES.—Feb. 27.—Plans and specifications are invited for an infant school at Ynysmudw, Pontardawe, Swansea Valley, to accommodate 250 infants. Mr. W. L. Evans, clerk, Gwauncaegurwen.

YEOVIL.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ALNMOUTH.—Feb. 16.—For erection of golf professionals' house at Alnmouth. Mr. George Reavell, jun., architect, Alnmouth.

ALRESFORD.—Feb. 20.—For erection of a house on Town House estate, Alresford, Hants. Mr. H. Yolland Boreham, architect, 75 Finsbury Pavement, E.C.

BARNARD CASTLE.—For erection of warehouse. Messrs. Pegg & Farrow, architects, 7 Market Place, Barnard Castle.

BARNESLEY.—Feb. 18.—For erection of two dwelling-houses at Hoyland Common. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnesley.

BATLEY.—Feb. 23.—For erection of new central stores in Commercial Street, Batley. Mr. Harry B. Buckley, architect, 85 Commercial Street, Batley.

BEXHILL.—Feb. 21.—For alterations and extensions to the electric-light station, Bexhill-on-Sea. Mr. E. Sholto Douglas, town clerk, Town Hall, Bexhill.

BIGGLESWADE.—Feb. 16.—For erection of a boys' National school at Biggleswade. Messrs. Townsend & Fordham, architects, Cross Street, Peterborough.

BIRKENHEAD.—Feb. 24.—For erection of forty-two tenement dwellings for the labouring classes in Mason Street and Green Lane, and twelve tenement dwellings and a public

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urinal in Getley Street. Mr. Charles Brownridge, borough surveyor, Town Hall, Birkenhead.

BRISTOL.—Feb. 17.—For construction of an embankment and retaining wall adjoining the public park, Ashton Gate, Bristol. Mr. T. H. Yabbicom, city engineer, 63 Queen Square, Bristol.

BRIGHTON.—March 2.—For erection of electric-power station at Southwick, near Brighton. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BURTON-ON-TRENT.—Feb. 19.—For erection of a post office at Burton-on-Trent. Particulars may be obtained at H.M. Office of Works, Storey's Gate, London, S.W.

CHORLEY.—Feb. 16.—For erection of a circular chimney, 60 yards high, in connection with the new refuse destructor works. Mr. Jno. Mills, town clerk, Town Hall, Chorley, Lancs.

CLACTON.—Feb. 18.—For construction of about 3,700 yards of pipe sewers, varying from 9 inches to 15 inches in diameter, with manholes, lampholes, &c. Mr. A. R. Robinson, surveyor, Town Hall, Clacton-on-Sea.

CRAYFORD.—March 2.—For erection of Northend school, Crayford. Mr. C. L. Morgan, architect, 43 Cannon Street, E.C.

CROYDON.—Feb. 16.—For additions to offices, &c, at the electricity works, Factory Lane. Mr. Saml. Jacobs, acting town clerk, Town Hall, Croydon.

CULLINGWORTH.—Feb. 16.—For erection of a house at Cullingworth, Yorks. Messrs. J. B. Bailey & Son, architects, 3 Scott Street, Keighley.

DARLINGTON.—For erecting a house at Blackwell, Darlington. Mr. G. Walesby Davis, architect, 37 Bondgate, Darlington.

DARTFORD.—Feb. 23.—For construction of a boundary-wall around a plot of land on the north side of the workhouse premises at West Hill, Dartford. Mr. G. H. Tait, architect, Lowfield Street, Dartford.

DARTMOUTH.—Feb. 25.—For rebuilding the pier-house, widening the pier and sundry other work at Long Reach, near Dartford, Kent. Drawings, conditions of contract, &c., may be seen and bill of quantities and form of tender may be obtained at the office of the Metropolitan Asylums Board, Embankment, E.C.

DURHAM.—Feb. 26.—For erection of forty four-roomed cottages at Chopwell, sixteen cottages at Leadgate and new

colliery offices at Langley Park. Mr. C. E. Oliver, architect, Consett.

EXETER.—Feb. 19.—For supply and laying of (Section 1) Doulton stoneware conduits; (2) two-phase high-tension twin-core concentric main feeder cables. Mr. H. D. Munro, city electrical engineer, Town Hall, Exeter.

GREAT YARMOUTH.—Feb. 17.—For supply, delivery and erection of one 300 kilowatt steam alternator. Messrs. Preece & Cardew, 8 Queen Anne's Gate, Westminster, S.W.

HALIFAX.—Feb. 24.—For erection of warehouse at Bowling Dyke. Messrs. Chas. F. L. Horsfall & Son, architects, Lord Street Chambers, Halifax.

HARROGATE.—For erection of a house, The Esplanade, Harrogate. Mr. John Houffe, architect, Montpellier Parade, Harrogate.

HIGHAM FERRERS.—Feb. 17.—For erection of a small detached villa at Higham Ferrers, Northants. Mr. George Hall, architect, Higham Ferrers.

HOVE.—Feb. 18.—For erecting boundary walling, shedding stores, workshops, yardman's house, &c., at the Corporation depot in Sackville Road, Hove, Sussex. Mr. H. Endacott, town clerk, Town Hall, Hove.

IRELAND.—Feb. 17.—For erection of a coastguard station at Carnlough, co. Antrim. Plans can be seen at Mr. Acheson Ferguson's, Scottish Provident Buildings, 2 Wellington Place, Belfast.

IRELAND.—Feb. 20.—For erecting central creamery at the town of Donegal. Mr. D. C. Pearson, architect, Donegal.

IRELAND.—Feb. 28.—For erection of a coastguard station and signal station at Fanad Head, in the county of Donegal. Mr. H. Williams, secretary, Office of Public Works, Dublin.

IRELAND.—March 2.—For covering the steel footbridge at Dromin station with corrugated iron roof, timber sheeting, &c., for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—March 6.—For erection of a church at Park Avenue, Londonderry. Mr. M. A. Robinson, architect, Richmond Street, Londonderry.

KEIGHLEY.—Feb. 18.—For erection of a shop and offices between Sneed's chemist's shop and the Star hotel, North Street. Messrs. Moore & Crabtree, architects, York Chambers, Keighley.

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KING'S LYNN.—Feb. 21.—For erection of a Primitive Methodist chapel at Fair Green, Middleton. Messrs. William Jarvis & Son, architects, Paradise Parade, King's Lynn.

KNUTSFORD.—March 3.—For erection of an administrative block, covered ways, &c., and for executing certain drainage works at the workhouse at Knutsford, Cheshire. Mr. Robert J. M'Beath, architect, Birnam House, Sale.

LAMBETH.—Feb. 18.—For alterations and additions to the laundry at the infirmary. Mr. W. Thurnall, clerk, Guardians' Board-room and Offices, Brook Street, Kennington, S.E.

LEAVESDEN.—Feb. 25.—For erection of twenty-two cottages at Leavesden Asylum, near Watford. Particulars may be obtained at the offices of the Metropolitan Asylums Board, Embankment, E.C.

LISCARD.—Feb. 19.—For erection of a chimney and main flue at the electric supply works, Seaview Road, Liscard, Cheshire. Mr. J. H. Crowther, engineer, Great Float, near Birkenhead.

LITTLEHAMPTON.—Feb. 18.—For construction of underground public conveniences on the Green, near Esplanade, Littlehampton. Mr. Arthur Shelley, clerk, Town Offices, Littlehampton.

LONDON.—Feb. 25.—For enlarging the buildings of the Technical Institute, Knight's Hill, Norwood. Messrs. Hart & Waterhouse, 1 Verulam Buildings, Gray's Inn.

LONDON.—March 3.—For construction of an underground convenience in Blomfield Street. Plans and specifications may be seen at the office of the Engineer, Guildhall.

LONDON.—March 10.—For erection of offices at Euston Road, N.W., for the Hearts of Oak Benefit Society. Mr. M. C. Meaby, Jessel Chambers, 88-90 Chancery Lane, W.C.

LOUGHBOROUGH.—Feb. 19.—For extensions and alterations at the Board School, East Leake. Messrs. Barrowcliff & Alcock, architects, Mill Street, Loughborough, Leics.

MANCHESTER.—Feb. 17.—For erection of a police-station and dwelling-houses in Trafford Park. Mr. Henry Littler, architect, County Offices, Preston.

MORPETH.—Feb. 16.—For work in connection with the new cattle market, comprising the erection of offices, iron-bar division fences, cement concreting, forming entrance to market-gates and fencing, &c.; also for the formation and paving of roads from Oldgate Street to the market. Mr. F. Brumell, town clerk, Town Hall, Morpeth.

NELSON.—Feb. 19.—For erection of disinfectant buildings at Reedyford, Nelson, Lancs. Mr. H. Ball, borough surveyor.

NORTHAMPTON.—Feb. 24.—For widening the West Bridge. Mr. Herbert Hankinson, town clerk, Guildhall, Northampton.

OKEHAMPTON.—Feb. 27.—For erection of a Wesleyan church and vestries at Okehampton, Devon. Mr. T. H. Chamings, architect, Okehampton, Devon.

OLDHAM.—Feb. 24.—For supply and erection of cooling towers, motor-driven centrifugal pumps, motors and switch-gear, pipework and overhead travelling crane, comprised in specification No. 10. Mr. Arthur Andrew, Gas and Water Offices, Oldham.

PEMBROKE DOCK.—Feb. 26.—For erection of a masonic hall at Pembroke Dock. Messrs. George Morgan & Son, architects, King Street, Carmarthen.

POLKERRIS.—Feb. 25.—For construction of a steel-framed lifeboat house, the alteration and extension of the existing masonry slip, &c., upon or near the foreshore in the harbour of Polkerris, near Par, Cornwall. Mr. Herbert E. Cooke, hon. secretary, Penellick, Par Station, R.S.O., Cornwall.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

SCOTLAND.—Feb. 16.—For constructing store reservoir on the Brox Burn and filters and tank, and laying and jointing cast-iron pipes and other accompanying works at the Bangour asylum waterworks. Messrs. J. & A. Leslie & Reid, engineers, 72A George Street, Edinburgh.

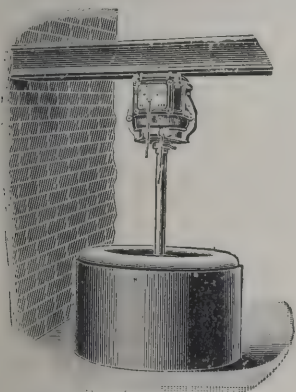
SCOTLAND.—Feb. 16.—For erection of a post office at Peebles, for the Commissioners of H.M. Works and Public Buildings. All information may be obtained at H.M. Office of Works, Edinburgh.

SCOTLAND.—Feb. 17.—For erection of proposed attendants' houses at Woodilee asylum, Lenzie, Glasgow. Mr. James R. Motion, clerk and treasurer, Parish Council Chambers, 266 George Street, Glasgow.

SCOTLAND.—Feb. 18.—For providing about 330 tons of dry-sand cast-iron pipes, from 18 inches to 10 inches diameter, for the Bangour Asylum Waterworks. Messrs. J. & A. Leslie & Reid, engineers, 72A George Street, Edinburgh.

SCOTLAND.—Feb. 20.—For erection of a drill shed at the Royal Naval Reserve Battery at Wick, Caithness, N.B. Particulars on application to the Director of Works Department, Admiralty, S.W.

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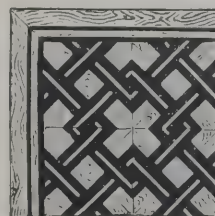
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SCOTLAND.—Feb. 24.—For erection of Boroughmuir Higher Grade school, Edinburgh. Mr. Carfrae, architect, 3 Queen Street, Edinburgh.

SCOTLAND.—Feb. 27.—For erection of a coastguard station at Uzon, near Montrose, in the county of Forfarshire, Scotland. Particulars may be seen at the Watchroom, Coast-guard Station, Montrose, or at the office of the Admiralty Clerk of Works, Maybank, Hunter Place, Broughty Ferry, Dundee.

SCOTLAND.—Feb. 28.—For erection of a dwelling-house on the farm of Wellhead, parish of Dyke, Forres. Mr. Peter Fulton, architect, Forres.

SILSDEN.—Feb. 23.—For construction of a complete gas-works. Mr. John Driver, clerk, U.D.C., Town Hall, Silsden.

SLAPTON.—Feb. 16.—For alterations to latrines and new drainage at the Board schools, Slapton, Devon. Mr. E. H. Back, architect, Victoria Road, Dartmouth.

SOUTHALL-NORWOOD.—Feb. 24.—For supply of granite, lime, aluminiferous, cement, disinfectants, brooms, tools, oils, flints, gravel, &c. Mr. Reginald Brown, surveyor, Public Offices, Norwood.

STALYBRIDGE.—Feb. 19.—For erection of the superstructure of the new electric power station at Stalybridge. Mr. Huon A. Matear, architect, The Temple, Dale Street, Liverpool.

SWANLEY.—Feb. 18.—For erection of a police station at Swanley, Kent. Mr. Charles Turner, clerk, Sessions House, Maidstone.

SUTTON-IN-ASHFIELD.—For alterations and additions to the town hall, Sutton-in-Ashfield. Mr. J. P. Adlington, architect, Sutton-in-Ashfield.

SWINDON.—Feb. 24.—For erection of offices, &c., at Swindon, for the Great Western Railway Co. Mr. G. K. Mills, secretary, Paddington Station, W.

TAUNTON.—March 25.—For erection of additional blocks for 300 patients, at the Cotford Asylum, near Taunton. Mr. J. Lodge, clerk to the committee, Cotford Asylum, Taunton.

TICEHURST.—Feb. 24.—For erection of an administrative building at the Ticehurst isolation hospital, and for additions to the hospital buildings and outbuildings, near the Ticehurst Union workhouse, at Flimwell, Ticehurst, Sussex. Mr. J. C. Lane Andrews, clerk, R.D.C., Ticehurst.

TOTTENHAM.—Feb. 17.—For erection of a boundary wall and iron fencing, gates, &c, wood fencing, lodge, convenience,

conservatory and greenhouses and other works at the Downhills Recreation Ground, Tottenham. Mr. W. H. Prescott, engineer, Tottenham.

WALES.—Feb. 16.—For additions and alterations to the Gilfach Fargoed Board school, near Bargoed. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—Feb. 21.—For erection of a free library at Buckley, Flint. Messrs. John H. Davies & Sons, architects, 14 Newgate Street, Chester.

WALES.—Feb. 21.—For erection of dwelling-house and business premises at Pontardawe. Mr. David J. Michael, architect, National Chambers, 97 Oxford Street, Swansea.

WALES.—Feb. 23.—For erection of sixty-six houses at Caerau, Maesteg. Mr. W. Y. Davies, architect, Talbot Road, Maesteg.

WALES.—Feb. 23.—For erection of two cottages near Ystradgynlais station. Mr. Daniel Thomas, Railway Terrace, Ystradgynlais.

WALES.—Feb. 26.—For a masonic hall at Pembroke Dock. Messrs. George Morgan & Son, architects, King Street, Carmarthen.

WALSALL.—Feb. 18.—For erection of a transformer station in Butts Road. Mr. John R. Cooper, town clerk, Walsall.

WELLINGBOROUGH.—Feb. 17.—For extension of a culvert under the Workhouse Road, and for supply and fixing of a continuous iron fence from the culvert towards the Mill House. Mr. J. T. Parker, clerk, U.D.C., 29 Church Street, Wellingborough.

WHEATLEY HILL.—Feb. 21.—For erection of seventy workmen's houses, for the Weardale Steel, Coal and Coke Co., Ltd., at Wheatley Hill Colliery, Durham. Particulars will be supplied by the Company, Thornley Colliery Office, Thornley, R.S.O.

WIMBLEDON.—March 3.—For erection of a central fire brigade station in Queen's Road, Wimbledon. Mr. C. H. Cooper, surveyor, Council Offices, The Broadway, Wimbledon.

WORKINGTON.—Feb. 18.—For alterations and additions to the West Cumberland steam laundry, Workington. Mr. Charles W. Eaglesfield, architect, Gordon Street, Workington.

YORK.—Feb. 16.—For sewerage, levelling, paving, metal, ling, channelling, &c, of all private streets required to be made up within the city of York during a period of twelve months. Mr. A. Creer, city engineer and surveyor, Guildhall, York.

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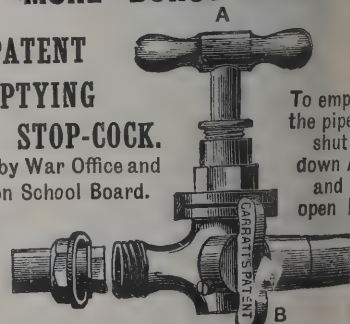
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ASHBY WOULDLS.

For an extension of water-mains in the Ashby Woulds Urban District Council. Mr. JAMES W. ROWLEY, surveyor, High Street, Woodville.
Warren & Stacey £292 6 9
A. HARVEY, Hill Street, Swadlincote, Burton-on-Trent (accepted) 285 14 6

BANBURY.

For supply and delivery of Hartshill stone within the borough for one year ending March 31, 1904. Mr. N. H. DAWSON, borough surveyor.
JEE'S HARTSHILL GRANITE AND BRICK Co., LTD., hand-picked stones, 7s. 9d. per ton; coarse chippings, 7s. 3d.; fine chippings, 7s. 3d.; granite dust, 7s. 3d.; 1½-inch machine-broken stone, 9s. 3d. (accepted).

BARNSELY.

For erection of stone boundary fence wall with piers, adjoining the cemetery. Mr. J. HENRY TAYLOR, borough surveyor.
HIGHAM & SON, Barnsley (accepted) £422 0 0
For erection of seven dwelling-houses and outworks in Grafton Street. Messrs. WADE & TURNER, architects, 10 Pitt Street, Barnsley.

Accepted tenders.

A. Smart, 11 Leopold Street, builder £948 10 0
J. Thornley, Shambles Street, joiner 305 0 0
J. Shaw, 215 Park Road, plasterer 99 0 0
M. Fleming, Eastgate, slater 78 10 0
F. W. Rogers, Church Street, plumber and glazier 49 0 0
C. Whitwell, Sheffield Road, painter 25 17 6

BARROW-IN-FURNESS.

For supply of tramway girder rails for electric traction. DICK, KERR & Co., London (accepted).

BLOFIELD.

For alterations to drains.
J. WRIGHT, Moulton (accepted) £60 8 6

BEXLEY HEATH.

For adaptation of the building known as Oak House, Broadway, Bexley Heath, for Council offices, and the erection of council chamber, waiting and cloak-rooms, &c. Mr. W. T. HAWSE, surveyor.
T. Pearce £3,931 0 0
A. J. Glock 3,079 11 2
F. Spencer & Son 2,475 0 0
G. F. Minter 2,375 0 0
G. W. Lucas 2,228 5 0
W. H. Smith 2,192 14 6
Ennis Bros. 1,988 2 3
J. LONSDALE, Swanley Junction (accepted) 1,960 0 0

BOLTON-LE-SANDS.

For alterations and additions at Hawkshead, Bolton-le-Sands, Mr. J. PARKINSON, architect, 67 Church Street, Lancaster.
Accepted tenders.
R. B. Wilson, Bolton-le-Sands, mason.
T. Pearson, Bolton-le-Sands, joiner.
Hall & Son, Lancaster, slater and plasterer.
Calvert & Heald, Lancaster, plumber.
H. Warbrick, Lancaster, painter.
Total, £1,078 4s.

BRIGHTON.

For erection of new schools, Portslade. Mr. E. H. LINGEN BARKER, architect, Hereford.
Drake £2,050 0 0
Huntley & Beck 1,979 0 0
Holland 1,904 10 6
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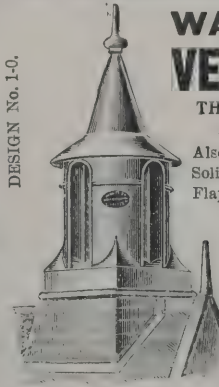
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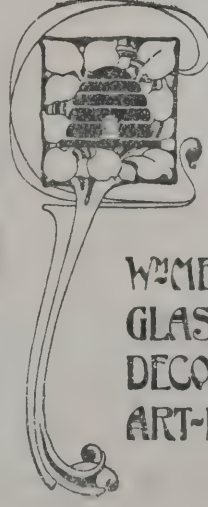
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Bridge No. 1.

Williams & Hoare	£5,042	14	9
F. Ashley	4,934	3	6
A. W. Cadwallader	4,873	13	6
Lattey & Co., Ltd.	4,763	18	9
J. Allen & Son	4,705	9	9
E. Turner & Sons	4,305	10	5
C. DAVIES, Cardiff (accepted)	4,035	11	9

Bridge No. 2.

F. Ashley	1,699	13	9
A. W. Cadwallader	1,676	6	5
Williams & Hoare	1,669	5	9
J. Allen & Son	1,676	7	7
Lattey & Co., Ltd.	1,592	0	0
C. Davies	1,499	0	10
E. TURNER & SONS, Cardiff (accepted)	1,481	3	3

CASTLEFORD.

For street works in Carlton Street, Castleford. Mr. W. GREEN, surveyor.

G. DYSON, Crownpoint, Balnford, Rochdale (accepted) £320 14 10

For carrying-out of works for the improvement of Duke Street, Castleford. Mr. W. GREEN, surveyor.

J. L. RODGER, Albion Street (accepted) £1,055 7 6

CHANDLERSFORD.

For partial reconstruction of Chandlersford Bridge, Hants. Mr. W. J. TAYLOR, The Castle, Winchester.

F. Osman	£310	0	0
Coston & Co.	299	0	0
WORT & WAY, Salisbury (accepted)	237	13	6

CHATHAM.

For erection of printing works at rear of 258 High Street, Chatham. Mr. R. LLEWELLYN HONEY, architect, 5 Gordon Terrace, Rochester.

J. A. Leonard	£560	0	0
J. L. Trueman & Son	525	0	0
F. G. Luff	515	0	0
G. B. SILVER, Chatham (accepted)	503	0	0

CHELMSFORD.

For street works in Wharf Road, Chelmsford. Mr. H. GLYNN WARNE, surveyor, Avenue Chambers, Market Road, Chelmsford.

F. Johnson	£460	0	0
D. H. Porter	459	0	0
Wilson, Border & Co.	402	0	0
J. Rayner	396	0	0
R. A. Bonnat & Co.	393	3	11
J. JACKSON, Forest Gate, E. (accepted)	320	0	0

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For redraining 37 to 63 Park Street, Cleethorpes, Lincs.

H. Bancroft	£52	19	6
J. ELKINS, 32 Garibaldi Street, Grimsby (accepted)	41	19	0

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Davey & Paxman, expansion engine	£1,359	0	0
Mather & Platt, supply and erection of a dynamo	850	0	0
Stanford & Co, cast-iron water-tank	142	0	0

For wiring and fittings for the electrical lighting of the Essex and Colchester Hospital.

R. Dawson & Co.	£172	0	0
J. A. Kuner	168	10	0
WHITTAKER BROS., Dudley (accepted)	168	10	0

DIDCOT.

For alterations and additions to the Board school at Didcot for the Didcot School Board. Messrs. HOARE & WHEELER, architects, Reading and London. Quantities by Messrs. H. COOPER & SON, 17 Friar Street, Reading.

W. Stokes & Son	£1,178	0	0
J. Smallbone	970	0	0
H. Bowden	949	6	0
G. King	944	12	0
J. Colborne	912	17	0
BOSHER & SON, Cholsey (accepted)	850	0	0

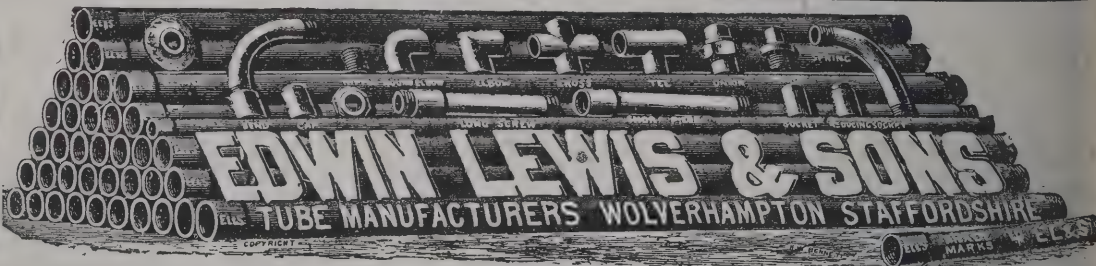
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St. Helens Cable Co.	4,067	0	0
British Insulated and Helsby Wires (1)	3,967	0	0
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R. W. BLACKWELL & Co, London (2) (accepted)	3,795	0	0
M. A. Shepstone & Co (2)	3,725	0	0
R. W. Blackwell & Co. (3)	3,656	0	0
British Electric Equipment Co.	3,641	0	0
R. W. Blackwell & Co. (4)	3,614	0	0
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DURHAM.

For supply of a disinfecter for isolation hospital, Tanfield. Mr. G. T. WILSON, architect.
WALKER & SONS (accepted) . . . £178 0 0

For sewerage works and the construction of sewage tanks and bacteria beds, and the levelling, laying-out and fencing of 4½ acres of land for sewage-disposal purposes at Ushaw Moor, Broom. Mr. GEO. GREGSON, surveyor.

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G. T. Manners	3,780	0	0
R. Oliver	3,495	13	9
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For erection of vagrant wards and union offices. ESLEY & CO, LTD. (accepted) . . . £3,774 0 0

FULHAM.

For supply, delivery and erection of the following plant:— (Contract No. 9) two electric passenger lifts.

J. G. Childs & Co., Ltd.	£820	0	0
B & S. Folding Gate Co., Ltd.	810	0	0
British and Electric Plant Co., Ltd.	695	5	0
Waygood & Otis, Ltd.	670	0	0
Sunderland Forge and Engineering Co., Ltd.	668	0	0
Easton & Co., Ltd.	662	0	0
Sunderland Forge and Engineering Co., Ltd.	648	0	0
C. & A. Musker (1901), Ltd.	640	0	0
C. Bell	620	0	0
Moffat & Eastmead, Ltd.	594	0	0
Clarke, Bennet & Co., Ltd.	583	0	0
Safety Lift & Elevator Co.	530	0	0
J. Richmond & Co., Ltd.	530	0	0
A. W. Penrose & Co.	500	0	0
TURNER, ATHERTON & Co. (accepted)	470	0	0

GILSLAND.

For making a boring 6 inches diameter and 300 feet deep at West Nichol, Gilsland, Northumberland. Mr. HARRY W. TAYLOR, engineer, St. Nicholas Chambers, Newcastle-on-Tyne.

Tilley & Son	£731	12	0
F. Coulson	518	2	9
Aqueous Boring Co.	461	5	0
Le Grand & Sutcliffe	451	0	0
R. Henderson	444	11	10
Isler & Co.	375	0	0
J. Thom, Patricroft *	301	12	8

* Recommended for acceptance.

GLOUCESTER.

For reconstruction of the Sudbrook culvert under the Midland Railway Company's goods yard, High Orchard. Mr. R. READ, city surveyor.

Smith & Co.	£7,826	9	4
E. Nuttall	7,189	4	1
J. Riley	7,051	4	3
A. Kellett & Sons	6,799	5	7
S. Wood	6,008	3	6
J. Barnes	5,915	0	0
Cruwys & Hobrough	5,760	18	10
Johnson & Langley	4,964	3	1
J. BYARD & SONS, Gloucester (accepted).	4,880	0	0

Prevents Dry Rot, Fungus, Decay, &c. **Solignum** and is a pleasing Stain.

Enquiries Solicited. **Wood Preservative.** Enquiries Solicited.

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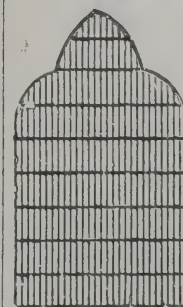
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CLOSET PANS AND TRAPS.

Works: MOIRA, ASHBY-DE-LA-ZOUCH.

Telegrams, "Haywood, Moira"

National Telephone, No. 17. Swadlincote.

HALIFAX.

For erection of a pair of dwelling-houses on the Albert Promenade. Mr. LISTER COATES, architect, Yorkshire Bank Chambers, Waterhouse Street, Halifax.

Amended tenders accepted.

T. Pickles, Luddenden Foot, mason and excavator	£780	7	10
Fielding & Bottomley, South Parade, carpenter and joiner	350	0	0
E. Heighington, New Road, plumber and glazier	138	0	0
Rushworth & Firth, New Bank, slater, plasterer and concreter	178	0	0
Moss Bros., Commercial Street, painter	20	10	0

HAMMERSMITH.

For supplying and laying a length of about 512 yards of 1½-inch lead water-main, with stand-posts, &c. (exclusive of excavation), at the borough cemetery, Margravine Road. Mr. MAIR, borough surveyor.

G. Bradshaw	£150	0	0
R. Goodman & Sons	128	9	10
C. Yates	119	16	3
Gardner & Hazell	106	6	6
W. Whatley	103	15	0
J. Peattie	101	6	0
Hall & Son	101	0	0
F. W. Staniland	99	13	6
S. G. Crook	98	18	0
G. Rayworth	98	6	0
C. H. Cook	91	7	0
J. Barker & Co.	91	4	6
Blake & Buckle	88	8	0
W. R. Walmer	87	10	0
H. Byron	87	6	10
C. R. Price	87	0	0
W. Weller	84	14	6
Handover & Gascoigne	84	11	0
G. Jennings	81	9	7
C. Harris	78	13	0
E. Doggett	74	5	0
A. C. HEYWOOD, 44A Bridge Street, W. (accepted).	71	17	0
C. Johnson	26	6	0

HAMPTON.

For erection of a detached house in the Acacia Road, Hampton, Middlesex. Mr. FREDK. G. HUGHES, architect, Marling Park, Hampton-on-Thames.

J. Wright & Sons, Hampton	£998	10	0
M. G. King, Teddington	885	10	0
J. Trench, Hampton	853	0	0
E. Potterton, East Molesey	795	0	0
J. Singleton & Sons, Hampton Hill	784	0	0
D. Judd, Kingston Hill	780	0	0
L. Redgrave, Hampton Hill	760	0	0
J. Hebblethwaite, Twickenham	661	16	5

No tender yet accepted.

HASLEMERE.

For erection of a school to accommodate 120 children at Camelsdale, Shottermill, Fernhurst. Mr. J. H. HOWARD, architect, Lower Street, Haslemere.

B. Slade & Son	£1,600	0	0
Chapman & Lowey	1,470	0	0
G. Gardiner	1,427	5	0
J. W. Humphreys	1,340	0	0
F. Milton	1,296	0	0
Haslemere Builders, Ltd.	1,257	0	0
A. Longhurst	1,167	0	0
W. HARDING, Shottermill (accepted)	1,115	0	0
J. Marshall	1,112	0	0

HUDDERSFIELD.

For erection of a new Wesleyan church at Longwood. Mr. J. BERRY, architect, 3 Market Place, Huddersfield.

Accepted tenders.

T. Bottomley & Son, mason.
Wood Bros., joiner.
J. H. Taylor & Co, plumber.
J. H. Robinson & Son, plasterer.
A. Wrigley, painter.
T. Allison, Ltd., slater.
Calvert & Co., iron pillars.
T. Armitage, electric light.

G. B. N. SNEWIN & SONS, LTD. MAHOGANY, WAINSCOT, AND TIMBER MERCHANTS, BACK HILL, HATTON GARDEN; & RAY ST., FARRINGTON ROAD
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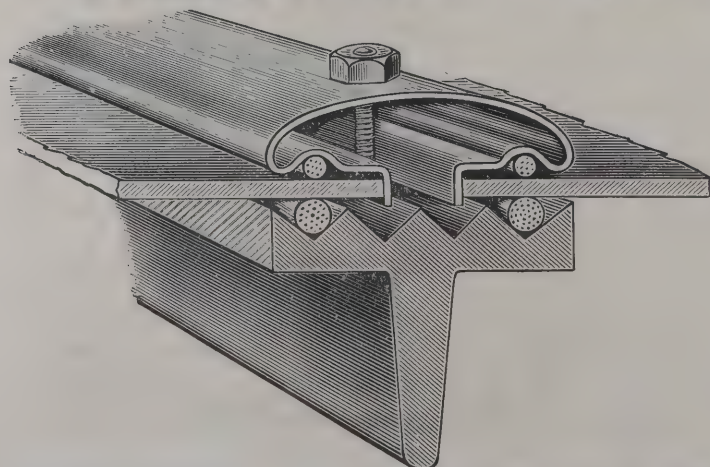
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For Index of Advertisers, see page x.



HENLEY-ON-THAMES.

For sewerage works in Watlington for the purposes of the main drainage of the district. Messrs. JOHN TAYLOR, SONS & SANTO CRIMP, engineers, 27 Great George Street, Westminster.

E. Hes, jun	£3,060	0	0
C. Ford	3,048	0	0
F. W. Trimm	2,957	0	0
W. Lutson	2,926	0	0
A. G. Osenton	2,872	0	0
Collier & Catley	2,704	1	8
T. Free & Co.	2,629	0	0
T. Free & Sons	2,558	0	0
G. Bell	2,460	0	0
Johnson & Langley	2,372	0	0
W. Mander	2,344	5	0
Streeters & Todhunter	2,316	9	11
H. Roberts	2,294	10	0
Reed Bros.	2,113	4	0
G. R. MANN, High Street, Edgware (accepted)	2,030	5	9
S. Wood	1,798	0	6

IPSWICH.

For additions to workshops at St. John's Home Mr. HENRY J. WRIGHT, architect, 4 Museum Street, Ipswich.

C. A. Green	£186	0	0
Cooper & Haward	165	10	0
H. Skerritt	157	10	8
T. Frost	155	0	0
V. A. Marriott	155	0	0
R. G. Seaman	154	10	0
M. Death	153	0	0
W. H. Death	144	0	0
W. H. Bloomfield	140	0	0
G. Thwaites	134	0	0
E. Scott	129	10	0
C. STEARN & Co, Ipswich (accepted)	126	10	0

IRELAND.

For alterations in the infirmary of the workhouse, Downpatrick.

W. Veill	£192	0	0
R. & J. McDonald	190	0	0
J. DICKSON, Belfast (accepted)	168	0	0

IRELAND—continued.

For erection of a medical officer's residence, dispensary and out-offices in the town of Blessington, including the formation of yard, the construction of drains, the erection of yard wall, entrance and side gates, closets, baths, lavatory basins, &c., and providing hot and cold-water supply for the premises.

J. TAYLOR, Brannockstown, Kilkullen (accepted) £1,185 10 0

For supply and erection of two ovens of retorts on the regenerative principle, complete with all bench and retort ironwork.

F. C. SUGDEN & CO., 22 East Parade, Leeds (accepted) £595 0 0

Note.—Tenders ranged from £430 to £790.

KIRKBY-IN-ASHFIELD.

For further extension of the main sewer in Cemetery Road for a distance of 264 yards. Mr. WM. DODSLEY, surveyor, 14 Stockwell Gate, Mansfield.

W. Baines £247 0 0

J. TOMLINSON, South Normanton, near Alfreton (accepted) 240 0 0

LEEDS.

For street works on the Ivy House estate, York Road, Leeds. W. CLAYTON, Theakes Lane, Armley, Leeds (accepted).

LONDON SCHOOL BOARD.

For providing inside w.c.'s for staff of girls and infants' departments, and channels under boys and girls' lavatory ranges; altering weir of latrines of boys, girls and infants' offices; providing additional asphalt dado and sparge pipes to urinals and access to rain-water pipes, and trapping sink to schoolkeeper's house, &c, Cobourg Road.

H. Line	+ 10 per cent. on schedule prices
Unsigned	£497 0 0
J. W. Falkner & Sons	437 0 0
Johnson & Co.	319 0 0
W. Downs	279 0 0
W. V. Goad	258 0 0
Maxwell Bros., Ltd.	250 0 0
E. Proctor	240 0 0
Rice & Son	239 0 0

* Recommended for acceptance.

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6 HOLYWELL ROW, FINSBURY,
LONDON, E.C.
NEW CATALOGUE FREE ON APPLICATION.

LONDON SCHOOL BOARD—continued.

For divisional offices, St. John's Hill site.

Holloway Bros., Ltd.	£6,243	0	0
E. Lawrance & Sons	6,230	0	0
W. Smith & Sons	6,098	0	0
Lathey Bros.	6,061	0	0
Hudson Bros.	6,033	0	0
Rice & Son	5,999	0	0
E. P. Bulled & Co.	5,957	0	0
F. & H. F. Higgs	5,942	0	0
E. Triggs	5,846	0	0
J. & M. Patrick	5,779	0	0
Stimpson & Co.	5,770	0	0
W. Johnson & Co., Ltd.	5,620	0	0
W. H. Lorden & Son	5,432	0	0
J. Garrett & Son	5,424	0	0
John Appleby & Sons *	5,414	0	0

For manual training centre for forty children, with waterclosets and urinal, Berger Road.

J. Grover & Son	£1,454	0	0
J. Allen & Sons, Ltd.	1,439	0	0
Marchant & Hirst	1,407	0	0
W. Gregar & Son	1,391	0	0
W. Shurmur & Sons, Ltd.	1,386	0	0
Clarke & Bracey	1,340	0	0
E. Lawrance & Sons	1,335	0	0
F. Bull	1,308	0	0
Patman & Fotheringham, Ltd.	1,290	0	0
Treasure & Son	1,246	0	0
W. M. Dabbs	1,221	0	0
J. Outhwaite & Son	1,205	0	0
J. Willmott & Sons	1,168	0	0
Lathey Bros.*	1,153	0	0

For providing and fixing complete low-pressure hot-water apparatus to three halls, eighteen classrooms, cloak-rooms corridors and lavatories (boys, girls and infants), Lucas Street.

G. Davis	£656	0	0
J. Grundy	626	0	0
Comyn Ching & Co.	579	0	0
Werner, Pfeiderer & Perkins, Ltd.	524	19	0
B. Harlow & Son	475	0	0
Brightside Foundry & Engineering Co., Ltd.	469	0	0
W. G. Cannon & Sons *	449	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For special school (mentally defective), four classrooms of twenty each, and enclosing, draining and tar-paving the additional land, Ancona Road.

J. Garrett & Son	£4,451	0	0
F. & H. F. Higgs	4,416	0	0
Holliday & Greenwood, Ltd.	4,318	0	0
W. Johnson & Co., Ltd.	4,296	0	0
E. Lawrance & Sons	4,296	0	0
Treasure & Son	4,242	0	0
E. P. Bulled & Co.	4,207	0	0
Stimpson & Co.	4,200	0	0
Rice & Son	4,199	0	0
Thomas & Edge	4,197	0	0
T. D. Leng	4,174	0	0
J. Smith & Sons, Ltd.	4,061	0	0
J. & C. Bowyer	4,055	0	0
J. & M. Patrick	4,049	0	0
J. Marsland & Sons	3,966	0	0
John Appleby & Sons*	3,869	0	0

For refitting boys and infants' offices; providing sparge pipes and automatic tanks to urinals; rebuilding girls' offices further away from school building and refitting girls' P.T. offices on roof; refitting existing lavatories where at present provided with tip-up basins, and substituting glazed open channels for the present horizontal wastes; providing teachers' lavatories; office and urinal accommodation for the male pupil teachers and part new drainage scheme, Essex Street.

G. Parker	£3,600	0	0
J. T. Robey	3,315	0	0
Marchant & Hirst	3,245	0	0
R. P. Beattie	3,186	0	0
J. Willmott & Sons	3,166	0	0
E. Lawrance & Sons	3,152	0	0
Durbin & Katesmark	3,053	0	0
G. S. S. Williams & Son	3,035	0	0
J. W. Falkner & Sons	3,015	0	0
Johnson & Co.*	2,931	0	0

* Recommended for acceptance.

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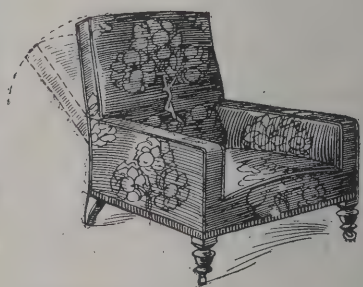
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FURNITURE,
UPHOLSTERY,
and CARPETS;
CHINA, GLASS,
CURTAINS, &c.**

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212 & 204 TOTTENHAM COURT ROAD, LONDON, W.



Adjustable-back Easy Chair, full size, well upholstered and covered in Tapestry, 50/-



Grandsire Easy Chair, full size, well upholstered and covered in Rich Tapestry, 55/-

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BUTCHERS' HALL, EASTCHEAP, E.C.

CATHEDRAL SERIES: WORCESTER. LOOKING NORTH-WEST ACROSS THE NAVE.

LONDON.

For engineering works at the Western Hospital.			
Brightside Foundry and Engineering Com-			
pany, Ltd.	£1,288	0	0
Blake & Knowles Steam Pump Works, Ltd.	915	0	0
Foster Bros, Ltd.	825	0	0
W. J. Fraser & Co.	795	0	0
Aiton & Co.	664	10	0
J. & F. May	650	0	0
Wenham & Waters, Ltd.	586	0	0
MATHER & PLATT, LTD., Park Works, Man-			
chester (accepted)	528	10	0
G. & E. Bradley	455	0	0
Lancashire Heating Company	447	0	0

For new blinds to three blocks and parts of the administrative portion of the infirmary at East Dulwich Grove, S E.
J. DEAN, 339 Putney Bridge Road, S W. (accepted) £87 0 0

For alterations and additions to the United Friends public-house, Wellington Street, Deptford, for Mr. C. Conlay.
Mr. JOHN JAS. DOWNES, architect, 199 Lewisham High Road, S.E.
W. Martin £1,460 0 0
Hall Bros. 1,390 0 0
S. R. Best. 1,285 0 0
W. O. COLLINGWOOD, Brockley (accepted) 1,140 0 0

MALVERN.

For erection of the Livingstone Memorial church and parish room, Malvern Link. Mr. W. J. TAPPER, architect, Gray's Inn, W C.
STEPHENS, BASTOW & Co., Bristol (accepted) £8,250 0 0

MANCHESTER.

For painting and decorating (inside and out) Wesleyan church, Hooley Hill.			
G S. Smith	£180	0	0
S Kendle	171	19	0
G S. Lowe	160	0	0
J. Edmondson	145	0	0
Kendle, Milne & Co.	148	12	0
R. Bennett	145	10	0
A. W. Richardson	140	0	0
J. SIMPSON, Market Street, Droylsden (accepted)	137	1	0
F. Sednells	132	18	4
Penny & Co.	118	0	0
Brindley & Worthington	95	0	0
L. Hindes	70	0	0

MIDDLETON.

For erection of post office and tenement offices in Long Street and Sadler Street, Middleton, Lancashire. Messrs. STONES & STONES, architects, 10 Richmond Terrace, Blackburn.			
J. Cronshaw	£3,960	0	0
Garforth Bros.	3,887	0	0
J. Sharples	3,835	0	0
D. Diggle	3,777	0	0
J. Fowles & Sons	3,750	0	0
G. W. Dawson	3,733	0	0
E. Lewis & Sons	3,700	0	0
R. Ridings	3,566	0	0
Ogden & Holland	3,511	0	0
Grundy, Sons & Co.	3,430	0	0
W. & H. Thorpe	3,425	0	0
R. Partington & Sons	3,380	0	0
J. Partington	3,370	0	0
T. Jackson & Sons	3,324	0	0
W. A. PETERS & SONS, Crossfield, Rochdale (accepted)	3,268	0	0

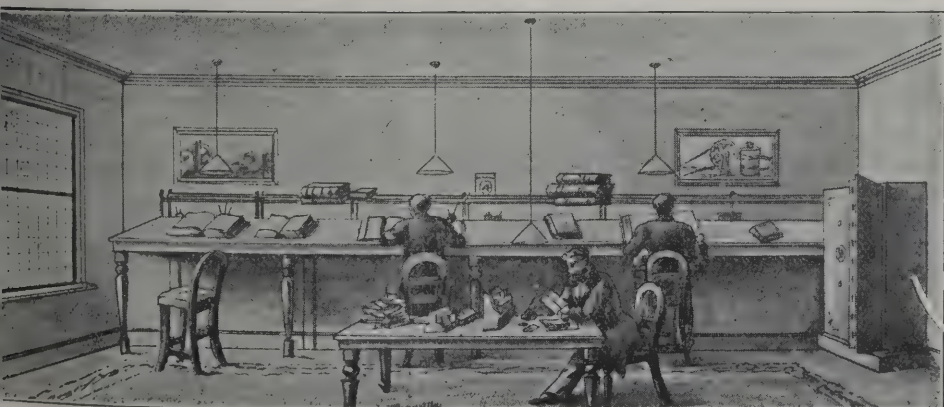
MILTON-NEXT-SITTINGBOURNE.

For construction of certain waterworks, including a pumping-station and wells, on Stockers Hill, pipe-laying and other work.			
KEMP BROS., Rainham, Kent (accepted)	£11,127	0	0

WILSON'S PATENT "MULTILUX" WINDOWS



The above illustrates an office where the light coming from the sky falls on to the floor and is absorbed, thus leaving the back part of the room dark. The illustration below shows the same room with WILSON'S PATENT MULTILUX WINDOW fixed. This refracts the rays of light and throws them horizontally, thus preventing them falling on to the floor, and lighting up the whole room.



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5/- per foot super.

Wilson's Patent
"SAFETY" Pavement
Lights prevent slipping

Wilson's "DIOPTRIC"
Pavement Lights are
an improvement on
the semi-prism at the
same price.

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GIRDERS, AND ALL ARCHI-
TECTURAL CASTINGS.

WILSON & CO.
24 HARRISON STREET,
GRAY'S INN ROAD,
LONDON, E.C.

MARSDEN.

For erection of three dwelling-houses, cart-shed and stables at Wood Bottom, Marsden, Yorks. Mr. JOHN E. LUNN, architect, Milnsbridge.			
E. Eagland & Sons, mason	£706	6	0
F. Lawton, joiner	225	0	0
J. & J. Bottomley, plasterer, painter and concreter	114	0	0
Pickles Bros., slater	63	0	0
T. Firth, plumber	60	0	0
Wright & Son, steelfounder	32	19	6
T. Kilburn, cast-ironfounder and stable fitter	10	6	0

NEWCASTLE-ON-TYNE.

For electrification of about 37 miles of double track, near Newcastle-upon-Tyne, for the North-Eastern Railway Company

Accepted tenders.

British Thomson-Houston Co., Ltd., electrical equipment of motor coaches and trailer coaches on the multiple-unit system, and the laying of the third rail, bonding and low-tension feeders.

British Westinghouse Electric and Manufacturing Co., Ltd., supply and erection of high and low-tension switchboards, rotary converters, static transformers and all sub-station equipments.

For supply of electrical plant.

*Accepted tenders.**Four boilers.*

T. Beeley & Son	£2,810	0	0
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Twelve superheaters.

Cruse, Manchester	3,090	0	0
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Pumping plant.

Mather & Platt.

For erection of the masonry of a new bridge at North Farm Ford, Long Benton. Mr. JOHN WATERS, district surveyor.

J. Olliver & Son	£385	0	0
G. Bailey	350	0	0
W. J. Weir	345	0	0
R. Whitfield, jun.	341	3	0
J. Thompson	330	0	0
W. Moore	292	0	0
W. H. AVTON, Heaton, Newcastle-on-Tyne (accepted)	273	1	0

NEW FERRY.

For sewage and street works in Beaconsfield Road, New Ferry.			
Hough	£2,049	6	7
Young	1,850	0	0
Exors. of W. F. Chadwick	1,736	17	11
Ireland	1,666	12	9
Lawrence, Marr & Son	1,620	0	0
Ellis	1,600	0	0
Warren	1,543	10	5
J. BARNES, Lower Bebington (accepted)	1,325	0	0

PORTSLADE-BY-SEA.

For street improvement works. Mr. A. TAYLOR ALLEN, surveyor. Quantities by the surveyor.

W. Hillman	£3,286	5	4
Pedrette & Co.	3,226	14	5
H. A. Chambers	3,206	14	9
Parsons & Sons	3,021	0	0
E. H. King	3,011	4	9
J. & T. Binns	2,899	13	6
W. A. MCKELLAR, Hove (accepted)	2,882	18	10

PRESTON.

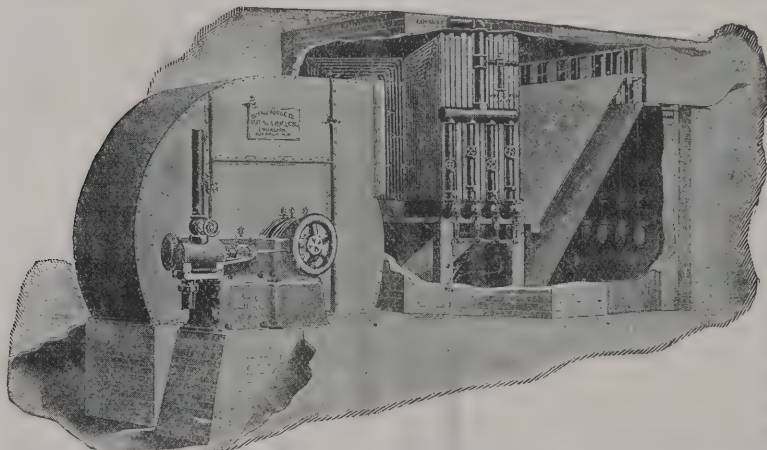
For street works in the back roads between Skeffington Road South and Caroline Street South.

G. CHADWICK, 384 St. George's Road (accepted)	£173	1	4
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SCOTLAND.

For supply of about 30 tons of cast-iron piping, 3 inches 2½ inches and 2 inches, and other castings in connection with water supply for the village of Kyleakin, Skye. Mr. JAS. A. H. MACKENZIE, surveyor, Portree.

Biggs, Wall & Co.	£293	4	0
Glenfield & Kennedy	283	15	6
Macfarlane, Strang & Co.	283	9	9
R. Laidlaw & Son	273	7	9
J. C. McEwen & Co.	269	7	6
R. MacLaren & Co.	268	5	7
J. Blakeborough & Sons	253	4	4
WATSON, GOW & Co., Glasgow (accepted)	232	4	3
A. & J. Stewart & Menzies	225	10	10

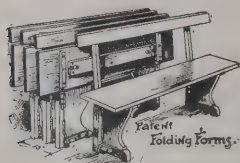


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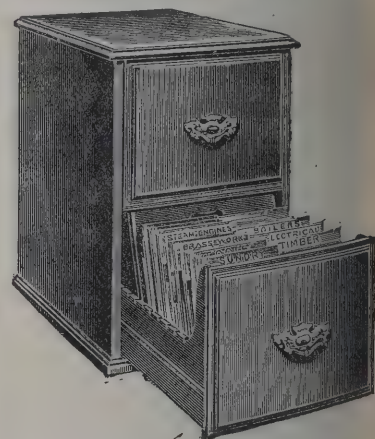
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Accepted tenders.

8) British Insulated and Helsby Cables, Ltd, Prescott, Lancs, Section A, and W. T. Glover & Co., Ltd, Trafford Park, Manchester, Section B; (9) Witting Bros., Ltd, 49 Cannon Street, E.C, Sections A and B.

STOURBRIDGE.

laying-out about 3¼ acres of land for the purpose of a recreation ground, underdraining, (1) construction of walks, pond, levelling and returfing, &c.; (2) wrought-iron gates, and alterations to existing fencing; (3) erection of water-closets, &c. Mr. FREDERICK WOODWARD, surveyor.

Section No. 1.	
G. Law	£688 0 0
. Roberts	682 16 4
W. Thompson	681 15 0
. Barnes	596 5 1
. Mackay	593 4 10
F. Vale	570 6 9
A. H. Guest	518 0 0
R. W. Fitzmaurice & Co.	491 19 9
. GUEST & SON, Brettel Lane (accepted)	374 9 3

Section No. 2.	
Raybould & Co.	80 5 6
Hill & Smith	79 15 0
Dudley Art Metal Co.	74 15 0
Elwell & Co.	72 11 9
WARD & CO, Foster Street, Stourbridge (accepted)	70 15 6

Section No. 3.	
W. Young	55 17 0
A. H. Guest	39 10 0
. GUEST & SONS, Stourbridge (accepted)	36 0 0
G. Garbett	35 10 0
A. Simmonds	33 15 0

SOUTHEND-ON-SEA.

For alterations and repairs to the machinery at the sea-water pumping station, Marine Parade. Mr. E. J. ELFORD, borough engineer.

Croxon	£200 0 0
S. Smith & Co.	181 0 0
J. & W. Whittingham	180 0 0
SANDFORD & CO. Gravesend (accepted)	137 10 0

STEPNEY.

For supply of a dynamo and fittings.

Dick, Kerr & Co *	£4,188 0 0
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* Recommended for acceptance.

SUTTON COLDFIELD.

For erection of public conveniences between the parade and the lower parade.

W. H. JAMES (accepted)	£589 0 0
------------------------	----------

SWINDON.

For the supply and delivery of a 6-ton traction waggon.

WANTAGE ENGINEERING Co., Wantage (accepted)	£75 0 0
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TUNBRIDGE WELLS.

For painting, decorating, &c., at the borough sanatorium Benhall Mill Road. Mr. W. H. MAXWELL, borough surveyor.

E. A. Smith	£128 15 6
Benoy & Son	121 0 0
C. Goddard	117 17 0
J. JARVIS & SON, Vale Road (accepted)	117 0 0

WALES.

For alterations and additions to Glanadda infants' school, Bangor. Mr. HAROLD HUGHES, architect, Bangor.

H. & J. Williams	£1,851 0 0
H. Edwards	1,745 0 0
Roberts & Owen	1,692 0 0
Humphreys & Jones	1,621 0 0
W. Jones	1,598 0 0
R. & J. Williams	1,595 0 c
JONES & WILLIAMS, Bangor (accepted)	1,586 0 0

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WALES—continued.

For alterations and additions to Old Siloh chapel, Pentre, Rhondda Valley. Mr. W. D. MORGAN, architect, Victoria Chambers, Pentre, Glam.

A. RICHARDS, Pentre, Glam (accepted) . . . £960 0 0

For erection of a school at Rhiwfawr, Cwmlllynfell, Upper Cwmtwrch. Mr. J. D. REES, architect, Ystalyfera.

Evans & Davies . . . £2,075 10 0

J. R. Williams . . . 2,065 0 0

ROBERTS & EVANS, Brynamman, R.S.O. (accepted) . . . 1,970 0 0

For erection of two shops at Evanstown, Gilfach Goch, near Bridgend. Mr. J. MORRIS WILLIAMS, architect, Blackmill, Bridgend.

C. H. Cooksley . . . £2,220 0 0

J. Cox . . . 1,518 0 0

P. GAYLARD, Bridgend (accepted) . . . 1,422 0 0

WEST HARTLEPOOL.

For street works in Seaton Road, from Newburn Bridge to north end of Staincliffe, and east side Front Street from above point to Station Lane. Mr. J. W. BROWN, borough engineer.

B. C. LAYCOCK, West Hartlepool (accepted).

For construction of road forming approach to the Burn Valley Gardens from Elwick Road.

G. PICKERING, West Hartlepool (accepted).

WILLENHALL.

For laying of about 1,400 yards of York kerbing and sett channelling on the Bilston main road, Willenhall, Staffs. Mr. T. EDGAR FELLOWS, surveyor.

J. Atkins . . . £588 6 8

R. W. Fitzmaurice & Co, Ltd. . . . 500 16 8

W. H. Reading . . . 465 16 8

H. Holloway . . . 448 6 8

Currall, Lewis & Martin . . . 439 13 4

J. OWENS, Skinner Street, Wolverhampton (accepted) . . . 439 10 0

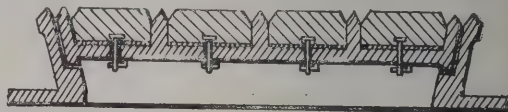
WOLVERHAMPTON.

For making roads through the new workhouse grounds at New Cross.

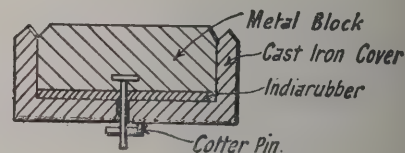
H. HOLLOWAY, Wolverhampton (accepted) . £8,735 0 0

THE "CARLTON" PATENT NON-SLIPPING MANHOLE COVER.

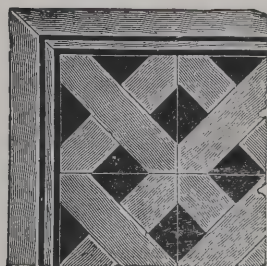
THE "Carlton" is the name given to a new manhole cover which is being introduced by the Carlton Iron Foundry Company. It has been designed with a view to obviating the nuisance to borough surveyors and councils of having so frequently to renew the wood blocks in the roadway covers. As a glance at the sketch will show, in place of the wood blocks specially hardened metal blocks are inserted, and in order that there may be little or no concussion when struck by horses'



— Section of Manhole Cover —
— showing Metal Blocks. —



hoofs, a sheet of india-rubber is inserted between the metal blocks and the casting. They certainly should be more sanitary than wood blocks, and of course much more durable. To prevent the metal blocks from being tampered with they are fastened underneath with a special eye-bolt and pin, and while quite secure, they can be easily taken out if required.



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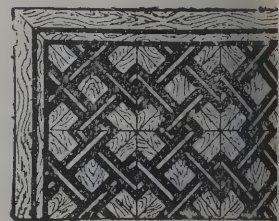
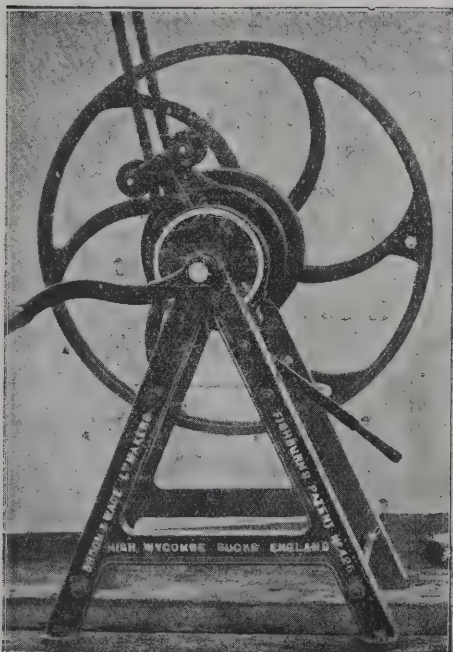
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17½" x 3" x 1½" ditto, 6s. 10d. per 100.

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1 x 4½" ditto at 19s. 6d. "

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NEW CATALOGUES.

MR. W. E. FARRER, of 36 Cannon Street, Birmingham (late Farrer, Barber & Co.), is sending out a new and very complete and up-to-date catalogue of sewerage ironwork and appliances. The sketches, of which there are over a hundred, are carefully drawn and admirably reproduced, and prices and all other necessary information are fully given. We may remind our readers that we had occasion to refer at some length to Mr. Farrer's sanitary specialties in our report of the recent Sanitary Congress at Manchester, where he was the recipient of several medals.

MESSRS. STONES & GUNBY, of South Yorkshire Brass Works, Rotherham, have sent us their new illustrated and priced catalogue of water, steam and gas fittings, cast-iron flushing cisterns, lavatory stands and baths. It is excellently and attractively got up and replete with information relating to the goods in question, the types of which are illustrated in great variety.

TRADE NOTES.

THE new model school, Queen's College, Cork, is being warmed and ventilated by means of Shorland's patent Manchester grates by Messrs. E. H. Shorland & Brother, of Manchester.

COMBE FLOREY rectory, near Taunton, has recently been fitted with the well-known "small tube" hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, employing their latest improved economical coil-heater with waterway firebars.

THE Congregational body are going to erect a new illuminated striking clock in their church facing the Market Square, Reeth, near Richmond, Yorks, to celebrate the coronation of Their Majesties the King and Queen. Messrs. Wm. Potts & Son, clock manufacturers, of Leeds and Newcastle, have it in hand, to be completed by an early date.

THE Coronation celebration committee have just given an order to Messrs. John Smith & Sons, Midland Clock Works, Derby, for a large striking turret clock, which is to form at Colnbrook, near Windsor, a permanent memorial of the Coronation. The same firm made the large Diamond Jubilee tower clock at Maidenhead, and the Jubilee Memorial clock at Gravesend.

MESSRS. W. B. WILKINSON & CO., LTD., of 1 Victoria Street S.W., are at present laying their granite concrete pavings on the whole of the six floors of the Army and Navy Auxiliary Co-operative Society's new factory, Rochester Row, Westminster, under the instructions of Mr. John Darch, the Society's architect. The work is being done at a very rapid rate, about 1,000 yards per week.

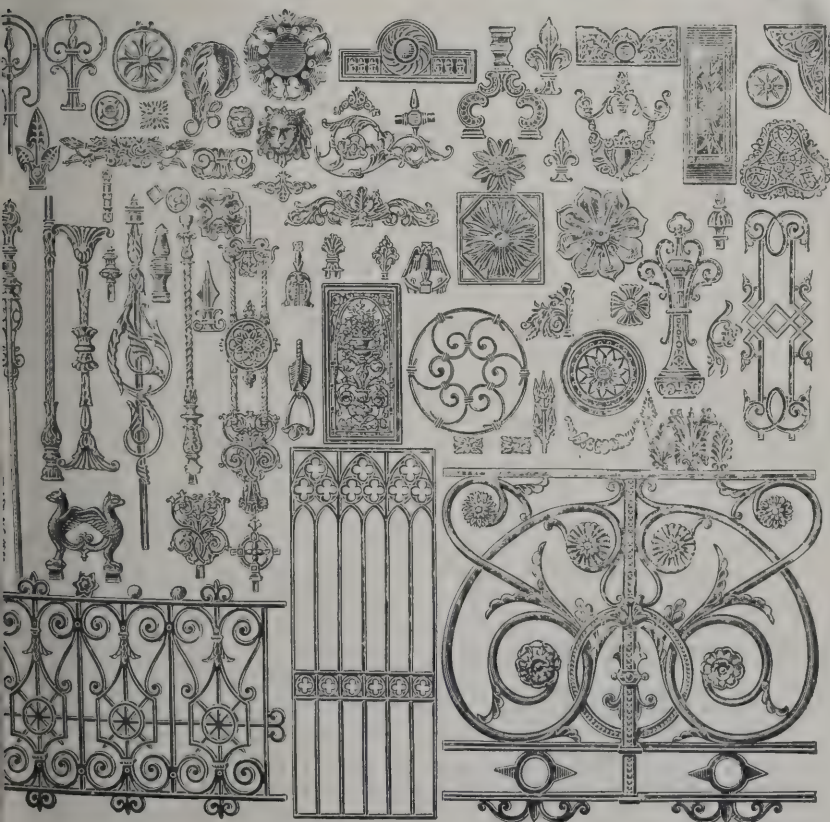
THE tenders of the Columbian Fireproofing Company, Ltd., 37 King William Street, E.C., have been accepted for the fireproof floors at the new electric generating station in Beech Street, Barbican, for the Charing Cross and Strand Electricity Corporation, Ltd., Mr. W. E. Clifton, F.R.I.B.A., F.S.I., being the architect, and Messrs. Lawrance & Sons the builders; and for the fireproof roofs at the Metropolitan Cold Storage Company's premises in Charterhouse Street, E.C., of which the architect is Mr. C. Stanley Peach, F.R.I.B.A., and Messrs. L. Whitehead & Sons are the builders.

IDEAS IN COLOUR.

A BOOK of specimens of colour-printing, with the above title, has been issued by Messrs. Spottiswoode & Co., Ltd. In it there are examples which will suggest the various styles which have gained approval. Some designed by Mr. Tom Brown are remarkable for breadth of effect, which can be produced without many printings. In an opposite style is the elaborate copy of a painting by Mr. A. H. Tourrier. There are also plates which are most suggestive, although depending mainly on shadowing. As a contrast there are examples of detailed work, which many manufacturers prefer. Many of the plates would, for vigour of colour, hold their own beside oleographs. It is satisfactory to find so much good taste and inventive power employed in the service of trade, for in not one instance is there exaggeration or vulgarity.

THE first step in connection with the fitting with electricity of all naval establishments is being made with the naval asylum near Yarmouth, tenders having been invited for the electric lighting, &c., of this place. Following this will come extensive contracts for electric stations at all the dockyards. The estimated cost of the work is about 1,500,000*l.* sterling, and it is to be provided for under the Naval Works Vote, not by special vote or under the ordinary Navy estimates.

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WRITE FOR QUOTATIONS.

VALUATION OF OXFORD COLLEGES.

THE rating appeals have now been settled, and the result is shown in the following table. The first nine were settled by the Recorder, and the last two by agreement :—

College.	Rateable Values.			
	A. £	B. £	C. £	D. £
Keble	3,537	3,183	2,327	2,580
Magdalen	5,260	4,734	3,062	3,431
Balliol	2,997	2,698	2,273	2,443
Jesus	2,231	2,008	1,062	1,152
Queen's	3,346	3,011	2,262	2,312
St. John's	3,055	2,750	2,042	2,127
Trinity	2,685	2,417	2,017	2,167
Wadham	1,990	1,791	1,430	1,504
Worcester	2,210	1,990	1,497	1,627
New	5,240	4,716	3,379	3,516
Christ Church	9,390	8,452	6,366	6,795*
Totals	41,941	37,750	27,717	29,654

A. Valuation as made by surveyors to the assessment committee.

B. As reduced by the assessment committee on objection.

C. Messrs. W. Eve & Sons' valuation as given in evidence or in the last two cases submitted to respondents.

D. Decision of the Recorder or amount agreed.

* To this was added for the Christchurch Meadows and Merton Fields £457, making in all £7,252.

ELECTRIC NOTES.

THE capital expenditure on Paisley's electricity works amounts to over 100,000*l.*, and a recommendation is now being considered to expend an additional 42,000*l.* to extend the lighting system, make certain alterations and additions, and to provide a spare engine in connection with the tramway traction supply of current which will be required next year.

AT the Marylebone Borough Council's last meeting it was stated that the umpire had fixed the amount the Council was to pay for the acquisition of the undertaking of the Electric Light Company at 1,212,000*l.* The amount claimed by the company was roughly 3,000,000*l.*, while the Council's experts put the value of 600,000*l.* Sir E. Galsworthy stated that 50,000*l.* liability had been incurred in arbitration costs.

VARIETIES.

THE model village of Bourneville has been extended by a further gift from the founder of an estate of 120 acres. Mr. Cadbury made known his gift at the annual gathering of the villagers on Saturday, in the pavilion of the girls' recreation ground, Bourneville.

A NEW town hall was opened at East Ham on the 5th inst. The building, which stands at the corner of Barking Road and High Street South, is in the Renaissance style, and the facing are red-pressed bricks, with terra-cotta dressings by Messrs. Doulton & Co. A lofty clock tower is a striking external feature. The buildings are arranged in the shape of the letter L, and besides the council chamber, police courts, committee-rooms, offices, &c., there is a large public hall, where 1,200 people were present at the opening ceremony. The architects are Messrs. Cheers & Smith, of Twickenham and Blackburn respectively, whose design was selected in open competition.

THE Cheltenham Town Council sat in camera for a couple of hours on Monday considering the question of the town clerkship. Mr. E. T. Brydges, who has held the office for thirty-five years, has latterly had indifferent health, and the Council gave him six months' leave of absence, which will expire in March next. He is consequently at present on sick leave. The general purposes committee recommended that the town clerk should be granted a further six months' leave of absence on condition that at the expiration of that period Mr. Brydges resigned the office. An amendment was, however, carried, with one dissentient, in favour of giving an additional three months' leave only from March 1, upon the town clerk giving an undertaking to resign at the expiration of that period. Upon receipt of this undertaking steps will at once be taken to fill the office.

AT Sutton Coldfield on Wednesday the town hall and municipal offices, together with the caretaker's house in Mill Street, and some freehold and leasehold properties and building land situate in Holland Street, the Parade and Queen Street, were sold by auction. The municipal offices and caretaker's house were first offered. These have an area of 400 square yards. The bidding for this lot started at 1,200*l.* and reached 2,050*l.* It was knocked down at that sum. The town hall, the foundation-stone of which was laid on August 25, 1858, and which was erected at a cost of 4,400*l.*, was next submitted

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FIRE PUMPS AND FIRE APPLIANCES OF ALL KINDS.**

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And at Glasgow, Leeds, Birmingham, &c.

competition. This lot has an area of 800 square yards. The first bid for this lot was 2,000*l.*, and it was knocked down 2,100*l.* in less than five minutes, there being no further bid.

THE second of the series of lectures on the "Building of House," by Mr. A. Hunter Crawford, the president, was given last week to a meeting of the members of the Edinburgh Architectural Association, presided over by Mr. Charles A. Lockel. The paper described the method of building a house on the asphalted level, and was illustrated by black-board sketches of the proper building and bonding of stone walls. Details were given of the fitting in of the plumber-work, particular attention being directed to hot-water circulation. The framing of the timbers for the roofs, and the covering with tiles, was also detailed. Sketches were given of the joinerwork and plumberwork of the roofs. At the close of the lecture Mr. Hunter Crawford was awarded a vote of thanks.

THE inaugural dinner of the staff of Waygood & Otis, Ltd., the well-known lift and crane manufacturing business, was held on the 28th ult. at the Bridge House Hotel, London Bridge, E.C. Nearly 160 members were present, including the chairman and directors, the company's agents from all parts of Great Britain, and several of its representatives from the colonies and elsewhere abroad. In the course of the evening the managing directors, Messrs. H. C. Walker and R. Percy Mellon, dwelt upon the benefits, alike to the cause of British industry and the buying public, following upon the consolidation into a single organisation of the best British and American principles as previously represented by the separate Waygood and Otis companies, thus creating a strong and essentially British lift manufacturing undertaking, having its factories in London and Coventry. Other speeches followed, in the course of which the company's representatives in Great Britain and abroad spoke of the high reputation which both the Waygood and Otis lifts enjoy in all parts of the world.

It matters very little nowadays at what theatre a play is produced, so far as the question of stage furnishing is concerned, for, whether the piece be comedy or farce, tragedy or melodrama, much care is taken to insure that the various scenes shall be appropriately furnished. At the Adelphi and the Avenue Theatres, for example, the two new plays differ widely in character, "A Queen of Society" at the theatre in the Strand being vigorous melodrama, while "The Adoption of Archibald" is rollicking farce. But in both cases thought has

been bestowed on the scenic accessories, and whether it be the handsome salons of Mrs. John Brooke, sumptuous in gilt and brocade, or the comfortable rooms of the Coulters at the Avenue, cosy in oak and soft greens and drabs, good taste has been shown by Messrs. Oetzmann & Co, of Hampstead Road, N.W., who are responsible for the stage furniture in both productions.

BUILDING AND BUILDERS.

THE contract for sinking shafts on the site of the new dock for Swansea has been let to Messrs. Sir James Jackson, Ltd. This is the first step towards carrying out a gigantic undertaking, which involves an outlay of two millions sterling.

THE proposal to construct a bridge across Walney Channel at Barrow, at a cost of 124,000*l.*, has been before the general purposes committee of the Corporation of Barrow, but was referred back to the committee for further consideration, and it is probable Sir Benjamin Baker will be again approached with the view of his suggesting some less expensive scheme. Messrs. Vickers, Sons & Maxim have offered to pay one-third the annual loss on the bridge, which it is proposed shall be subject to a halfpenny toll.

MR. F. H. TULLOCH, Local Government Board inspector, held an inquiry at Cropthorne, near Pershore, as to an application by the Pershore District Council to borrow 2,500*l.* for works of sewerage and sewage disposal for Cropthorne. Mr. G. H. Fosbroke (medical officer of health) gave evidence as to the necessity of the scheme, and Mr. Raikes (Messrs. Willcox & Raikes) described the scheme, and said he was satisfied no other scheme was possible. Mr. C. F. Stratton, clerk of the Parish Council, and a large ratepayer, said a water scheme was wanted far more than a sewerage scheme, and the ratable value of the parish was not sufficient to allow them to undertake the two schemes. There was strong opposition to the scheme from the parish, chiefly on the ground of expense.

ON Saturday the chairman of the fire brigade committee of the London County Council (Mr. Allen) laid the foundation-stones of two new Metropolitan Fire Brigade stations, one at Vauxhall, on the Albert Embankment, and the other at Streatham. Second Officer Gamble and Superintendent

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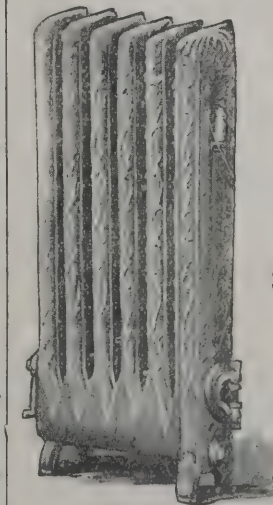
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Wangford represented the brigade. At Vauxhall a sub-station is to be erected, which will readily be extended should circumstances demand it. At Streatham, however, the new building, which will be almost opposite the existing duty-box, will constitute a full station. At the conclusion of the ceremony at the last-named place a vote of thanks was accorded Mr Allen, at the instance of the Mayor of Wandsworth, seconded by Alderman Welburne.

At a meeting of Galashiels Town Council a representation signed by 306 ratepayers was submitted, stating that they were of the opinion that before any further steps were taken in connection with the proposed extension of the municipal buildings, as shown by the plan adopted by the Corporation, estimated to cost over 4,000l., the ratepayers should have an opportunity of saying whether or not they were in favour of the proposed extension at this time, and requested that a plébiscite of the ratepayers be taken, and when that has been done, that the Corporation be guided entirely by the voice of the majority of their constituents. The requisition was allowed to lie on the table, on the understanding that before coming to any definite decision to proceed with the erection of buildings, a month's notice of motion be given.

FENTON SEWERAGE SCHEME.

COLONEL A. J. HEPPER, D.S.O., R.E., inspector of the Local Government Board, held a public inquiry at Fenton, Staffs, into a petition presented by the Urban District Council to the Board to issue a provisional order to empower the Council to put in force, with reference to certain lands required by them for purposes of sewage disposal and street improvement, the powers of the Land Clauses Acts with respect to the purchase or taking of lands otherwise than by agreement. Mr. Parfit (instructed by Mr. R. T. Adderley, clerk) represented the Urban District Council, and there were present the chairman (Mr. J. S. Goddard), and various members of the Council; Dr. G. Reid, county medical officer; Mr. J. E. Willcox, C.E., Birmingham, and others. It was stated that in March 1882 the Council obtained upon a thirty years' lease over 140 acres of land at an annual rental of 790l., on which to treat the sewage by broad irrigation. The demands upon the sewage farm largely increased, and in March last an action was brought against the Council by the Attorney-General and the Duke of Sutherland for polluting by the effluent from their

sewage works two brooks which flowed into the Trent. The Council then called in Mr. Willcox to advise them in the matter, and he recommended that the only effective way of dealing with the sewage of the district was by the bacteria treatment. The Council adopted this advice, and some seven separate sites for the new works were considered, and a piece of land about 18 acres in extent was selected as the most suitable for the purpose. There was difficulty in acquiring this land by agreement, and it had been found impossible to acquire any other suitable site at a reasonable cost. The present sewage scheme involved an expenditure of between 600l. and 700l. a year in pumping, but to the proposed site of the new works nearly the whole of the sewage of the district would flow by gravitation, thus saving about 550l. a year in the cost of pumping. There would also be a great saving in the cost of working the farm when the bacteria treatment was substituted for that of broad irrigation, besides saving the rent of a large area of land when the lease of the present sewage farm expired in 1912. The cost of the proposed new works, roughly estimated, was 18,000l. Assuming that this was raised on a thirty years' loan, the annual repayment of capital and interest would be 978l., from which must be deducted 550l. the saving effected in the present cost of pumping. Mr. S. A. Goodall, surveyor of the Council, and Mr. Willcox having given evidence in support of the scheme, Dr. Reid supported the application on behalf of the County Council.

THE PREVENTION OF FIRE.

THE subjoined letter from Messrs. Merryweather & Sons, Ltd. has been printed in the *Times* :—

Statements emanating from Berlin have been circulated in the Press to the effect that, although English steam fire-engines cannot be surpassed, we are behind in regard to chemical engines and long ladders, which, it is alleged, cannot be obtained in this country. The Germans and Americans therefore are to come over and supply the deficiency.

We hope we need not apologise for troubling you to contradict the assertion. The manner in which the British industry with which we are chiefly concerned and also other British industries are persistently misrepresented in our Press for the benefit of foreign competitors is a national and not a personal affair, especially in view of the state of trade in the country generally.

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HUGH DORRIAN, Yacht Builder.
Nunnsquarter, Kirkcubbin, Co. Down, June 24, 1901.

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C. SMEDLEY BECK, Architect.

11a, Prince of Wales Road, Norwich, Jan. 21, 1903.

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A. E. PURDIE, F.R.I.B.A.

Meadow Grange, Blean, near Canterbury, Jan. 2, 1902.

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J. BROOK, S.I.C., A.S.I., Surveyor, R.D.C.,
Stratford-on-Avon, 5th December, 1902.

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The whole of the above are our own new designs for actual customers.

DUNFERMLINE COTTAGE HOSPITAL EXTENSIONS.

The managers of the Dunfermline Cottage Hospital having resolved to carry out a much-needed extension, the architects the hospital, Messrs. Sydney Mitchell & Wilson, 13 Young Street, Edinburgh, were consulted and various sketch plans were prepared which were carefully considered by the managers. The plan was finally adopted, and is estimated to cost about 3,000/. It consists of large additions to the east and west wings of the hospital, and a rearrangement of the male and female wards, so that the west division is now entirely devoted to male and the east division to female patients. The present west male ward

is to be extended to accommodate eighteen additional beds, making twenty-four in all, with the necessary additional lavatory accommodation. A ward kitchen is provided by cutting off a part of the present out-patients' room, that room being extended northwards to the same size as at present. This wing has a high platform roof, in which thirteen excellent nurses' rooms are provided, with bath and lavatory accommodation and storeroom for boxes. On account of the rapid fall of the ground at this end of the hospital building, there is ample height under the ward for a basement floor. This has been utilised in providing rooms for the Röntgen rays, a servants' hall and a house for the porter. The east, or female wing, is to be extended to give accommodation for six additional beds. The present east men's ward of six beds is to have a new entrance from the female side, and will be added to the accommodation for females, while a three-bed female ward is given up as a convalescent-room, which was much needed. The total number of beds in the female wards will now be twenty-one, all with ample room and no crowding of floor space. The exterior of the new buildings is treated in a simple but neat and inexpensive manner, and in harmony with the present hospital. A new access gateway to the grounds is to be formed from Reid Street.

BRITISH FORESTRY.

IN February 1902 Mr. Hanbury, as president of the Board of Agriculture, appointed a committee to inquire into and report as to the present position and future prospects of forestry, and the planting and management of woodlands in Great Britain and to consider whether any measures might with advantage be taken, either by the provision of further educational facilities or otherwise, for their promotion and encouragement. The committee consisted of Mr. Munro Ferguson, M.P., chairman; Sir John Rolleston, M.P.; Mr. E. S. Howard, C.B., Commissioner of His Majesty's Woods, Forests and Land Revenues; Professor W. Schlich, Professor of Forestry, Royal Indian Engineering College, Coopers Hill; Colonel Frederick Bailey, R.E., Lecturer on Forestry, Edinburgh University; Professor J. R. Campbell, Assistant Secretary to the Department of Agriculture and Technical Education for Ireland; Mr. Herbert Lewis, M.P.; Mr. G. Marshall, of Godalming; and Dr. W. Somerville, assistant secretary to the Board of Agriculture. Mr. R. H. Hooker was secretary.

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After hearing witnesses and considering the information available, the committee endorse the conclusions of the Select Committee of the House of Commons of 1885-87 as regards the neglected condition of forestry in Great Britain, the possibility of improvement, and the necessity for the provision of better means of education.

The inquiry starts very much at the same point as did that of the Select Committee in 1885. Although efforts have since been made to adopt methodical treatment, and a wider appreciation of the advantages of close canopy, clean timber and heavy crops is discernible, yet, on the whole, there has probably been a further reduction of the already inadequate stock of timber in the wooded area.

It is shown on the highest authority that there is in these islands a very large area of waste, heather and rough pasture or land out of cultivation, amounting in all to 21,000,000 acres, on a large proportion of which afforestation could be profitably undertaken. Regular forest book-keeping is rare in Great Britain; but the various estimates of profit obtained from the cultivation of timber, which have been laid before both inquiries, are found to be substantially correct. Excellent returns, even with indifferent management, have often been obtained from plantations formed on land of little or no value for any other purpose.

The importance of afforestation in such a district as the Highlands of Scotland will be readily grasped. Rough land is extensive, capital as a rule scarce, and great woodland areas, where well-managed, have proved financially successful, while profits on sheep farming have of late years reached a very low point. Land under forests would give healthy employment to a much greater number of persons than the same area under sheep.

Experts of high authority have recorded the opinion already expressed in many reliable publications, that the world is rapidly approaching a shortage, if not actual dearth, in its supply of coniferous timber, which constitutes between 80 and 90 per cent. of the total British timber imports. The great area of waste land in these islands, which might be afforested, and with regard to which such valuable evidence has been led, thus becomes a matter of grave national concern. No individual effort is likely to cope with such extensive afforestation, not only because British forestry, as now practised, is inefficient, but because of the capital required, the time during which it remains sunk before producing income, and the lack of all security on private estates for continuous good management

from the time that the forest is formed until matured timber is placed upon the market.

The present condition of existing woodlands has been repeatedly and clearly reviewed by many eminent authorities. It is the common verdict that timber of the kind and quality imported in such large quantities from the Baltic and similar temperate regions can be grown as well here as anywhere; in fact, it is a matter of common knowledge that European "red wood" and "white wood," so highly esteemed for structural purposes, are yielded by the Scots pine and the spruce, two of the commonest trees of British woodlands. That foreign is generally preferred to home-grown timber is in no way due to unsuitability of soil or climate, but is entirely due to our neglect of silvicultural principles. It is hardly too much to say that until within the last ten years or so owners of woodlands, with few exceptions, failed to realise that the shape, size and quality of trees could be influenced by anything that they could do. They seemed to imagine that the character of the final product was largely a matter of accident, whereas it is mainly determined by management. They failed to recognise that cultural treatment which suits oak or ash is unsuited to pine or spruce; and so it has come to pass that British coniferous timber has been generally excluded by architects from building specifications. As another instance of this we may refer to the statements supplied by the Post Office as to the unsuitability of home-grown pine for telegraph poles.

That the yield of our woodlands can be materially improved admits of no doubt, and the evidence before us unanimously favours immediate and effective provision for bringing systematised instruction within the reach of owners, agents, foresters and woodmen. This has been on all sides emphasised as the first requisite in any project for the improvement of forestry, and consequently stands out as the cardinal point of the recommendations of the committee.

For effective instruction, however, a large area of woodland for purposes of practical demonstration is an absolute necessity. Professional equally with scientific witnesses pressed for instruction or demonstration areas, under State or corporate control, so as to secure that continuity of management without which a sustained annual yield and a maximum return is impossible.

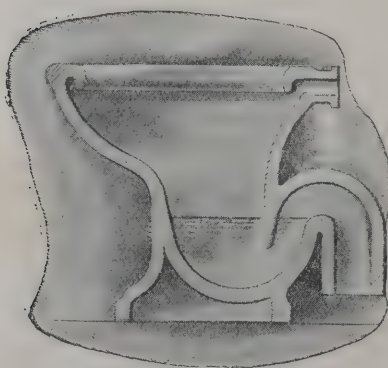
Such areas, properly organised, would afford as striking an object lesson as any to be found within the sphere of technical education; every proved and appropriate method for the economical and effective management of woodlands and the

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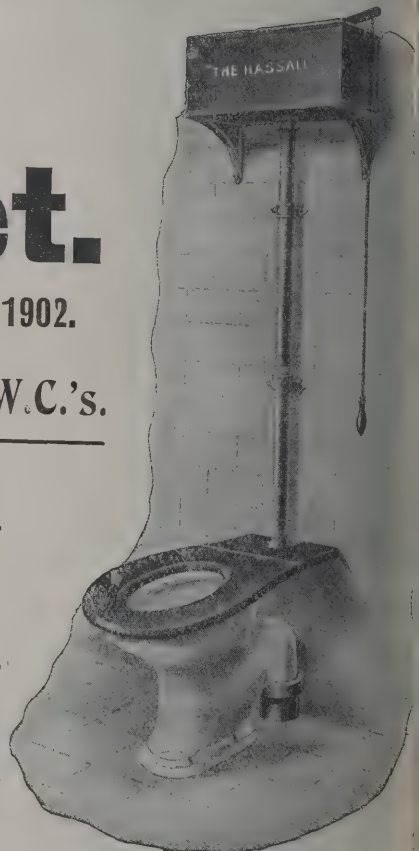
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utilisation of forest products would be employed under competent direction. But to be of the highest value such forests must not only exemplify definite sylvicultural systems; they must also be managed as commercial undertakings, so as to produce the best financial results.

It is necessary to have "example plots" in connection with the universities and other centres of instruction, as well as two large State demonstration areas; and it may be well here to explain why both are required. The example plots should embrace a comparatively small area, and comprise an arboretum or collection of specimen trees, and also an area devoted to the experimental planting and growth of trees in masses up to a certain age.

Two such demonstration areas—one in England and one in Scotland—are at present required. In order to provide suitable centres for fully demonstrating the principles of forestry, these areas should be large, preferably from 2,000 to 10,000 acres; and should include within their boundaries as great a variety of soil, aspect, altitude, &c., as possible, so that they may afford practical illustrations of the proper management of forests under all sorts of conditions.

In England, with its Crown forests, an instruction area could be readily made available with the consent of the State and the co-operation of the Commissioners of Woods and Forests. In Scotland, where the amount of land remaining vested in the Crown is small, an area should be bought, and it would not be unreasonable to ask the State to reinvest in land to the extent of, say, 50,000.

The Alice Holt Woods in Hampshire could be readily brought into good working order, and could be made to serve as a useful object lesson at an earlier date than any of the other woods belonging to the Crown; and it is recommended that they should be made available as soon as possible to serve as a demonstration area. As regards a locality in Scotland, the committee are not at present in a position to make any specific recommendation.

Facilities for imparting sound knowledge of the elements of forestry should be provided at the various colleges supplying instruction in agriculture in Great Britain. Inasmuch as land agents are entrusted with the management of large estates, which usually comprise a certain area under wood, it is clearly requisite that they should know how to turn that area, as well as the land under other crops, to the best account.

For working foresters or woodmen, whose prospective salaries do not at present justify their attending for any length

of time at the universities or colleges, a practical training in the woods naturally forms the best basis of instruction, and for this the State demonstration areas already recommended offer the most suitable medium. It is recommended that student foresters be taken on as employes in receipt of regular wages, and that classes be held which they should be required to attend.

In order to provide for the instruction to be given in these demonstration forests, the committee suggest that the State should equip each of them with buildings, which would offer accommodation for a director and his assistant, and, if necessary, for ten to twenty student-foresters. It is not anticipated that the cost of the buildings would exceed 5,000*l.* to 7,500*l.* in each forest.

Evidence has been laid before the committee to the effect that in England the incidence of rates on plantations, and the valuation of woodlands made by assessment committees, are subjects of complaint.

Claims are also made upon timber merchants and others by local authorities on account of "extraordinary traffic," it being alleged that the heavy weight of timber damages the roadway; and it has been represented that such claims hamper the industry. The committee are of opinion that these claims are unreasonable, more especially in view of the fact that woodlands, by paying rates during the many years when they are yielding nothing, and when no timber is therefore moved along the roads, have contributed to the maintenance of these roads, from which they derive no benefit until the crop is brought to market.

Three systems of levying the Estate Duty on woodlands have already been tried since the introduction of the Finance Act, 1894, and that now in force is peculiarly unfair to the poorer districts. An estate in the comparatively rich lands of Devonshire, for example, might escape a Death Duty upon timber which one in Argyllshire might have to bear to the extent of a fourth of the whole duty raised. Moreover, the pressure of such a Death Duty on timber must both act as a bar to afforestation in districts most needing it, and compel the realisation of immature timber, thus preventing the practice of sound forestry. This irregularity in the incidence of the duties needs immediate revision.

Some adequate security against the raising of fires by sparks from railway engines seems equally feasible and desirable. Inasmuch as a Bill dealing with this question, introduced during the last session, has already received sup-

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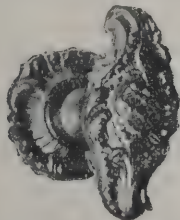
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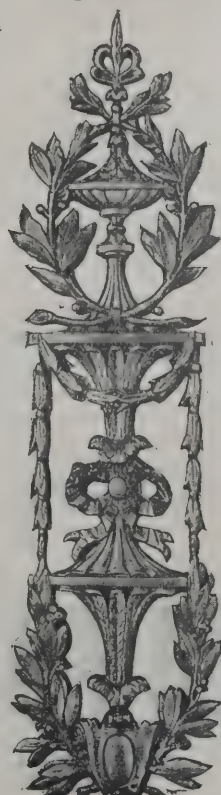
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port, it is not necessary to dwell further upon this subject than to urge the desirability of some such Bill becoming law at the earliest opportunity.

The presence of ground game is ruinous to systematic forestry and to sylviculture by natural regeneration. In the public interest, the owner of plantations who himself keeps down ground game should have the right to recover compensation for damage caused by hares and rabbits from adjoining property.

Valuable evidence as to the work undertaken by the Corporation of Liverpool to afforest the catchment area, around Lake Vyrnwy, of the water supply of that city was received, and some other municipalities have also had similar schemes placed before them. The committee are of opinion that this is a direction in which a considerable amount of afforestation may usefully be done. To prevent all risk of contamination of the water supply, it is at the present day the policy to remove, as far as possible, all human habitations and farm buildings, as well as live stock, from such areas. These areas, therefore, however well suited they may otherwise be for the production of crops or the maintenance of live stock, are practically derelict, and yield no return beyond that obtained from the sale of the water, upon what is usually a very heavy capital expenditure on the part of the Corporation. The committee desire therefore to draw the attention of corporations to the advantages and profits to be derived from planting their catchment areas with trees, which ultimately will not only contribute materially to the retention of the rain that falls over the area, and thus assist in regulating the water-supply and in preventing floods and water-famines, but will tend to the purification of the water, and should also, properly managed, yield a fair and regular income on the capital expended. Such catchment areas, if they are to be thus utilised, should be placed under the control of a competent forester. And inasmuch as they will be under corporate control, and less subject to changes of management than land owned by private individuals, there is no reason why they should not also ultimately serve as demonstration forests and be available for the instruction of students. For example, the catchment areas of the Liverpool and Birmingham Corporation Waterworks, situated in Wales, within reach of university colleges possessing agricultural departments, could, with the consent of the corporations concerned, be used for these purposes.

In conclusion the committee offer the following recommendations:—

(a) That two areas for practical demonstration be acquired, the one in England and the other in Scotland, of not less than 2,000 acres, if possible, nor over 10,000 acres in each case. We suggest that the Alice Holt Woods in Hampshire be made available as soon as possible to serve as a demonstration area in England, and that a suitable estate be purchased in Scotland, as convenient as possible to Edinburgh, for the same purpose. These recommendations would have to be carried out by arrangement between the Commissioners of Woods and Forests and the Board of Agriculture; and assistance should be looked for from local authorities, societies and individuals interested in forestry and technical education.

(b) That additional facilities for instruction be afforded, by the appointment of a lecturer on forestry in connection with each of the Universities of Cambridge and Oxford, and that example plots (the German *Forstgarten*) be provided in connection with each of these centres and with Edinburgh.

(c) That a good grounding in forestry form an integral part of the curriculum of the colleges providing instruction in agriculture in Great Britain; and that short courses of instruction suitable for the requirements of young foresters be also provided there. Instructors should also be available for giving practical advice in connection with the management of woods, the owners of which desire an expert's opinion.

(d) That provision be made for the education of foresters and woodmen by employing students to work in both the demonstration forests, and that suitable buildings be erected on the ground for the instruction, and where necessary for the accommodation, of these student-foresters.

(e) That lectures be given, under the auspices of the county councils, in neighbourhoods where there is a considerable area under wood, and that scholarships be offered in such counties to enable working foresters to attend courses of lectures.

(f) That the inequality shown to exist in the levy of the estate duty on timber be redressed.

(g) That the Government be urged to secure the early enactment of a Bill to protect owners of woods against loss by fire caused by sparks from locomotives.

(h) That the inquiry conducted in 1895 concerning the area of woodlands be repeated by the Board of Agriculture, and that details concerning the character of the timber crop grown upon them be ascertained.

(i) That the attention of corporations and municipalities be drawn to the desirability of planting with trees the catchment areas of their water supply.

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The Architect.

THE WEEK.

WE have given abstracts of so many conflicting official reports relating to the fall of the Campanile at Venice, it may seem to be an increase of confusion to refer to another of them. The Italian Royal Commission is, however, entitled to respect, and it is possible the report, coming so long after the others, may be expressive of a judgment that was not disturbed by the emotions which arose at the time of the catastrophe. The lower part of the structure is still standing, and it has sustained the investigations of experts. The commissioners conclude that a report prepared as far back as 1549 was not exaggerated when it said that the foundations are capable of sustaining a much greater weight. It is likely that the commission by endorsing that judgment have gone too far. The fall of the Campanile was immediately due to weakness, which occurred by tampering with the walls at the level of the roof of the loggetta. But it does not follow that the whole of the parts still standing are perfect and that it would be a wise policy to raise the new Campanile on such a sub-structure. The walls which succumbed, as they were constructed at different times, exemplify different theories of building science. The oldest part testifies it was formerly considered that lime with scarcely a trace of sand could serve as mortar. In 1500 there was more skill, and sand and cement were both employed. The walls were therefore not homogeneous, and must have resisted winds and rain as well as time in various degrees. The loads were not equably disposed. The inner walls not only bore a greater weight than was contemplated at first, but to some extent they had to serve as props to the outer walls. This may seem incredible, but it is vouched for by the members of the commission. If the upper part had been thoroughly united, the removal of the stones from which the rain fell on the loggetta might have succeeded, especially if the operation was performed gradually, but when all above was heterogeneous the clearing out of the mortar from any one course was almost sufficient to bring about destruction. As to the responsibility for the collapse, the commissioners seem to think that all those different departments who had a share in the conservation of the monument must be considered culpable. Those who are supposed to have constantly scrutinised its construction should have known of its weakness, and those who commenced to make incisions to preserve the roof of the loggetta should have endeavoured to know the facts of the case. The immediate cause was having too many officials, and it is very possible the remote causes arose in the same way.

It is a common belief that contractors have a right to old materials standing on any site of operations, unless it is expressly set forth in the conditions of contract that they are to be reserved. As a rule, building owners are anxious to have the ground cleared and new buildings erected as quickly as possible; consequently there is no demurring to a general removal of everything which can come under the comprehensive title of old materials. Of late years, an exception is made not only in digging foundations for buildings, but in railway excavations, sewer works, pipe laying, &c., that objects of archaeological or geological interest shall be preserved and handed over to the architect, engineer or surveyor in charge. It does not always follow that the clause is observed by the workmen, although in some instances it is to be feared that a great many sham antiques are disposed of whenever there are works on a large scale. The custom has been so long tolerated of a builder's claiming possession of old materials in general, it has almost assumed the power of law—at least, builders think so. A case was heard in the Alton County Court a few days ago before Judge GYE which suggests the uncertainty there is on the subject. A lady sued for the return of a pump or its value. Alterations were carried out by a firm of builders at her house, and the pump was removed and sold. Evidence was given on the part of the defendants to prove that it was customary unless there was a clause to the contrary for builders to remove

such things. Judge GYE said if the alleged custom existed it was most unjustifiable. He gave judgment for the plaintiff, and refused to grant leave for appeal. The safest way under every circumstance is to introduce a clause stating whether the materials are to remain the property of the employer or to be taken by the builder at a price to be determined. The clearing away of old materials when stated in specifications cannot be supposed to mean that in all cases they become the property of the contractor. In order that there may be no doubt on the subject, the contracts of the War Department usually stipulate that old materials are to be stacked and become the property of the Secretary of War, and that example, if followed, will often prevent disputes.

ALL who take an interest in the architecture of ancient India must be thankful for the efforts which Lord CURZON has made to insure the preservation of the monuments. It should be remembered that, as FERGUSON said, India is a complete cosmos in itself, and that nowhere else are the problems of anthropology and ethnography so easily studied. It has, however, been difficult to convince English officials of those facts. During many years they have looked upon everything ancient as barbaric or heathenish, and made no scruple of removing beautiful work in order that it might give place to modern construction. As time goes on such vandalism will be more and more reprobated. FERGUSON'S books have undoubtedly aided in converting the official mind and inducing it to value the different varieties of Indian buildings as they deserved. The Archaeological Survey of India, if less popular, has been more influential in the same direction. In spite of all that has been done, it cannot be said there exists a sufficient guarantee for the safety of Indian remains. Lord CURZON has, therefore, arranged for the introduction of an Indian Monuments Bill before the Imperial Legislative Council. The provisions are more stringent than those which are to be found in the Bills for the protection of remains in England and Ireland. There is little doubt about the measure becoming law, and then the examples of the various styles throughout the Empire will be secured against the operations of ignorant men.

THERE was a time when every visitor to Paris was expected to have a look at the artesian well of Grenelle. The metallic tower of late years has appeared to be not much of a wonder, but when it was first constructed it created a surprise which almost equalled that caused by the Eiffel Tower. Yet the cast-iron structure in the Place Breteuil is only about 140 feet in height. The water supply of Paris has always been a serious problem. The Municipal Council tried various experiments in well sinking with more or less success under the direction of M. EMMERY. It now seems incredible to learn that it was decided to sink an artesian well in the Place de la Madeleine, which is to-day one of the most important spots in all Paris. After much consideration Grenelle was selected. MULOT, the contractor, began his operations in 1834, and for nearly seven years his search for water was unrewarded. After reaching a depth of about 1,800 feet the green-sand formation was tapped, and the water burst out with a force which at first alarmed the neighbourhood. In 1858 it was decided to have a conduit from the well to the Place Breteuil and to erect a tower of bronzed cast-iron, partly for use and partly as an ornamental structure. Of late years the supply from the strata has been diminished and the authorities were forced to seek elsewhere for a new source. The artesian wells of Paris are therefore obsolete. The tower in the Place de Breteuil is to be removed in order that the great memorial of PASTEUR may be erected on the site. BRETEUIL, it may be noted, was one of the ministers of LOUIS XVI. As a politician he is supposed to have failed, but he was one of the men who sought to improve Paris. CARLYLE says of him, "Behold, a Home-Secretary BRETEUIL 'beautifying Paris' in the peaceablest manner in this hopeful spring weather of 1788; the old hovels and hutches disappearing from our bridges; as if for the State, too, there was halcyon weather and nothing to do but beautify."



THE ARTS IN GREECE.—BY E. ARMITAGE, R.A.

FRANCIS CRANMER PENROSE.

A LIFE of singular unity came to an end on Sunday, when FRANCIS CRANMER PENROSE passed from earth in his eighty-fifth year. People in general may never have heard of him, yet among architects and scholars everywhere no English name was more familiar. Never was there a man who gained a fair renown on easier terms. As an architect his works were of little account. But to be entrusted with the care of the fabric of St. Paul's Cathedral for nearly half a century will probably by many judges be considered as higher evidence of skill than the designing of several churches. There was too another circumstance which gave him importance. FRANCIS PENROSE was fortunately able to determine by the aid of instruments the exact decimal of an inch which measured the deviations between an ordinary straight line, which is the shortest distance between two points, and the lines employed by the Greeks in some parts of their buildings. Every day foremen engineers decide about a camber in girders, in order that they may not appear to deflect, without gaining the least credit for their foresight. But Greek cambering is accepted as miraculous. Mr. PENROSE came back from Athens surrounded by a kind of halo which never vanished during his life. He was revered as a seer who had penetrated into the mysteries of Greek art, and was the bond of connection between the age of PERICLES and our own prosaic days. The wonder is that he remained so unspoiled and simple. He knew nothing of the struggles which are the everyday lot of the ordinary architect. He was happy in being able to avoid all rivalry with his fellows. In a sublime region which must have resembled that inhabited by the mythical architects, he was able to live and move aloof from the cares that come with clients.

The life of FRANCIS PENROSE was one of those idyllic passings from one happy state to another which are still possible in England. Born in a peaceful vicarage at Bracebridge, in what he called the precincts of Lincoln Cathedral, a building he considered to be the finest Gothic work in England, he was early impressed by architecture. With *naïveté* he owned that after his familiarity with St. HUGH's church he was surprised to discover that he was not disappointed with the Parthenon. He spent four years at the grammar school of Bedford, and then entered Winchester College, the creation of the great architectural bishop. Next he became the pupil of EDWARD BLORE, who could claim a share in Buckingham Palace. From the drawing office he went on to Cambridge, where he became a senior optime, and, what was no doubt considered more important, was two or three times privileged to pull an oar in the inter-university race. Finally, he gained the Travelling Bachelorship. No life could be laid out on a more direct line or one more steadfastly followed.

It is not to be expected that Travelling Bachelors will always be able to extend the knowledge of architecture. Two holders of the bursary, at least, have rendered such service. EDMUND SHARPE, in his travels in France, realised the evolution of Gothic which he afterwards expounded. But as he had not the advantage of study under an architect he could only be considered as an amateur. FRANCIS PENROSE, on the other hand, had

spent some time in EDWARD BLORE's office, where there were opportunities to acquire varied knowledge. When he arrived in Greece he was therefore able to turn the mathematical and practical training he had gone through to good account.

About that period, *i.e.* between 1840 and 1850, a belief arose in the mathematical basis of beauty, and especially as exemplified in Greek architecture and sculpture. We ought perhaps to have said it was a revival of belief, for HARRINGTON had suggested to Sir ISAAC NEWTON that proportions in architecture were coincident with harmonic ratios in sound. NEWTON, in reply, said he was inclined to believe some general laws of the CREATOR prevailed with respect to the agreeable or displeasing affections of all our senses. Indeed, it was surmised from the earliest civilised ages that beauty was no fortuitous accident, but was the product of definite laws. As there was a renewal of interest on the subject, the Society of Dilettanti commissioned FRANCIS PENROSE to make a more exact measurement of the Parthenon and other buildings in Athens than was to be found in the excellent plates of STUART and REVETT.

It is often supposed he made discoveries. That is an error. His office was one of verification, but on that account was important. What he was able to accomplish that is most memorable was the establishment beyond all doubt of optical corrections, or departures from true vertical and horizontal lines. The entasis of columns was known from an early age. The word is mentioned by VITRUVIUS, although he did not approve of the principle. CHAMBERS described how it was performed without any regard for subtlety by Roman builders. A chapter on the treatment as practised in Greece was appended to STUART and REVETT's work. COCKERELL, when he went to Greece, studied the subject with care. Mr. PENROSE ascertained that the convexity of the Doric columns of the Parthenon was at most 1-550th of the whole length, forming a hyperbolic curve.

The steps of the Parthenon were so long encumbered with rubbish it was assumed the lines were horizontal. In 1837, when the masonry became less concealed, JOHN PENNETHORNE, one of the ablest of investigators of the relations between mathematics and architecture, perceived there was convexity on the planes of the steps. His discovery was confirmed by HOFER and SCHAUBERT, the German architects. Mr. PENROSE was able to prove that the front curvature rose 0.15 feet in 104 feet and the flank 0.233 feet in 221 feet. Some other instances were observed and recorded which testify to the recognition of visual defects and the providing of arrangements to nullify them, so that the temple to the keenest sight and on the clearest day would appear perfect. The real value of the investigations was not however realised by everyone in this country. In 1848 we find W. H. LEEDS, who as a writer had long upheld the superiority of Greek architecture, speaking in disdain of "the fuss made about entasis, including that about the hypothetical curvature in the horizontal lines of the Parthenon, where curvature was administered, if administered at all, in an exceedingly homœopathic ratio." That we are now able to place more value on the homœo-

pathic refinements should be considered a sure indication of our progress towards an understanding of Greek principles.

There was, then, indifference to colour as an auxiliary to architectural forms in Britain. It was taken for granted, as if it were an article of faith, that the Greek temples corresponded with the Greek statues, and were impressive from being constructed of beautiful marble, which to heighten with colour would be as much of an excess as the painting of a lily. The old English poets who treated of mythology had created a belief in the connection between whiteness and classicism. VENUS's doves were supposed to be whiter than snow; the great JOVE himself assumed the form of a white bull or a whiter swan; the silver lily was said to have sprung from the milk of JUNO. As became an University student, Mr. PENROSE accepted the tradition or the prejudice. All he could concede after testing the conclusions of the Frenchmen and the Germans was "that a peculiar yellow tinge upon some parts of the columns, especially of the west front of the Parthenon, is not simply the yellow said to result from the oxidation of iron contained in Pentelic marble, but has been applied externally as a tint, though perhaps so delicately as merely to reduce the high light of the marble without obscuring its crystalline character." That reduction he was too honest an observer to deny, for it was a necessity. As he wrote, "No one who has witnessed the painfully dazzling effect of fresh Pentelic marble under the Athenian sun will deny the artistic value of toning down the almost pure white of its polished surface, and the more so when considerable portions of the architecture were painted in the most positive colours. We need not suppose this tone to have produced more than the difference between fresh white marble and ivory." The employment of Pentelic marble, which had to be transported ten or eleven miles over a rough road, while at a third of the distance the beautiful dove-coloured marble of Hymettus was to be obtained, must have been dictated, Mr. PENROSE considered, by the appreciation of the beautiful surface, and therefore the Athenians were not likely to conceal by paint or plaster a material which had cost them so much. That there were painted or gilded ornaments he did not deny, indeed some of the patterns were shown for the first time in Mr. PENROSE's book, but the painter's work, he maintained, was confined to them. It is possible that in his conclusions he was not able to emancipate himself from the prejudice against colour which he could claim as a part of his English birthright. At the time, however, even men like HITTORFF were afraid to express all their convictions on the subject. Half a century has brought about a mighty mutation in opinion, and it is now difficult to persuade students of Greek art that white marble was ever tolerated.

"The Principles of Athenian Architecture," which was a record of his work in Athens, was considered to be the best credential Mr. PENROSE could have to obtain the office of Surveyor to St. Paul's Cathedral, as successor to Professor COCKERELL. In 1852, or a year after he received the appointment, he read a paper on the decoration of the building. In it he explained that the restoration of the cupola in "chiaroscuro" with a very large amount of gilding should be taken as the starting-point for the decoration of other parts of the building. He advocated the use of stained glass in the windows, but surface painting on the walls he considered to be out of place. In the apse, where there was much gilding, he wished to have the same sort of chiaroscuro painting as in the cupola. The small cupolas and spandrels he desired to see decorated. The spandrels, he believed, were intended by WREN for colour decorations, and they furnished positions for single figures or small groups. Monochrome painting he preferred for the spandrels of the main arches in the choir. Coloured porphyries or marbles, he said, might be fittingly introduced in the panels beneath the windows, or they could be painted in imitation of those materials, just as the pilasters in the apse were already a most effective imitation of lapis lazuli.

It was the fate of Mr. PENROSE to have to assist in the execution of divers experiments for the decoration of St. Paul's which were not in keeping with the scheme he worked out on his return from Greece. Professor COCKERELL was to some extent the advocate for a similar

scheme. He was eager to see the restoration and gilding of the dome, the completion of the gilding and painting of the choir in the style that had been commenced, and the reglazing of all the lower windows with Scripture subjects in coloured glass.

The most important events in his surveyorship were the clearing of the crypt, and the utilisation of the part which is on the site of the ancient chapel of St. Faith, the determination of the boundaries of Old St. Paul's, the alterations in the churchyard. He had also a part in the later attempts to decorate the cathedral.

Mr. PENROSE could not have charge of WREN's buildings for so many years without having his first ideas of the greatness of that architect more confirmed. His admiration for WREN was exhibited in many of the papers which he read. One was descriptive of St. Stephen's, Walbrook, of which he said that in no other building was so much made of a plain oblong space and sixteen columns. The secret he considered was to be found in the arrangement of the plan and the harmony of the proportions. The old school of mathematician-architects were believers in the adoption of certain mystical numbers, and it was characteristic of Mr. PENROSE that he should conclude that with WREN the number 7 was a favourite guide. Thus, at St. Paul's, if the principal order or 40 feet is taken as the standard, the peristyle of the dome is found to be $\frac{7}{8}$; the upper order of dome peristyle $\frac{1}{4}$, and the dome impost $\frac{7}{8}$ of the dome peristyle. At St. Stephen's he ascertained that the general proportion of the plan was as 7 : 5, the ordinary to the wider columniation 10 : 7, the height, internal, of the cupola to the basic breadth 3 : 7; the height of the column to that of the order—that is, exclusive of the pedestal—7 : 8. He could have added, with no less truth, the interesting circumstance that in St. Peter's, Rome, such ratios have been discerned as 7 : 11, 7 : 18, 7 : 15, &c.

Although he was so closely associated with Greek and Italian architecture, Mr. PENROSE was not one of those who believed that the Classic style and its direct branches were alone worth attention. His taste was more liberal. A man, he said, who could see only one style in architecture was imperfect, for there was a central element in art which was quite independent of any style. The love of the Parthenon, he declared, by no means excluded the love of Lincoln and Salisbury, although one might hold the Chapel of Henry VII. as fantastic. The true work of the architect was with the business of the day, and while he should study ancient principles he ought rarely copy ancient details. In the study of the art one should go to the fountain-head, and the finest works alone should be considered. To that catholicity of taste he was faithful throughout his life.

What he said about the true work of the architect being with the business of the day must have been spoken with some regret. His mathematical investigations of Greek temples were not a recommendation in the eyes of the men of business who have commissions to give. We published several years ago a view of a chapel in Marylebone, the only one, we believe, which he designed. When the Gold Medal of the Institute was awarded to him, the most important actual work in stone by Mr. PENROSE which could be referred to consisted of the steps at St. Paul's, the curved lines of which were derived from his studies at the Parthenon. His care of St. Paul's would, by itself, be enough to insure respect for his memory. His time was, however, fully occupied, for, besides the cathedral, the starry heavens awaited his applications of mathematics. The late Sir WILLIAM ROWAN HAMILTON, who was the greatest mathematician of the nineteenth century, although he was an Astronomer-Royal, did not look through his telescopes more than once or twice a year. Observations he left to his deputy. He used to explain his indifference by declaring, "The stars move all right; but what interests me is the high *mathesis* that accounts for their movements." That was the spirit in which Mr. PENROSE worked. Among his astronomical productions is "A Method of Predicting Occultations of Stars and Solar Eclipses by Graphical Construction." In other words, stars and suns were shown to be as amenable to graphics as a theoretical girder or roof. In the same way he demonstrated a relationship between certain astronomical facts and the

disposition of Greek temples. Architecture and astronomy were to him identical in some of their aspects.

The Royal Gold Medal of the Institute was awarded to him in 1883. The reasons assigned for the choice were—first, he was a past vice-president; secondly, he was Surveyor to the fabric of St. Paul's; thirdly, he was the author of a work on the principles of Athenian architecture. Two years afterwards he was elected an honorary fellow of Magdalene College, and in 1886 he was able to return to Athens as director of the British Archæological School. He succeeded Sir A. W. FRANKS as antiquary to the Royal Academy.

It would be vain to propose his life for imitation, for so happy a combination of favourable conditions is rarely likely to arise with ordinary mortals. A second FRANCIS PENROSE may never be seen. But such work as he was destined to do he carried out faithfully, and it may be there was an exact correspondence between his capacity and his career.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER VI.

ORNAMENTS AND SURFACE DECORATION.

UNDER the heading of Projections various features were noted which will receive further consideration in the present chapter, bearing as they do a decorative as well as a constructional value (perhaps the expression "practical value" would be more fully in accord with the facts).

The varieties of projections were noted as innumerable; similarly with ornament and wall-surface decoration generally, but the underlying principles governing their application can be stated within very brief compass:—

1. Applied ornament is to be secondary to and dependent on the surface of application.
2. Excess of ornament is an evil to be avoided.
3. Of two alternative modes of treatment open to criticism, a scant provision of surface decoration is preferable to a superabundance of ornament.
4. Ornament must be adapted to climatic and atmospheric conditions.
5. Ornament must be adapted to its distance from the spectators.

In reference to the last, two notable examples may suffice as illustrations, namely, the fine series of alti-relievi round the base of the Albert Memorial, London,* and the equally important frieze to the Institute of Chartered Accountants, in the same county; both Sir GILBERT SCOTT (in the former) and Mr. JOHN BELCHER (in the latter) have well adapted their ornament to the spectator's point of view; in fact, the principle has been carried to excess in the case of the Institute, as the following point will make clear. The figure of the architect (to the extreme south-east of the frieze) has the nose absolutely flattened, as it was apparently considered that this would be the optical effect when viewed from beneath, and though such treatment would be justifiable in pictorial design, it is inadmissible in the plastic art. Could it be supposed that the architect in his living guise were to take the position given to his effigy he would be loath to have his nose flattened, and would maintain that such an operation was needless, as the optical illusion would be produced without it, whether desirable or otherwise. If the object be to correct the optical illusion, it fails. But with the frieze as a whole, architects are likely to be in accord in acclaiming its merits.

Not infrequently, however, ornament is placed in positions so remote from any intended point of view as to preclude it from being intelligible. In these cases the use is inappropriate, and the ornament should have been omitted. As a general principle bas-relief (low relief) should be so placed as to be within short range of the eye of the spectator, mezzo-relievo (middle or medium relief) and alto-relievo (high relief) being proportionately at greater distances. Further, the general principle holds good, that

to gain the most effect, the ratio of depth of relief should vary directly as the strength of light.

Again, ornaments such as the *fret*, *lozenge*, the plain varieties of *guilloche*, the *egg and dart*, &c., bear application at a greater distance from the eye than is advisable for any of greater delicacy or intricacy, as, for example, the *diaper*, *honeysuckle* or the developed *scroll*. The artistic sense inherent in most educated people resents the waste of effect by the display of ornament in positions where its intelligibility is only to be discerned by the protracted use of field glasses. The higher levels of a building are best kept comparatively plain—comparatively, not necessarily absolutely.

Lettering may, of course, be placed in any position, and can be suitably diminished or increased in size according to whether it is nearer or more remote respectively.

Broadly stated, the more solid and sturdy portions—i.e. constructively—of any building should be nearer the eye, and those portions that are further away should be lighter in construction; but as regards surface decoration of the nature of applied ornament the reverse process should be employed. This results in the maintenance of a proper balance in vertical design.

It is, however, to be remembered that, whilst for the most part, the application of ornament should be governed by the point of view of the general spectator, circumstances may justify special applications for specialised views, as, for example, from balconies.

It is a debateable matter as to the length to which it is justifiable to use "heroic" figures for relief and statuary. In the first place, the figures, symbolic or illustrative of mythological and other such characters, may be of heroic size without any adverse criticism being justified. Again, it will scarcely be contended that if figures of human beings, &c., are desired at a considerable height they should only be on the actual human scale, for this would render their introduction in such positions abortive; but what admits of discussion is the point whether figures whose prototypes possess a definite, a limited scale, should be placed in positions where either truth must be abandoned or else rendered ridiculous. As it is not desired to set up in this series an impossible standard, the writer prefers to refrain from dogmatic utterances on such a point, and will merely emphasise the fact that such ornamentation is in opposition to the double-barrelled maxim of the London Architectural Association—"Design in beauty, Build in truth," this being the whole duty of an architect.

But to continue with regard to statuary. Whatever may be the individual decision as to figures at a considerable height, it should at least be clearly recognised that only typical dimensions should be given to statues and figures placed within easy range of the spectator's eye. It is possible that this "principle" would have been taken for granted without comment in these articles were it not that so many examples of statuesque sons of ANAK are to be noted. The use of this last expression naturally induces a further current of thought, and suggests the following comment in regard to the Royal Exchange, London. The grasshopper finial, though suggestive, is unpleasing—suggestive, as it establishes the close connection of Sir THOMAS GRESHAM with the fortunes of the building; unpleasing, as it tends to give such a false idea of the scale of this insect. On St. Paul's Cathedral the ball-and-cross finial is thoroughly satisfactory, partly due to the fact that a typical limit to size for these features does not obtain; similarly in the cases of the dragon finial to the steeple of St. Mary-le-Bow Church, and the key finial to the church of St. Peter-upon-Cornhill, both in London. Instances might be multiplied on either side, but with small profit.

It can be well understood how the continued use of a microscope tends to create a feeling of disgust with articles of daily consumption, when specimens of these are submitted to the searching lens. The feeling is an entirely unreasonable one, but the want of reason has only the slightest effect (if any) on those who have beheld cheese-mites and other micro-organisms enlarged to a scale of, say, one foot to represent an inch. This comment is not out of place here, as the inference intended to be drawn is this, that whilst abnormal enlargement is required in order to study the structure of the objects, the enlarged-scale diagrams, so dear to the heart of the Natural History Soirée

* For series representing Art, see *The Architect* for January 2, 1903.

provider, are nothing but snares and delusions to a gaping crowd. And these abnormalisms have nothing but the shadow of justification when transferred to architecture.

Whilst Brobdingnagian proportions are thus deprecated, Liliputian treatment allows more to be said in its favour, and for this reason, that Nature through her laws of linear and aerial perspective produces, or is apt to produce, at all times and in all places, the appearance of diminished size, whilst the optical illusion that increases the apparent size of an object is one of rare occurrence and requiring special conditions. The illusion that people may experience when seeing "double" (as it is termed) results from the operation of a natural law which is entirely under the control of individual members of the human family, and need not be dealt with here, nor need the action of fog and mist be enlarged upon. But this diminution in size of figures does not admit of universal application. If a statue, or a group of statuary, is to be produced, it must be remembered that whilst heroic size *may* be condoned, diminished treatment should be tabooed. This, too, is the case with alto-relievo, though it is not easy to explain why this should be so. It is of importance to remember, in dealing with figures in relief, that as long as the figure is attached in *appearance* (however slightly) to the background, diminished scale is permissible, but as soon as there is the *slightest* appearance of isolation, then the full scale must be employed: in short, bas relief and mezzo-relievo admit of diminished scale; alto-relievo forbids it.

(To be continued.)

EYE-STRAIN.*

AN architect is of more importance than any of his works, and at least an equal general interest should be shown in his conservation. It would on that account be an advantage if the Architectural Association or some of the local societies who have able physicians in the neighbourhood were occasionally to obtain a paper on some of the dangers to which architects are particularly liable. Take one variety. There is no doubt that architects do not observe sufficient care of their eyes, especially in the early days of practice. In preparing drawings the strain on the eyes becomes more oppressive by anxieties which are not shared by other artists. It is not enough for an architect to produce pleasing forms on paper. He must also remember that every line represents the expenditure of money by a client, and inaccuracies always cause inconvenience, if not loss. It is remarkable as an indication of the weakness of the eyes which follows too close an application to the drawing-board, that as far back as 1815 STEDMAN WHITEWELL, an architect, invented spectacles with square-shaped lenses, each side being ground as a cylinder with the axis of one at right angles with that of the other, in order to correct that astigmatism which of late years is believed to lead to brain disease and other forms of illness.

If, as Dr. GOULD maintains, eye-strain has been the origin of many of the troubles of such men as DE QUINCEY, CARLYLE, DARWIN, HUXLEY, BROWNING—and they are supposed to be no more than representatives of afflicted humanity—there is no reason why those who employ their eyes amidst constant solicitude should be exempt from effects which are not confined to bodily pains. It is, of course, rather novel to find that mental sufferings may arise from too concentrated an attention on thinking or composition. It will be incredible to many to hear that the poet's eye when in a fine frenzy rolling may be only a forerunner of physical and mental agony which masters of language find it difficult to describe in words. DE QUINCEY, CARLYLE and the rest have attributed their sorrows to different origin than literary creation. The five men whose cases are considered by Dr. GOULD had, moreover, their time medical aid, and their symptoms were diagnosed by physicians who were reputed to be able. We know to our cost how easy it is for professors of medicine to be at variance in their opinions

and how their unlucky patients must accept the consequences. Where is the man who has not suffered through a doctor's blundering? The clinical subjects mentioned in the book had, no doubt, more or less misgiving concerning the infallibility of the men who treated them. Dr. GOULD is of opinion that the patients were not far wrong. He says in one place:—"CARLYLE's opinion of the medical profession was, so far as concerned his own case, entirely justified and justifiable. Had he consulted a hundred of the best general physicians in England he would have got no more help than from the one he sought out in Edinburgh. It was exactly so later with DARWIN, HUXLEY and BROWNING. 'The stomach' and 'the liver' would have been charged with bad function, and travel and rest would have been ordered. Indeed, it would be precisely the same story to-day."

The statements which Dr. GOULD has taken from CARLYLE's writings are formidable as indictments of the ignorance of physicians. BULWER LYTTON defined the practice of medicine as the putting of substances about which we know little into a body of which we know less, and the apparently cureless condition of THOMAS CARLYLE, after repeated dosing, was expressed by himself as if he were a second PROMETHEUS chained down in a small house in a back street in Chelsea rather than on the Caucasus, and with an always voracious vulture on top of him. But in one of the letters which he wrote in his old age he gives an abstract of his sufferings which is more telling than any of those in Dr. GOULD's excerpts. "As to myself," he bemoans, "I know sadly, at all moments, dyspepsia to be the frightfullest fiend that is in the pit, or out of it; the accursed brutal nightmare that has ridden me continually these fifty odd years, preaching its truth gospel (would I had listened to it, which I would not); but, alas! as to any 'cure' for it, the patient is too old; the patient has it in the blood, in the nerves and brain of him as well; and has no cure of the least likelihood, except the indubitable cure which is now near ahead." When CARLYLE wrote in that style the great contests of his life were over, and it might be supposed that, having no longer any incubus upon him, such as the life of FREDERICK THE GREAT, he would have attained some cessation of pain. He was attended, too, by Sir R. QUAIN, and that eminent physician came to the conclusion that the true cause of CARLYLE's life-long woe was his weakness for ginger-bread! Medical science is a strange thing, when the busiest practitioner in London can arrive at no other result. The doctors failed in CARLYLE's case, as in those of HUXLEY, DARWIN, DE QUINCEY, BROWNING, and myriads of unknown men and women. It is, therefore, allowable for Dr. GOULD, or any other man, to endeavour to demonstrate how erroneous was the treatment. He shows from the patients' writings how constantly attacks were preceded by headaches, and he maintains that "the vast majority of such cases, say, at least 90 per cent., are not caused by dietary indiscretion or organic disease, and of these over 90 per cent. are reflex ocular neuroses, *i.e.* due to 'eye-strain'—a term denoting morbid function, not over-use of normal function."

Americans have become so excessively ingenious in the production of oblique puffs of their wares, we must say that we imagined Dr. GOULD's book, which has excited an unusual amount of attention for a medical treatise in the course of a few weeks, was intended to be no more than an argument for a new form of spectacles, an improvement on those of WHITEWELL the architect. But he has not invented any appliance to set literary men right, or those men who are compelled to run the risk of headaches and other miseries by straining their eyes through too much labour. As he sometimes orders patients abroad, and while in Europe recommends them to have their eyes corrected, it cannot be said that he is advising patients to visit him in Philadelphia. In that city it appears ophthalmology receives especial attention, and possibly in course of time a great medical school may arise there. The subject is one which has not been sufficiently studied, and there is a need for investigation in many fields. Some years ago artists and amateurs were startled when Mr. LIEBRICH explained the causes of TURNER's peculiarities in his later pictures, as also why MULREADY was subject to the weakness of imparting a purple colour to the

* *Biographic Clinics: The Origin of the Ill-Health of De Quincey, Carlyle, Darwin, Huxley and Browning.* By George M. Gould, M.D. London: Rebman, Ltd.)

flesh of his figures. The defects were due to some of the changes in the eye which old age brings, and it was found that the pictures by the two artists could assume a normal appearance when looked at through glasses of a special kind. The same inquirer also caused a revolution in schools and school fittings as a result of his practice as an oculist. Many other shortcomings of artists may be traced to a similar origin. Nor can it be concealed that inconvenience is sometimes caused through the inattention of architects to the sensitiveness of ordinary eyes. Dr. GOULD says that one optical law is violated constantly by the way in which buildings are lighted. Another torment must be ascribed to painters, or rather the directors of exhibitions. It is, for instance, a stereotyped law of the Academy that "All pictures and drawings must be in gilt frames," although in every continental exhibition each painter is allowed to employ the kind of frame best adapted to enhance the effect of his work. What Dr. GOULD says on the subject is so rational we append the passage, and it will suggest that the purpose of the book is an endeavour to promote the health, not only of some of the most useful members of Society, but general sanitation as well :—

By the old-fashioned gilt barbarisms the artist allowed the framer and gilder almost to monopolise the mental, emotional and physiological attention of the spectator and to detract as much as possible from interest in the picture itself. It is only for a few seconds that any human eye can look at a picture when the greater portion of the retina is outraged and exhausted by the adjacent images of the atrocious frame. In the ordinary gallery of pictures these ludicrous and retina-paralysing frames, close beside each other, become positively torturing. It all seems designed to exhibit, not art, not nature, not æsthetic charm and emotional peace, but only the abject hideousness of the plebeian frame-gilder's unart. Almost every traveller has noticed the utter exhaustion and headache that is produced by a short visit to a large picture-gallery. The crude harsh gilt is the most wearying of all colours. Recently there has arisen a reaction of which probably no one understands the reason, consisting in the making of frames with solemn and monotonous black. This extreme is infinitely preferable to the other, but it is also mechanical and stupid. Each picture should be framed by the painter—or at least, and because he has shown himself so blunderful about it, by another artist—with this single task in view. Each picture presents a special problem to the artistic framer. It should be done so as to produce a peculiar logical and physiologic colour-effect, as little wearying to the eye as possible, while dictated primarily by the character, the colours used, the æsthetic aims, &c., of the painter. It should by all means be hung sufficiently apart from all other pictures to allow it the proper necessities of its own individuality and not to destroy that of others hung in the neighbourhood. Pictures crowded together give evidence of the æsthetic sin quite as decidedly as the physical crowding of human beings demonstrates other sorts of immorality. In a word, the present fashion of framing and hanging pictures could not be more unæsthetic and unphysiologic, more unphysiologic and pathologic than it is. Another corollary of the law of ocular tire and resensitisation may be noticed in passing—a law that is outraged by the lighting of most of our churches, and of all our private houses, theatres, public halls, &c. The millions of dollars spent each year in illumination are in great part wasted and misspent, and by the methods used all the harm is done to the eye that is possible. No room should be lighted in such a manner that the individual lights are visible. Illumination should be by transmitted, dissipated and reflected light. There is nothing more tiring to the eye than numerous separate lights whose images upon various parts of the retina create there a large number of useless and exhausting stimuli, and from which there is no escape by any device or turning.

It may be said in conclusion that no medical book of our time is so well adapted to attract the attention of artists and men of letters. As a rule they are, no doubt, poor patients, and English physicians, at least, have therefore bestowed only very little attention upon the pains and penalties which can be considered as belonging to their callings.

Sir Frederick Treves will on Monday open the new operating theatre at the Dorset County hospital at Dorchester, his native town. The new wing has been erected by public subscriptions, and an operating table of the latest pattern has been given by Sir Frederick Treves.

THE ROYAL SCOTTISH ACADEMY.

THE exhibition of the Royal Scottish Academy will this year, says the *Scotsman*, be found of exceptional interest. By the resignation of one president and the election of another the Academy has entered on what may, without figure of speech, be regarded as a new stage in its career of artistic usefulness, in which it may be wished all success; and it was no more than what was looked for that the incident alluded to would in some degree at least make its influence felt in the conduct of the annual exhibition. This has happened. Since Mr. Guthrie was appointed president new life has been infused into all departments of the Academy's works, and here and there changes of a somewhat drastic character have been introduced, and for the most part with good effect. For example, the number of pictures that can be shown by one exhibitor has been cut down to three instead of five as formerly. One result of this has been that more space on the line has been available for outside pictures of merit. The water-colour men have got the north room to themselves, and an old feud may now be regarded as settled; the architectural drawings have been hung in the small octagon from which the obscuring glass has been removed; the sculpture has been set out in the various galleries in an agreeable manner, and the rooms generally have been decorated with much taste. The walls are covered with a neutral green-grey "scrim," above is a frieze and "swag" in another quiet colour, while the central great-room has its wide arched openings partially closed by portières of deep-toned Gobelin blue cloth, with an effect which is felt along the whole line of the galleries. A great change is also evident in the number of pictures accepted and the manner in which they have been hung. There was a strong feeling in the Council that the standard of attainment should be raised so that the acceptance of a picture or other work of art from one outside the Academy should be a certain hall-mark of its merits. In carrying this purpose into effect it is possible to come across genuine cases of individual hardship, but on the whole the public generally are likely to recognise that, stern as the process has been, the exhibition is the gainer. In all only 526 works of art have been placed, as compared with 789 last year, 812 in 1901 and 782 in 1900. This year 1,305 works of art of all kinds were sent in, including 697 pictures in oil and 407 in water-colour, and it will show how tightly the net has been drawn when it is mentioned that only something like 275 pictures in oil have been hung and 137 in water-colour. For one thing there are on view more large pictures than usual, so that the galleries do not appear at all empty, though for the most part the hanging has not been carried higher than the portrait line, except in the case of a few full-length portraits. The value, in the general effect of the hanging, of having restful spaces both above and below the pictures, has been freely recognised—spaces which the rejected ones will think would have been much better adorned by their pictures. There are a few loan works of great worth by eminent home and continental masters upon the walls. The Council have been fortunate in securing examples of the art of Whistler, James Maris, Matthew Maris, Orchardson, Josef Israels, J. S. Sargent and E. J. Gregory, which undoubtedly are features of strength in the exhibition. But for its real success the exhibition, it is gratifying to say, is mainly indebted to native talent—to the members and associates of the Academy themselves, who have rallied right loyally to make the first exhibition of the first year of the new President worthy of the occasion. Only one painting member and one painting associate do not exhibit in this exhibition, which in all respects is a credit to Scottish art, which is one of the best seen of late at the Mound, and which gives evidence that there is an immense amount of painting talent in the Academy, and by others still outside its pale. The Academy having done so much, it remains for the public to show their continued interest in the national Academy of art, in one of the practical ways they have in their power to do so, by attending in increasingly large numbers the annual exhibition.

The *Glasgow Herald* says:—Although the Academy is now in the last quarter of its hundred years, the show at this time may be said to indicate definite advance over several of its predecessors in respect both of quality and general arrangement. In the past artists connected with the Academy might each claim to be represented by as many as five pictures. This year three only are allowed to find wall space. The effect of this judicious limitation is that 526 works are exhibited, as compared with 789 in 1902 and 812 in 1901. Large canvases are more numerous than before, but it must be said that in every case, so far as a necessarily hurried inspection enabled one to judge, the artist is justified in treating his subject on a more generous scale. Another result of the restriction of exhibits is that the sky-line has been practically effaced. Loan pictures are hardly as numerous as we have seen in previous years, but, on the other hand, those which have been parted with by their owners for a time are of exceptional importance. This may also be said

of portraiture, of which there are many distinctive examples. Water-colour drawings, which in the past have been treated with scant consideration, are now suitably hung in the north gallery, first entered by the visitor. The art of the sculptor is well represented. It has been distributed throughout the galleries, lending grace and distinction to the show. It may be noted also that the walls have been draped in old gold and faint green, and that the small octagon, to which architectural drawings are consigned, is much better lighted by the removal of the semi-opaque glass overhead, and the substitution of undimmed transparency—an improvement obvious to all save those in authority outside the Academy for which we have once or twice vainly petitioned in these columns. Edinburgh artists are not largely represented in the Royal Glasgow Institute. They would seem to have reserved their energies in order to signalise the first Academy Exhibition under the new President. They have done so to good purpose, and we do not in the least dispute their wisdom or question their loyalty. Glasgow artists, or at least those still resident in the metropolis of the West, are not in triumphant evidence, although a landscape bearing the name of one member of the brotherhood, to which we shall afterwards refer, is one of the most convincing works of its kind in the exhibition. As a rule, the artists of Glasgow are represented each by a single picture. On the whole, it is evident that a progressive spirit has been in operation this year. The election of Mr. James Guthrie as president of the Academy in succession to Sir George Reid, whom we all admire as an artist and esteem as a man, has doubtless led to the adoption in some measure at least of Glasgow methods, into which may be said to enter such attributes as decision, energy and enterprise, as distinguished from adherence to academic tradition. The collection has been admirably hung by Messrs. J. Lawton Wingate, Robert Alexander, Thomas Scott, W. G. Stevenson and G. Washington Browne. To such a task as theirs, always delicate and difficult, is added the complexity arising from the octagonal form of the rooms.

WEST WINDOW, EXETER CATHEDRAL.

THE Chancellor of Exeter Cathedral has written to the *Times* on the subject of the letter we reprinted last week. He says:—

There is nothing surprising in the fact that Mr. Stuart A. Moore should in your columns chastise the Dean and Chapter of this or any other cathedral for any offence against the precepts of antiquarians.

But it is surprising to find him giving himself away, and, so far as his letter is trusted, misleading your readers by making statements that, if they were accurate, would not serve his case and, not being so, are of no use to anybody. We have a kindly recollection of him here in Exeter. He did excellent work here in the arrangement of our documents. His calendar here is our constant comfort and not a bad memorial of him. I hope his expression of opinion will not be considered part of the "chronic mania" with which he charges us. His letter is not serious enough for official notice. "Chronic maniacs" are excused from answering provoking charges.

We have no business, he thinks, to take Peckitt's glass out of Grandisson's window, and he rests his case for retaining it upon its history and its character.

I will deal first with the historical part of his letter, and then with the artistic part, in which he defends Peckitt's window as a work of art in harmony with the cathedral. He says:—

"The glazing of the cathedral can be traced on the fabric rolls. The bills show that the proportion of coloured to white glass was one-fourth of colour. . . . Peckitt must have observed this and done his best endeavour to treat the west window in the same spirit."

Peckitt was a clever man if he did observe this, for the fabric rolls referred to are those from 1308 to 1319. Peckitt came to Exeter "to observe" in 1765, four centuries and a half later. It is almost demonstrable that the glass in the windows referred to in the fabric rolls had vanished from the windows two centuries before Peckitt's visit. So much for one statement; now for another.

Mr. Moore claims that he, by pointing out to Sir Gilbert Cotton "in the records" the date of the great east window, saved it from being removed by the Chapter of that day, glass and all. This surprising statement will suffer in stability if reference be made to such an accessible book as Oliver's history of the cathedral. It was published in 1861. It is in everybody's hands here. On pages 206 and 207 there will be found the date of the window, 1391; the name of the donor, Henry Blackborne, a canon of this cathedral, and the price per foot of the glass. This was twelve years before Mr. Moore touched the fabric rolls of the cathedral. This history of the window and its date were therefore matters of common knowledge.

Allow me to point out to your readers that even this is not the east window of the fabric rolls, for that was erected in 1301-2. We do not know here why, only ninety years after its erection, it was taken out of its place. But we think that "chronic mania" for destruction is the least likely hypothesis that "the delusive faculty" can tempt even an irritated antiquarian with. We are entitled to feel sure, however, that Peckitt did not "observe it" in 1765.

To pass over other statements which with equal care a "plain tale" would "put down," your readers may like to have some account of the window which is to be removed.

The glass in it was placed there in 1767. The idea of the window is that over and around the seven figures which Peckitt painted on coloured glass a border should run consisting of the coats-of-arms of the subscribers, the border running up into the great wheel, where on a foundation of ducal and baronial shields the less impressive coats of baronets should float in the "diluted rays" of the setting sun. Various armigers also had their arms below. The balance-sheet is as I write before me; it will be seen that the idea caught on. I quote one or two items:—

"Received from the Archbishop of Canterbury, the Dukes of Somerset, Beaufort, Bolton, Bedford, the Earls Godolphin, Granville, Orford, Viscounts Falmouth and Courtenay, the Lords Petre, Clifford, Edgcumbe and Fortescue, at six guineas guineas each, 88*l.* 4*s.*; fourteen baronets, at five guineas each, 73*l.* 10*s.*; four members of Parliament, at five guineas each, 21*l.*"

The Dean and Chapter were good financiers. They made a profit on the archbishop's arms of two guineas, a guinea each on the arms of each peer, and on the arms of eight of the baronets and the four members of Parliament of a guinea and a half each. But the business side of Mr. Peckitt's head was better than the artistic side. He brought in a bill for extras which more than swallowed up the savings.

It wants very little reflection to arrive at a reasonable conclusion as to whether the glass of a design so inspired is likely to be worthy of a place in the finest window that the fourteenth century has bequeathed to us here in Exeter Cathedral. The window is Grandisson's *chef d'œuvre*; the glass approves itself to Mr. Stuart Moore.

SEALS OF SCOTTISH ABBEYS.

AT the last meeting of the Society of Antiquaries of Scotland, Mr. A. H. Millar read some notes on the ancient burgh seal of Crail and the seal of the Chapter of the abbey of Coupar in Angus. The antique instrument used for impressing the burgh seal of Crail was accidentally discovered in August last in the course of the demolition of a ruinous tenement there. It had been laid on the top of the wall under the sloping roof evidently with the intention of concealing it. The copper dies or matrices of the seal are fixed in a machine like a modern copying press and operated by a screw. The device of the seal is of great interest. The obverse shows the Virgin and Child, the Virgin seated on a throne, and an angel swinging a censur on either side. The reverse shows a large galley with a dragon's head on the prow, one mast and large yard with the sail close furled, and on the masthead a pennon with a St. Andrew's cross. The heads of a crew of six appear over the netting along the gunwale, and in the sky are the moon and stars. Dundee had a seal with the Virgin and Child on the obverse, which was discontinued after the Reformation, and Crail, which was the site of a collegiate church of St. Mary, seems to have abandoned the ecclesiastical part of the seal, and continued the use of the reverse only. The oldest impression known is that preserved in the chapter-house at Westminster, which was appended in 1357 to the engagement by the Scottish Burghs for the ransom of David II., and the seal now discovered corresponds in every detail with this impression. In October of last year Mr. Richard Morrison, a dealer in antiquities in Dundee, brought to the author of the paper a brass seal, which he was able to identify as the capitular seal of the abbey of Coupar in Angus. The matrix bears a very rich design, showing a figure of the Virgin seated under a Gothic canopy, holding in her right hand a branch of lilies and supporting the infant with her left. In the lower part of the field, within a niche, is an abbot, kneeling and holding a crosier. At the sides of the niche are two shields, the dexter bearing the arms of Scotland and the sinister three escutcheons, being the bearings of Hay. The block of the seal has a handle at the back in the likeness of the Virgin, crowned, and holding the infant in her arms. The height of the figure is 4½ inches. The seal is now in the possession of Lady Abercromby, Camperdown House, Dundee. The abbey of Coupar in Angus was founded in 1164 by Malcolm IV., and the Hays of Errol were among the principal benefactors, their grants to it beginning in 1170 and continuing till the sixteenth century.

NOTES AND COMMENTS.

THE right to a sitting in an English parish church, although it is sometimes claimed, is rarely considered to be so personal a matter as to need litigation. Consequently alterations and rearrangements of English churches rarely excite much opposition among a congregation. In Scotland the subject is regarded otherwise, for it is believed that the sittings in a church can never be diminished. That spirit is often an obstacle to improvements. A case of the kind is now being debated. A sum of about 800*l.* was bequeathed for the reseating of Dunfermline Abbey, a building which is of great historic interest. For many generations it was the burial-place of the kings of Scotland, and in 1818 the remains of ROBERT BRUCE were disinterred from it. The reseating would not be proposed if the present arrangement was perfect. Knowing the difficulty, Sir ROWAND ANDERSON was consulted, and he prepared a scheme which is adapted to the area, but if carried out one in ten of the present sittings, or say a total of 170, would have to be sacrificed. It is apprehended, however, that the old arrangement will have to be adopted. In any case it will be necessary to alter the flooring, and it is proposed to have a bed of broken stone covered with asphalt under the new flooring. A better system of heating will be necessary, as well as means for adequate ventilation. Altogether, 3,000*l.* at least will have to be expended in addition to the legacy. It would be a serious matter if, through one or more individuals, the proposed arrangements cannot be accomplished. So important a building ought to exert an influence on the minds of those who visit it weekly, and induce them to think less of themselves and more of the church as an institution.

THE arrangements are nearly completed in Paris for holding a building exhibition in the Grand Palais. It is to be international. The Germans have expressed a strong desire to take part in it, no doubt with a view to obtaining orders for some of their productions. The section relating to model dwellings has an interest for the Belgians, and they will contribute not only to it, but to some others also. There is no country in Europe where so much attention has been bestowed on the subject as in England, and it is believed that models of a great many English blocks of habitations, let at a cheap rent, will be shown. The project indicates the great change which has taken place with respect to exhibitions in France. The original exhibitions which Frenchmen originated displayed all varieties of industry, or as many as could be arranged for. But within the last few years the preference is given to special exhibitions. They cost less money than those which are general. They bring forward inventions which might otherwise be overlooked, and above all they afford opportunities for gaining medals and diplomas, and it may be even higher honours, by citizens of humble classes.

THE practice of golf in England has revived interest in the ancient city of St. Andrews, the seat of the earliest of the Scottish universities. The city has had its vicissitudes, and strange to say it suffered through the Reformation unlike most other parts of Scotland. When Dr. JOHNSON visited St. Andrews in 1773 he mentioned "the silence and solitude of inactive indigence and gloomy depopulation" which characterised the streets. Since those days the old city has improved, but it is doubtful whether it will be possible to raise the 23,500*l.* required for the restoration of the town church unless it is obtained from Scotsmen elsewhere. The people of St. Andrews have promised 9,400*l.* towards this sum, which is a liberal amount. According to an appeal which has been issued sketch plans of the proposed restoration have been prepared by Mr. P. MACGREGOR CHAMBERS, an architect of wide experience in ecclesiastical work, which have been approved by those who have inspected them. The main idea is to preserve the fine old tower and all that remains of the Mediaeval church, and to rebuild the remainder upon the original plan as far as it can be ascertained. The galleries will be removed, the side aisles will be reduced to their original height and the old clerestory will be reproduced on pillars and arches occupying their ancient places. The walls will be of stone throughout, and the greater part of the seats will be of oak.

It is not from any lack of ability as a figure draughtsman that Mr. G. WOOLLISCROFT RHEAD has prepared alphabets of Roman capitals as examples for lettering as well as for elementary freehand drawing. The lettering on the pedestal of the Trajan Column relates to the elevation by the Senate and people of the memorial of the Emperor's German and Dacian victories. Although there are seven lines, the whole alphabet as known to the Romans was not employed in the inscription. If judged by a modern test the letters H, J, K, U, W, Y, Z are omitted, but it is not a difficult operation to design those letters in a manner in keeping with the remainder. The Romans did not always adhere to uniform proportions; for some of the letters a square was employed as a basis, but in others the width is less than height. Better models for capitals of the class are not to be found. In addition three sets of "lower case" alphabets are given. The outlines are drawn with great boldness and decision. On that account they are well adapted for imitation by students of elementary freehand drawing. The collection is published by Mr. B. T. BATSFORD.

At the convention of the American Institute of Architects in 1890 papers were read on the Gardens of Italy, England, France and Japan. These papers have been edited for the Institute by Mr. GLENN BROWN, and are now published by Messrs. H. T. COATES & Co., of Philadelphia. The volume is not large, for there are only about 160 pages, but as on every page we have one or more illustrations, mainly from photographs, it will be evident that justice is done to the subject. The plates give what may be called bird's-eye views of the most important varieties of European gardens. The authors, Mr. HAMLIN, Mr. STURGIS and Mr. HOWARD, are American architects. In addition, the paper on Japanese landscape gardening is not only a revelation, but it will help to explain some of the decorative elements we see in Japanese work. The fences, gateways, bridges and harbours suggest that we might often take hints from the East. The only drawback is that we do not possess the bamboo which lends itself to so many purposes in Japan. For all lovers of the architectural garden the Institute manual will be reminiscent and advisory.

ALTHOUGH the population of Luxembourg is only about 21,000, the capital of the Grand Duchy is of some historic importance. It has many institutions of interest, such as galleries of antiquities and paintings, libraries, &c. The population is mixed, but the greater number are Germans. The authorities of the capital in all questions however remotely relating to art, look to Paris for guidance rather than to Munich or Berlin. The equestrian statue of WILLIAM II., the Grand Duke, which is the most important work of its class in Luxembourg, was modelled by M. MERCIÉ, the French sculptor. It is now proposed to carry out some alterations in the city, and to erect public monuments of various kinds. For that purpose the counsel of M. BOUVARD, the architectural director to the Paris Municipality, have been invoked. The old fortress, with its heptagon outworks, was constructed during the Spanish occupation, and enlarged by VAUBAN, but is no longer useful for defence. Accordingly the site, as well as the old ramparts, will be changed into promenades under the direction of two French specialists, MM. ANDRE. From what has been done it will be evident that the capital will soon have an outer boulevard which will be one of the most interesting in Europe. Lastly, M. SÉJOURNÉ, a French engineer, has been commissioned to design an arch of masonry over the valley of the Petrusse, having a span of no less than 250 feet.

ILLUSTRATIONS.

FRENTHAM HILL, FARNHAM.

ISOLATION HOSPITAL, LEICESTER.

SKIPTON AND DISTRICT HOSPITAL.

THE GARDEN FRONT, FAWSIDE, CURRIEMUIREND, COLINTON.

CATHEDRAL SERIES: WORCESTER.—ENTRANCE TO CLOISTERS.
BOSSSES IN CLOISTER VAULTING.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. Aston Webb, A.R.A., president, in the chair.

The PRESIDENT said his first duty was a sad one, as he had to announce to the meeting the passing away of a very great man, a member of their profession, Mr. F. C. Penrose, who died on Sunday afternoon. The funeral would take place on Thursday. Continuing, the President said it was naturally the desire of the Council to approach the Dean and Chapter of St. Paul's with the request that the body of the surveyor of the fabric should be laid in that building, but the Council were led to understand from Dr. Penrose, the son, that it was the wish of the family and also that of the late Mr. Penrose himself that he should be laid in the churchyard near which he lived in Wimbledon by the side of his wife, whose death preceded his by a few days. The Council therefore proposed to respect the wish of the family and not to approach the Dean of St. Paul's; but the Council hoped that in due course they might see a memorial to Mr. Penrose erected in that building on which for so many years he bestowed so much loving care. It was hardly necessary to say anything to the meeting in reference to the life of their past President; he was too well-known by the members. Mr. Penrose was born in 1817, and was therefore eighty-five years of age. Many of the members would remember that only a few weeks ago he stood in that room and gave them a paper on the volute in Greek architecture. Mr. Penrose seemed then as young and as earnest as he ever was, such was the zest and interest he put into the subject. The President added that it was not his intention to enter upon any details of the deceased's life's work; it would be better and more worthily done by a notice in the Institute Journal, but he reminded them what a wonderful and many-sided man the late Mr. Penrose was. Educated at Winchester and Cambridge, he gained a mathematical degree. The development of body as well as mind formed part of his early training, and he rowed in the University boat for two years. In the first years of his architectural practice he erected many buildings. Mr. Penrose was one of the architects selected to prepare a design for the alterations in the National Gallery. In addition he was a man of extraordinary scientific and intellectual ability, and produced one or two books which would live as long as interest was taken in ancient architecture. His "Principles of Athenian Architecture" was his chief work, and he pointed out the many minute refinements in Greek architecture which had not been discovered before his researches. He was also a great astronomer, and had published books on the subject. This science led him to propound theories as to the orientation of temples, and one of the last researches he entered upon with great interest was the orientation of the Druidical remains at Stonehenge, and he carried out a large number of most careful calculations with Sir Norman Lockyer. As a man they all knew and respected, they loved him very much. He had a power of intellect and simplicity of mind which won the constant admiration of all who came in contact with him. He acted as President of the Institute for two years, and performed his duties without flinching. For many years he attended the excursions of the Architectural Association, and sketched and worked with the younger students, many of whom could recall pleasant recollections of the great man on those occasions. In conclusion, the President moved a vote of condolence and sympathy with the family of the deceased.

Mr. BASIL CHAMPNEYS, B.A., read a paper on

The Planning of Collegiate Buildings.

He treated of such types of collegiate architecture as could be dealt with by one with such authority as practical experience might justify. Briefly touching upon the archaeological aspect of the subject, reference was made to the changes of custom which had served to modify the standard set up by the old builders, and to the different conditions now to be provided for. When the old buildings were erected, students entered on their University careers at a much earlier age than now; the standard of expense, too, was very much lower. Nowadays the University is considered the privilege of the more wealthy; formerly it was designed for all who had sufficient ambition or enterprise, and offered every facility to those who were prepared to face poverty and hardship in the pursuit of mental training. While the change in the age of the students revolutionised the arrangements of rooms, the increased size and scope of the colleges afforded occasion for larger and more comprehensive schemes of planning, and made effective grouping of the buildings possible. The great increase in size opened the way to the development of collegiate planning on an extensive scale, and suggested the type which nearly all existing colleges to some extent illustrate—the grouping of the buildings into one, two, or more quadrangles of rather low buildings (in the original colleges there were never more than two floors and an attic), from which the special and more important feature, the chapel, the hall and the library, stand out as salient features.

The lodgings of the president, warden, principal or master were usually included in the general grouping, and are seldom distinctive features in the older college buildings. In the present day the head of the college usually requires a more sumptuous abode, which must become an important item in contemporary college architecture; while the fact that many of the tutors and fellows are now married will also serve to complicate the future of collegiate grouping.

For the students' rooms the general arrangement was almost invariably as follows:—A staircase, entered from the quadrangle, led to rooms on either side, and as there were three floors, opened into six sets. This arrangement is usually adhered to in contemporary schemes, and, Mr. Champneys thought, with good reason. In the few cases in which a departure from the ancient type had been attempted, the result seemed to be unsatisfactory and destructive of collegiate character. As examples Mr. Butterfield's buildings at Keble were cited, where it would have been far more satisfactory had the ordinary rooms been planned upon the old-established system; the new buildings at New College erected by Sir Gilbert Scott about 1876, and a new group of buildings built by Mr. Bodley at King's College, Cambridge. In both the latter instances the fourth storey, which the author considered subversive of collegiate effect, had been, he believed, forced upon the architects largely, no doubt, from motives of economy. There was, however, no economy secured by this piling up of buildings. He had tested the comparative cost of buildings of two, three, or more storeys, and had found that a building of two storeys, floors of moderate height, was definitely more costly for the same accommodation than one of three, but four or more floors were not more economical than three.

The old system of college planning needed but few modifications to bring it up to date. A few practical requirements consequent on the change of custom have to be met. It is essential that living-room, bedroom and cupboard, or "scout's hole" or "gyp-room," should be independently accessible, though there is some advantage in having a door between the sitting-room and bedroom, as it allows the bedroom to some extent to benefit by the sitting-room fire, and enables the occupant to obtain more breathing space at night. The "scout's hole" or "gyp-room" need be little more than a mere cupboard; one of the most modern ideas is to provide for a group of rooms a kind of general "scout's hole" or pantry, with a sink and gas-stove, &c. These are the principal points in which a modern set of rooms differs from the ancient type, which, on the whole, has vindicated its claim to be applied to modern schemes as the best and most economical arrangement.

As an example of the most highly developed idea of a Mediaeval college, New College at Oxford was cited, which in its ancient form showed a complete design carried out at one time. In order to realise Wykeham's idea it is necessary to remove in imagination certain later additions which have obstructed the original intention. Chief of these is the addition of a storey to the main quadrangle. This raises the buildings to the same level as the gateway tower which originally surmounted them, and also decreases the predominance of the chapel and hall. William of Wykeham was a great Churchman, and his intention was to make the chapel the chief feature of his main quadrangle. The great height and scale still preserves its relative importance, but its predominance over the residential portion of the quadrangle is much hampered by the added storey. The marked predominance of the chapel over the adjoining buildings, the cloister and the tower, are somewhat exceptional features in college architecture, and serve to emphasise the ecclesiastical intention of the founder. The same idea is manifest in a college of modern foundation—Keble—which, as a memorial to a well-known Churchman, was founded with a somewhat similar view. Other colleges which bear the impress of a specially ecclesiastical ideal are Christ Church and Magdalen at Oxford and King's at Cambridge. In the more ordinary type of college the chapel hall and, in many cases, the library are salient features in the grouping, but their relative importance varies very considerably.

A new phase of collegiate life which involves certain modifications of the original type of building is the establishment of colleges for women both at Oxford and Cambridge. Life in these must necessarily be of a more domestic character than in colleges for men, and, if the style of architecture follows the requirement, the result will be something which may be called "domestic collegiate." Access to the several students' rooms can no longer be from staircases entered direct from the open air; the approaches must be properly enclosed and the passages warmed. In the building illustrated by the author—Newnham College at Cambridge—the deviation from the original type is greater, because the system of the college is that of subdivision into halls, each of which is on the whole complete in itself (a reversion, as it happens, to the original arrangement), the only features used equally by the entire college being the great hall and the library, the lecture-rooms and the laboratories. Moreover, the scheme as it now stands

has been developed piecemeal; has started from small beginnings and grown up step by step, each instalment of the group of buildings having been supposed at the time of its erection to be the last until the pressure of applicants suggested a further extension.

Another building referred to as deviating from the original type on account of a change of purpose was Mansfield College, which contains all the features of a college without residence for students. It consists of a chapel, a hall and common-rooms, with the requisite offices, bursar's and tutors' rooms, a few bedrooms, several lecture-rooms, a large library and a principal's residence. Plans of the building were exhibited to show how the various requirements had been met.

In conclusion, reference was made to the most modern type of collegiate arrangement, viz. that designed to meet the requirements of elaborate scientific training. To get an idea of the complicated planning involved in a very moderate portion of these requirements, the author advised his audience to read the papers on "The New Science Laboratories at University College, London," read before the Institute in March 1894.

Professor FAWCETT, M.A., who proposed a vote of thanks to Mr. Champneys, said the paper had naturally been of great interest to him, although he only knew intimately one side of the question. He did not know Oxford quite so well as he did Cambridge. The old system of college planning seemed to have been taken from the old manor-houses of early date. They were conventional buildings of the domestic character of the time. This arrangement seemed to have been universally accepted as the right one. With the introduction of colleges for women a totally different change was made in the planning, and instead of taking Mediæval manor-houses as an example, architects had been guided by the modern house, with all its luxury, and nearly all new colleges had been built on those lines.

Mr. W. D. CARÖE, M.A., seconded the vote. He said all who had seen Mr. Champneys's works both at Oxford and Cambridge must feel that he had carried out not only the ancient planning which had been described so well, but had also carried the charming feeling of that ancient architecture a step further than his predecessors.

The PRESIDENT briefly concluded the discussion, and the meeting terminated.

WHAT IS THE REAL VALUE OF GREEK WORK TO THE MODERN ARTIST?*

(Concluded from last week.)

IN Germany they have a very useful substantive "tectonics," by which is meant the philosophy of construction. "Tectonics" embrace the underlying principles of all constructive art, whether this be applied to the making of a teacup and a cabinet or a great architectural monument. An apprehension of these principles belongs, of course, to every competent architect and designer. There is no mystery about them. Just as in Molière's comedy, M. Jourdain has been talking prose all his life without knowing it, so the practising architect of our own day and country has been carrying out "tectonic" principles without, perhaps, ever hearing the somewhat outlandish adjective. It is well, however, occasionally to disentangle general principles from their practical application, and to study them apart as representing an abstract standard to which all practice has to conform. Greek art is most educational when it leads us back to these general principles that apply to all the varied operations of the arts, and it may repay us to consider for a few moments what "tectonics" imply, and how tectonic principles are illustrated in the work of the Greeks.

In the first place, then, the student of tectonics will apprehend the characteristics of different materials and the methods by which these materials are put together, and will discriminate the forms naturally produced by one substance and method of construction from those that are the outcome of other materials and processes. Consider how many solecisms in design, how many contradictions and inconsistencies would be saved if these fundamental facts about materials and processes were always clearly before the minds of constructive artists.

In the second place there will follow on the study here recommended a due apprehension of the principles of effective, as well as of sound and consistent design. There will be an understanding of the value in any complex composition of a base plinth or pedestal to give the structure or object a proper stand; of a cornice, cresting or other crowning feature to provide it with a finish above; of framings of various kinds to give value to particular portions; of mouldings and similar features which assist composition by connecting part with part and furnishing guiding lines to unify the effect of the complex whole. Here, again, it is a most salutary process not only for

the learner, but also for those already immersed in practical operations, to train the mind to get below the special form, say, of mouldings of the different Gothic periods or of Doric caps or Ionic cornices, down to the fundamental idea of moulding, a cap or a cornice in the abstract. The intention and significance of such details in themselves is something prior to the special shapes which they assume in this or that particular architectural period, and there are many students who could sketch the profiles of all the mouldings of the "styles" in half an hour, but who have never really argued for themselves, as a matter of principle, the artistic function of the moulding in its general idea as an aid to architectural composition.

In the third place, the principles of the placing and the selection of ornament are corollaries from the more general principles of tectonics. From an intimate knowledge of structure follows discernment of the fitting scheme for the distribution of ornament, the placing of which in its relation to the fabric is one of the most important matters for the designer to understand, while an apprehension of the different characteristics of materials leads to an instinctive judgment of what sort of ornamental treatment is suitable for each. A phrase just used suggests a word of comment. The phrase in question is "the principles of the placing and selection of ornament." It would seem more natural to reverse the order, and to say "the selection and the placing of ornament," for to most lay people and to many designers the ornament is a thing apart that has to be chosen for reasons of beauty or interest or symbolism, and applied later to the fabric in some convenient position where it will "go" or will "look well."

If, on the other hand, we regard ornament from the tectonic point of view, we find that it is the placing which is the important matter, and the actual character of the motives a quite secondary consideration. In other words, ornament as enrichment, as the diversifying of a surface with light and shade or colour, is prior to ornament considered as the display of leaves and flowers or beasts or human shapes. Ornament which grows, as all ornament should grow, out of structure or material is primarily enrichment, and not representation. Its representative character comes into consideration only after its place and general artistic effect are properly determined. What, now, do we learn from Greek architecture about these principles of ornament?

In the first place, we learn to keep distinct in our mind two things which in modern practice are often confused—ornament and the detailed treatment of features. By the detailed treatment is meant such things as the fluting of columns, the curving of the echinus, the profiling of mouldings. This is not ornament. The purpose of a detailed treatment of the kind for architectural members is to emphasise function and make clear the relation of parts. It makes the particular feature what Boetticher called an "art form"—that is a member of the structure which receives a special shape and finish with a view to making it expressive of its place in the organism of the whole. So the fluting, the tapering, the entasis, the necking of the Doric shaft are all intended to force on the spectator the impression of the work the column has to do and its relation to the rest of the fabric. It would be wearisome to attempt an analysis of the various forms used in Greek architecture, so as to show how in each case the general shape and the finish of details were not matters of chance or of fancy, but of deliberate artistic intent. By this, of course, is not meant that they followed any abstract formula, or were reasoned out in black and white as an engineer makes his calculations. The whole process of their creation and elaboration was an artistic one, just as the process of balancing pressure against pressure, an weight against support, in the French Gothic cathedral was one of tact and intuition, and not of formula and figuring.

This significant vesture, in which the architectural forms of the Greek temple were clothed, is something quite different from ornament. Ornament is abundant on very early buildings in Greece, but in the Doric temples of the severe archaic style it is sparingly introduced, while the tectonic details, especially those of the necking of the capital, are tolerably pronounced. The mouldings of the early Doric style, especially the undercut hawkbeak moulding, are carried pretty far in their profiling, but the carefully composed contour is no ornament. When at a later time the same moulding is carved into the egg-and-dart or the Lestrian cymatium, then there is ornament, but the profiling and the enrichment are, artistically considered, two quite different things.

On the Doric buildings of the normal type, represented, of course, centrally by the Parthenon, ornament takes its place as an important part of the effect of the whole. It is not so important that we can hold with Ruskin that the whole of the architecture of the building is a mere scaffolding for the support, a framing for the display of the carved enrichment, but we cannot properly consider the monument without taking account of the figures in the pediment, the storeyed metopes and the frieze. And it is one of the most instructive features of this central example of Greek work at its highest point in

* A paper read before the Architectural Association by Professor G. Baldwin Brown on Friday evening, February 6.

sign and execution, that the placing and the character of the ornament are just as much matters of logical principle as is the constructive skeleton. The principle on which the Greeks placed their ornament upon any complex structure, such as a building or piece of furniture, has been so often discussed that it ought, perhaps, to pass it over as something which, like the justice of Aristides, can be taken for granted. Gottfried Semper, whose work on "Style in the Technical and Tectonic" is the Bible of æsthetic principles, as they are understood by the artist rather than by the literary critic, was the first to point out the true relation of ornament to structure as illustrated in the work of the Greeks. There is a well-known errorism of Owen Jones in the letterpress to the "Grammar of Ornament" to the effect that we are not to construct ornament, but to ornament construction. The statement is grammatic, but as it stands misleading. To ornament construction, if it mean to lavish enrichment on the parts which usually form the skeleton or framework of the fabric, is contrary to sound principles, and is quite opposed to the practice of the Greeks. The phrase should be expanded to mean that ornament should always bear a due relation to construction. It is not a fact that construction is to be adorned, but construction provides the places where ornament may fittingly be played. The Greek practice was to choose for the location of ornament intermediate spaces, or points of rest as they have been called, in the construction, so that the beautiful and significant forms of the enrichment should be displayed where no actual work is being done by the members that form the structural framework of the whole. In this arrangement there is no conflict in our minds between the impression we receive from the structure and that which comes from the ornament. In any complex whole compacted of parts, one ought to be able to see at a glance what is the constructive action in each of the members that is really essential to the fabric. In the Greek façade this is particularly clear, for the contrast of the supporting members, the columns, with the responding horizontal of the architrave, takes the eye in a moment. It is the function they are seen to fulfil that gives them their interest for us, and the Greeks kept these parts simple and in order that attention should not be distracted from the constructive significance which in their case is all-important. The fluting and other details of the column are not, as we have seen, of the nature of ornament, but are intended to explain the position and function of the column in the structure. The sculptural enrichment of the Doric temple is practically confined to three positions—the frieze, the pediment and the acroteria, for the lions' heads along the cyma which act as gargoyles are exceptional features, partly tectonic and partly ornaments. In the Doric frieze the triglyphs are clearly structural features, short pillars repeating in their right grooves the fluting of the column shaft below, and promising thereby their function as supports for the third stage of the building, the cornice. The metopes, set back a little and the face of the triglyphs, are points of rest where no actual work is actually being carried on, and when the eye rests upon these there is nothing to distract attention from the ornament which is there displayed. The same may be said of the triangular field of the pediment, and as regards the acroteria, we have in the figures or ornaments exposed against the sky a crowning finish that sits lightly on the mass and is of all structural relation thereto. So far the distribution of the ornament in its relation to the structure.

If now we examine a little more narrowly the character of carved enrichment, we discern another artistic principle of great value. Not only should ornament be intelligently related to the framework of a structure, it should proclaim itself a part of the fabric in that it blossoms out from it at the right points, after the fashion of organic growth. From this point of view, interesting to note how recent ætiological discoveries seem to show that the sculpture on metopes and pediments is not to be regarded as so many pieces and groups in the round, independently made and set in niches or blank spaces on the building, but as reliefs on the surface of originally plain slabs of stone that backed the ornament or filled the intervals between the triglyphs. The best metopes from Selinus in Sicily, in the museum at Palermo, show this, because, though the relief is very high and figures in part detached from the ground, yet a portion of the original slab is left all round the figures as a sort of framing, and is from the tectonic point of view the most important part of the whole. One of the most archaic of all extant pedimental positions, found some years ago on the Athenian Acropolis, is actually in somewhat low relief on the back wall of the pediment. The frieze of the cella of the Parthenon, save the papyrus, at the western end, was evidently carved *in situ*, before the stone roof of the peristyle was put on, and worked upon the very stones of the wall. Not only this, the relief of which is, of course, very low, but also the metopes and the pediments, which, as we have just seen, are essentially reliefs and not groups in the round, represent a

diversifying of an otherwise plain surface of stonework with light and shade. The representative character of the ornament, the subject of the reliefs, is a secondary matter. The fact that these ornamented portions of buildings like the Parthenon have been abstracted from the fabric and set up in museums as specimens of representative sculpture obscures their true character. At Palermo the Selinus metopes are properly placed in the museum, set between the actual triglyphs and under the actual cornice of the temple, so that their decorative character is emphasised. The same plan is adopted in the British Museum in the case of some smaller monuments, but the Parthenon sculpture is not tectonically shown.

The architectural monument represents, of course, the most important application of tectonic principles, but these same principles apply equally to furniture, to vessels and utensils, and, indeed, to everything which is made up of parts. There is always in regard to these objects a suitable or an unsuitable general shape; a right and a wrong way of putting the parts together; an opportunity for making the structure look clear and firm and serviceable, or mixing the whole thing up in a meaningless tangle. There is always a fit place and an unfit place for the display of ornament, and a correct and a mistaken character for the ornament to take. Moreover, the decorative painter and carver, the designer of coins, medals and postage stamps, the embellisher of books, and, indeed, the decorative artist in every branch of his work would find the advantage of a thorough grounding in the principles here called by the convenient term "tectonic." A course in tectonics should form, I venture to think, a fundamental part of every scheme of artistic education, whether for architecture, for sculpture or for the various decorative and industrial arts. A student who has obtained a grip of these basic principles would gain enormously in directness of vision with regard to his general aims in his work, and would be saved from many tentative experiments and from not a few blunders.

The best work of the Greeks from this point of view is to be found in their stone buildings and their gold jewellery. The painted vase, which is often regarded as one of the most characteristic Hellenic products, is in some of its aspects the exception that proves the rule. In its general shape in relation to its use, in its structure and the fitting together of its parts, as well as in the surface texture and quality of the glaze, it is one of the best products of the kind in existence, and in these aspects cannot be too often studied. In beauty of simple lines the contours of Greek vases of the fine periods are unrivalled, and the proportions and finish of foot and lip and handles are a model to all craftsmen. In two respects, however, these famous vases invite criticism. They are not frankly ceramic. Fashioned as they are of clay, they are far too often found trying to masquerade as metal. The influence of the bronze vase oftentimes on the clay one was very great, and was destructive of the originally ceramic character of the latter. In certain curious features of the decoration, in the treatment of the black glaze, and, above all, in the thinness of the fabric and occasional wiriness of the handles, there is betrayed a distinct effort to imitate the nobler and costlier material. Again, the choice of the style of decoration is not a fortunate one. The vase painting, representing always some figure scene for the most part of mythological import, though interesting in itself, is not a suitable form of decoration for the rounded body of a vase. A surface that recedes from the eye in every direction is not fit for the delineation of the human figure, as the parts of this are necessarily put out of due relation, and some disappear altogether over the horizon. As a ceramic product—that is, a glazed fabric of opaque clay—the Greek vase, though perhaps better as a whole than the over-praised Italian majolica, is much inferior to many coarser, more freely treated products, such as Hispano-Moresque or Persian lustre ware, in which the genius of the materials is the predominant factor, and substance, shape, colour, ornamental motives, texture, are all conditioned thereby.

Greek goldwork, on the other hand, is unrivalled for its simplicity and purity of style. It stands exactly at the opposite pole to the fashionable jewellery of modern times. In the latter the precious stone is all in all, and the setting of so little artistic account in itself that it is changed at will to meet the vagaries of fashion. In the Hellenic work the precious stone is non-existent, any touch of colour desired being added by enamel pastes, and the artistic handling of the single material of ductile gold gives all its value to the product. Not only is the workmanship, as Castellani testifies, unapproachable by the modern craftsman, but the chasteness of the forms and the elegance and distinction of the ornament are beyond all praise.

The Greek coin is not a tectonic product, in that it is not put together of separate parts. As a model for style and treatment it is, however, in its own way supreme. Greek coins in their artistic aspects have never been sufficiently exploited as educational media. Whether as originals or in electrotype reproductions, they are too small to be seen properly by more than one or two persons at once. Furthermore, there is so much archaeological lore connected with them constituting an

abstract science of numismatics, that their purely artistic interest has been a little lost sight of. Some means of reproduction are needed that should exhibit the design enlarged in scale to at least 3 inches in diameter. A couple of hundred selected Greek coins exhibited in this scale would be found to furnish an almost inexhaustible series of artistic lessons in composition, in treatment of relief, in distribution of details, and in conventionalising of natural forms to suit the exigencies of space. The inventiveness of the Greek designer in his variations on some established type is inexhaustible. A single type like the horse on Corinthian coins, the figure riding on the dolphin on those of Tarentum, the female head on the obverse, the four-horse chariot on the reverse, of the pieces of Syracuse—all appear in scores or even hundreds of examples, no two of which are the same. The dies of Greek coins were continually being renewed, and it is the rarest thing to find among existing specimens of coins any two that have been struck from the same die. Every time a die was cut, the type, though remaining essentially the same, was varied in composition and details, and each modification seems happier than the last. The modern designer should regard these exquisite specimens of his art, not as archaeological curiosities, but as fresh and spirited creations animated by just the same qualities that he would himself wish to secure in his work, and, regarding them in this way, he will find in them not only technical guidance but also inspiration in the higher operations of design. For it is not only in composition and treatment that the Hellenic mint-master is so successful. He is just as distinguished for the felicity with which he conceives his expressive and suitable designs. The Greek coin differs from the painted vase and the engraved gem, forms of Hellenic art with which it may naturally be compared, in that it remained throughout a thing of use and never passed like vases and gems into the cabinet of the collector. Even in the antique world the vase and the gem had degenerated into the "objet d'art," the coin escaped this fate, and remained to the end an instrument of commerce bound up with the utilitarian needs of the community. Hence the device which marked the coin was never, like the device on engraved gem, merely fanciful; it was always of serious purport and expressed some historical, commercial or religious idea intimately associated with the State which issued it. The Greek designer was the master of an artistic shorthand by which he concentrated a world of significance into a single pregnant device. If we seek for a phrase in which to describe his operations, we may say that he excelled in "the artistic wording of an idea in terms of form," and the study of his work from this point of view could not fail to be helpful to the designer of to-day. It need hardly be said that the work of our own outstanding artists in design is characterised as much by felicity in conception as by taste and skill in the carrying out. It is not work of this higher order which is here contemplated, but rather the mass of everyday design that is not the best we can accomplish, but is turned out in great abundance to supply the incessant demands of the market. In conception the motives of this decoration are often terribly bald and plain-spoken—wholly wanting in that poetic allusiveness that characterises Greek and Mediæval design. The motives displayed on the ordinary modern trophy or casket to contain the illuminated address or burgess-ticket are depressingly prosaic and literal, and there is room here for some lessons in artistic shorthand, which a study of Greek numismatics would afford.

Time will not allow of any further illustrations from the varied and interesting artistic work of the Greeks, and what follows must take the character of a few words of summary. An ancient writer has preserved a record which touches with pathetic interest the later history of that Greek colony of Paestum or Poseidonia, where stands the great temple at which we have already glanced. It was in Central Italy and was an outlying representative of Hellenic civilisation, so that as time went on the native Lucanians of the surrounding territory pressed in upon it, and almost submerged in barbarism its once pure Hellenic culture. It is said that the representatives of the original colonising stock used still to gather together once a year at the festival of their patron deity; in solemn assembly they would pour the wine once more upon the unheeded altar, and with sighs and tears would profess one to the other that they were still Greeks.

We have not to lament that we were once Greeks and are in danger of being Greeks no longer, but are in the happier position that we can claim as our own the heritage of Hellenism in virtue of that free cosmopolitanism which permits us to choose from all the past such lessons and examples as we need.

And we need to take over from the Greeks that obligation to absolute thoroughness and certainty in all we do which, as artists, they so well recognised and fulfilled. Nothing we owe to the Greeks is of greater value than the very high standard they set both in artistic thought and in artistic execution. Whatever the Greek artist touched he gave to it beauty and significance, and there resulted what the Germans call a

"Beseelung"—a "giving of a soul" to all constructive form. These possess in consequence a distinction, a look of purpose and efficiency, that have secured for them a sort of artistic immortality. They are still with us, and will probably remain a possession of the human race to the end of time. Whether we actually continue to use these forms or not, they are abiding standards of form and finish the virtue of which standards will only increase with time. The tendency of modern days to haste and incompleteness of work will grow greater as the general hurry and strain of life increase, and repose and perfection of Greek work will become more and more precious in contrast.

On the actual use in modern work of these classical forms word may be said in conclusion.

It is not the business of the architect of to-day to ere Greek temples like the Madeleine at Paris, or, as at London and Edinburgh, to force the forms of the Erechtheum into the service of modern requirements. Our architectural classicism of the early part of the last century went too far in the attempt to transplant into the surroundings of modern life in North-western Europe the special forms of plan and elevation that suited the social and religious purposes and the climate of the Greeks. In Scotland much of the work of Hamilton and Playfair, such as the High School at Edinburgh or the Royal Institution that faces Princes Street at the bottom of the Mound, are too artificial in their classicism to suit the taste of the present day, which, after the battle of the styles, has settled down, as we have seen already, to a moderate and common-sense view of things.

Perhaps in our own country St. George's Hall at Liverpool goes as far in the resuscitation of the antique as modern taste will allow. It is a monumental structure designed for a state outward effect, and for actual uses fully in accord with the spirit of Attic culture. Hence the style has a natural suitability to the purpose of the building, while it is treated in so free and original a fashion that we have no sense that art is in bondage in it to archaeology. A more limited employment of classical forms for domestic as well as for monumental purposes we find in the neo-Classic town architecture of eighty or a hundred years ago, of which the work of Robert Adam, in Edinburgh and London, is a central example. The scheme of the buildings in question is not Classic, for the chief element of their architectural effect is the wall pierced with window openings, and this is not a form used in the antique world; but the details are largely drawn from the "repertory of ready-made details" referred to at the beginning of this paper. The question has been already posed, whether the continued use of these is only a matter of unreasoning habit or has for its justification some solid artistic grounds. Enough has been said already about the merit of these features in themselves, perfected by the form-giving genius of the Greeks. The objection to their continued use is based on the fact that though admirably fitted for their original purpose and surroundings, they are trite and conventional forms meaningless to the modern intelligence.

May it not be argued, however, that this very familiarity and conventional character of the forms in question is an architectural advantage? If the effects of architecture depend so largely on composition—that is, on the relations of proportion among the parts—the less attention the parts attract to themselves the better. The original features which the new art movement has introduced into notice challenge attention by their novelty and sometimes by their strangeness, and even by their uncouth aspect. Attention is in consequence distracted from the general effect, which depends on the harmony of relations, and is directed to the parts rather than to the whole. If these forms were good in themselves we might be content to wait till we became familiar with them, and they dropped by consequence into the background. As a fact, however, the creation of satisfactory tectonic forms is a very much more difficult matter than some people imagine, and a repertory of features that are to take the place of the forms matured by the Greek masters of old is not the work of a single day or generation.

Professor BERESFORD PITE, who proposed a vote of thanks to the author, said the paper had displayed a field of thought that few had time to explore, though they were all more or less acquainted with the subject. There was a great deal of matter in the paper which afforded ample ground for discussion, as seemed to bristle with questions, but probably the debating points raised would not add much in answer to the initial question—the real value of Greek work to the modern artist. The paper did not truly estimate, the speaker with diffidence ventured to suggest, the action of time upon Greek buildings. Their ruins seemed to be in every case pathetic and to seriously detract from artistic value. The greatest charm of Greek work was its finish. Practically, they could not get much real good from the study of monumental Greek architecture unless they had some monumental work to design, when the primary elements of impressiveness, the careful and experienced adjustments which the Greeks arrived at, would be of the greatest possible value.

Greek view was a narrow one. Its scope seemed limited to the column and the entablature, and in this there was little practical use to modern architects. Apart from monumental art there was very little that could be of use to them. The suggested application of tectonics to the Panathenaic frieze was difficult. The frieze was a representation of the narrow view the Greeks took; its motive would have been happier. Mediaeval architecture had been dubbed romantic, but it had altogether more value than Greek architecture could be by tectonics. There was less room for romance in a Gothic church than there was in a Greek temple, and this was to be amply seen in the French cathedrals of the thirteenth century. Gothic was necessarily sound construction coupled with the artistic expression of that spontaneity which was the secret of the mystery of nave and chancel. It was the art that held the secret of the beauty of the Gothic cathedral, the engineering skill that was the real charm of the Gothic art, and these were tectonics.

Mr. H. H. STATHAM, in seconding the vote of thanks, said he thought they would never be able to get away from the fact that they must do without them. It seemed to him that they must regard as the highest expression of ideas in artistic form, though the creation of man yet they were the most perfect expression the world had known, and until they did invent a better style than the Classic, the orders must remain as a practical part of architecture. They must not despise them, but the speaker thought architecture could not be without their influence.

Mr. ALEXANDER WOOD said he wished to advance the suggestion that if Greek art was limited in its scope, that was the direct purpose of the Greeks. Their art was selective, they were acquainted with other styles and methods, but they did not introduce them into their work. It was not want of knowledge which narrowed their view, but the aim of limitation was the perfection of their art.

ACETYLENE.*

BEFORE I begin this paper on acetylene I think it right to state that I am indebted very much to the Cantor Lectures on this subject, given by Professor Vivian Lewes, and the report of the Third Congress on Acetylene, held at Paris in 1900.

I propose to confine my remarks to the history and chemical composition of the very curious product of the electric furnace to which the name of carbide of calcium is given, and from which the gas acetylene is generated by the action of water.

Long ago as 1836 Edmund Davy, in Dublin, who was Professor of Chemistry to the Royal Dublin Society, discovered acetylene gas and demonstrated some of its more remarkable properties. He read a paper at the British Association the same year, and showed that when the metal potassium was heated a mixture of calcined tartar and charcoal in a large iron bottle a black substance was formed which was easily decomposed by water, and yielded a gas then called "burette gas"; subsequently, as we now know, it was named acetylene. In this paper Professor Davy pointed out the brilliancy with which this new gas burnt, and it was admirably adapted for artificial light purposes if it could be produced at a sufficiently cheap rate.

Twenty years later, in 1857, Züst and Boettiger made some experiments, but it was not until 1859-62 that Berthelot made out its true composition and method of formation.

He showed that acetylene was formed during the decomposition of many organic substances by heat, and that ethylene, benzene, alcohol and ether all yielded this gas when passed through heated tubes, and finally demonstrated the possibility of synthesising acetylene by passing the electric current through carbon points in an atmosphere of hydrogen.

Further development has been suggested, as Professor Berthelot states, which is interesting, viz. that alcohol and proboscis might be made from acetylene.

Acetylene was first called bicarburetted of hydrogen, afterwards "carburetted," but later acetylene has been adopted.

In analysis the gas is found to contain:—

Carbon	92.3	} Which answers to the formula C_2H_2 .
Hydrogen	7.7	

It has a density of 0.92. Water = 1.

The action of water on calcic carbide it has a strong and pungent odour, but when purified from sulphuretted and carburetted hydrogen has a somewhat ethereal smell which is unpleasant.

It is easily soluble in water which at ordinary temperatures

was read before the Society of Architects by Mr. John W. L. M.A., and Mr. F. Windham, A.M. Inst.C.E., on February 19.

and pressures takes up a little more than its volume of gas. According to Professor Lewes:—

Brine dissolves	0.05
Water	1.10
Alcohol	6.00
Paraffin	1.50
Acetone	31.0

It was thought that it would not be possible to use acetylene in ordinary gas-fittings as it forms compounds which explode with copper, but subsequent experiments have shown that except with pure copper and under circumstances which cannot occur in ordinary working, the gas-fittings, if of the best material and workmanship, may safely be used.

When mixed with air it is very explosive, and detonates under certain conditions with such violence that it cannot alone be used for gas-engines.

For further information I would beg to refer anyone who is interested in this question to the admirable Cantor Lectures I have above mentioned, which cover far more ground than can be attempted on the present occasion.

Carbide of Calcium.

It is well understood that for commercial purposes acetylene is best generated from carbide of calcium, though there are other carbides of the metals which give off gases more or less consisting of acetylene when decomposed by water.

The history of the manufacture of this substance is detailed at length both in Professor Lewes's lecture and in the Comptes Rendus of the Congress of Acetylene, to which I have referred.

It was first made for commercial purposes at Spray, in North Carolina, by Mr. Wilson, and soon after at Leeds and at the great works at Foyers; also many installations in Europe, in France, in the Pyrenees and the Rhone Valley in Germany, at Neuhausen, near Schaffhausen-on-the-Rhine, and in other places where water power is to be obtained.

The two processes used in making calcic carbide by electric power are the ingot and the tapping process.

In the ingot process the coke and lime, both of which must be very pure and especially free from sulphur and phosphorus, are carefully mixed and ground finely. The arc is struck in the crucible, and the powder is allowed to flow in and partially fill the crucible. An ingot is gradually built up from the bottom of the crucible, the carbon electrode being raised from time to time. The crucible is of metal. The essence of this method is that the coke and lime are only heated to the point of combination, and are not "boiled" after being formed.

In the tapping process a fixed crucible is used, lined with carbon. The electrode is nearly as big as the crucible, and a much higher current density is required. The materials do not require to be ground fine. The carbide is heated to fusion and is tapped at short intervals.

Calcic carbide, as formed in the electric furnace, is a crystalline semi-metallic looking substance, having a density of 2.2. It can be kept unaltered in dry air, but the smallest trace of moisture in the air leads to the evolution of acetylene and gives a distinct odour.

The purity of the carbide entirely depends on the purity of the materials used in its manufacture. Although great care is exercised, minute traces of sulphuretted and phosphoretted hydrogen are found. The first gives rise to a pungent odour, and the other compound would, if present in any large quantity, cause the gas to ignite when coming into the air.

There are also some other impurities in the carbide. Professor Lewes notices very small diamonds as having been observed, while portions of the crust seem to consist of a very hard combination of carbon, silicon and aluminium, commonly called carborundum, which is used in America as a substitute for emery powder, and for grinding wheels, &c.

Acetylene is used to enrich the oil gas used by the railway companies, and Professor Lewes states that fully 3,000 tons of carbide were so used in Prussia in one year by the railways. It has also been found to be useful in enriching a slightly modified form of water gas.

These mixtures are stated to be free from any danger when compressed for railway use, and will no doubt be largely used in the future.

In conclusion I would wish to quote the words of Professor Lewes, that "forty lectures would not be too many to illustrate this subject, and that in time cheapened carbide will enable this valuable hydrocarbon to take its place in the foremost ranks of our illuminants." JOHN W. WOODALL.

System of Generators.

The various systems, all of which work slightly above atmospheric pressure, 3 to 4 inches of water being about the best pressure to keep the burners free (though the Home Office regulations allow 100 inches of water pressure), may be divided into three classes:—

1. Those in which the calcium carbide and water are brought into intimate contact by a change of level of one or the other substances.

2. Those in which the water is allowed to fall or come in contact with the carbide drop by drop.

3. Those in which the water volume largely exceeds the volume of carbide which is allowed to fall into the water.

Class 1.—The machines under class 1 are so-called automatic, but they are mostly unsafe from the fact that high temperatures may be reached by the carbide, which causes disintegration of the resultant gas, producing benzene, ethylene and various other tarry deposits which tend to foul the pipes and apparatus. It is possible in such an apparatus, if the gas is in contact with air and the carbide is not properly cooled, to set fire to the gas.

Again, the lime absorbs water during the time it is hot and gives it out on cooling, so that the generation of gas goes on though nominally arrested. There have been accidents with this class of machines.

Class 2 are mostly machines combining a rising bell and a carbide-charging apparatus; these are largely in use and act fairly well, provided ample means are taken to keep the carbide cool during generation. They are controlled by a rising bell, which automatically shuts or opens the water supply by its rise or descent. They may be subject to undue heat under the following conditions:—

Supposing the generator is fitted to contain a fixed charge of carbide intended to work at a certain rate per hour (*i.e.* to light so many burners of a certain power), and the users, which is often the case, either use more or larger burners, the generation of the gas then goes on much quicker than the prescribed limit; the apparatus, suppose, is suddenly put out of use, the water supply is automatically shut off, and the carbide feeds on the small amount of water left. Hence three results may occur—either that a dangerous heat is set up, that the carbide may swell and prevent the little water present from getting to it, or that a disintegration of the acetylene takes place and foreign gases and tarry products result.

Class 3. These are undoubtedly the safest forms, provided that carbide is not in a powdered form, but is in fairly large lumps, and is fed in through an air and vapour-proof hopper.

Hitherto it has been the custom in automatic machines of this class to feed with powdered carbide, released or actuated in some way by a hopper, controlled by the action of a bell. But seeing that vapour to some extent is always produced by the falling of the powdered carbide into water, the tendency has been to form a conglomerate mass at the mouth of the hopper, consisting of pasty carbide, which prevents the free action of the apparatus. If, however, the carbide is fed in larger lumps, and through a vapour-proof hopper, the chances of success will be almost assured. Such a machine is now on trial and promises good results.

Comparative Cost.

The price of acetylene gas will always be governed by the price of carbide, assuming that 1 lb. of carbide will give off 5 cubic feet of gas which, when burnt in suitable generators at a low temperature, should give 240 candle-power, but, as a matter of practice, 220 candle-power should be a fair assumption.

Carbide fluctuates in price owing to "corners" made by the manufacturers, restrictions put on the carriage of it (except in bulk).

It may be taken including delivery, cost of non-returnable drums, &c., at about 3*d.* per lb. in quantities of 1 cwt. and thereabouts.

Some allowance must be made for the purifying material also.

Taking coal gas at 2*s.* 6*d.* per 1,000 to cost 1*d.* per 33 feet, then 33 feet should, under very favourable circumstances in the ordinary burners, give 70 candle-power, say 1½*d.* per 100 candle-power per hour.

One hundred and ten candle-power per hour with acetylene at 3*d.* per lb., 1½*d.* per hour.

In districts, and there are many of them in country places where coal gas is 6*s.* 8*d.* and 7*s.* 8*d.* per 1,000, acetylene will come well to the fore.

Installation.

The installation is simple; the pipes need be about quarter the area of those for ordinary gas, and there is less heat given into the rooms, as only about one-tenth part of the gas by volume gives off equal light to coal gas; the heat given off by a flame of equal intensity is about 1,000 C. for acetylene against 1,360 C. for coal gas.

Taking a room to be well lit up with 70 candle-power, ordinary gas in bat-wing burners would give off 20 cubic feet of carbon dioxide in addition to about 60 cubic feet of water vapour, and would remove about 26 cubic feet of oxygen.

With acetylene the produce is only	4 cubic feet CO ₂
	2 " Water vapour,
	5 " Oxygen.

The pipes and fittings used should not be of copper, copper and silver having properties of forming acetylides of the metal when in contact with the gas and water. Iron and compo suit well, and the mountings of a good brass alloy with an admixture of tin. The cocks should be well ground in and the joints

of the system throughout made with a spirituous mixture as red lead and gold size, shellac and spirit; ordinary red and oil is not suitable unless given a very long time to set. As the pressure being much more than double and sometimes four times that of ordinary coal gas, the weak parts soon discovered by the gas, and unset joints made with putty may be blown through before they have time to set.

The whole system should be well tested and allowed to stand with the pressure on double of that at which intended to work for some hours; ordinary gas-fitters are too careless, and qualified people should be engaged to fit up in every case, otherwise the apparatus may be blown

Purification.

Good results will be obtained by purification. Users make a simple form of mixture with lime and coke sprinkled lightly over trays. The coke may be previously steeped in chloride of lime or hydrochloric acid, and a spoonful of this mixture to a bucket of water put into the tank acts as a good purifier.

In winter it is well to have the bell working in a solution of salt (preferably chloride of calcium), as this mixture will not freeze in this climate under covered places where generators are likely to be kept; and again it is well to keep this mixture for everyday work, as much less gas is absorbed by the saline water, ordinary water being able to take up only one-tenth of its own volume, whereas a brine solution will only absorb one-fifth of its volume.

Portable Apparatus.

So far no mention has been made to portable apparatus which must assume large proportions in the colonies and climates where paraffin and coal gas are difficult to procure and convey. Carbide in wet or dry climates, if treated by a special preparation, can be made to resist the action of moisture for long periods, and some samples are produced here to-night. It may be divided into three sections:—

1. By which the carbide is coated with a glucose mixture which absorbs the lime when mixed with a preponderant amount of water.

2. Carbide intimately mixed in the plastic state with hydro-carbons.

3. Carbide coated with an elastic varnish, coupled with hydro-carbon capable of absorbing some of the impurities resulting in the generation of the gas, and capable of intercepting the flame.

No. 1. Taking No. 1, the proportion containing glucose which itself contains a certain proportion of water naturally absorbs some of the lighting qualities of the gas, and adds a considerable weight to the compound. The glucose covering is readily attacked by moisture in the air and has to be kept well secured air-tight cases.

No. 2 This mixture is not so subject to action by moisture as the heavy oils are incorporated in the mass, but weighs more; the amount of active carbide is far less as compared with the same weight of good active carbide, and consequently the gas production per lb. of material may be reduced to 25 per cent.

No. 3 is a process which treats the carbide without decreasing its efficiency in any way, either by contamination with nascent vapour or by dilution with extraneous oil. It amounts to a flexible film applied to the carbide under a temperature exceeding 212 deg. Fahr., at which no water is present; it adds very little to the weight, about 2 per cent. an amount that is practically not worth considering, so that raw carbide may lose as much as 10 per cent. to 15 per cent. of its gas efficiency if granulated or exposed during the ordinary process of turning off into small charges.

It will give off the full gas efficiency due to the carbide; it leaves the factory fresh from the furnace, the ingredients in the film helping to reduce the endothermic action of the generating process, thereby giving a purer gas, and at the same time absorbing many of the heavier vapours which tend to clog the burners.

The cost of this compound by weight therefore gives the best value for money.

I have alluded to prepared carbide only in connection with portable apparatus, the reason being that in small apparatus of this kind there is not gas room sufficient for the development due to raw carbide, hence some form of carbide is generally used treated in some way with a restraining medium.

Again, seeing that portable apparatus are far more exposed to exposure, it is almost necessary to have some means of protecting the charge.

F. WINDHAM, A.M.INST.C.

The Skipton Borough Council have instructed Mr. Butler Wilson & Oglesby, architects, of 12 East Parade, to prepare designs for the enlargement of the town hall, Council offices, Skipton, Yorks. The scheme comprises extensions to the hall, with a new supper-room, the entire modelling of the Council offices and the provision of new house for the magistrates.

EXPLORATION IN CRETE.

In a letter to the *Times*, Mr. George A. Macmillan refers to his appeal for further help in carrying on the work of the Cretan Exploration Fund:—I said that we wanted at least 500*l.* to complete the excavation of the palace at Knossos and to carry on other work at Palaiookastro, in which the Cretanagers of the fund are pledged to assist. I added that if we could raise another 1,500*l.* we could so far recoup Mr. Evans for the large personal outlay which, with a disinterested zeal which has perhaps carried him beyond the limits of prudence, he has incurred in connection with his wonderful discoveries. We have received up to now about 1,000*l.*, of which between 500*l.* and 600*l.* has come in since the publication of my letter. Towards this amount the Hellenic Society and Mr. Walter Morrison contributed 100*l.* each; the Cretan committee of the British Association and the Society of Aquarists 50*l.* each; while the rest is made up of smaller contributions, from 25*l.* to half a guinea. As many of your readers are aware, a room has been devoted at the winter exhibition of the Royal Academy to the display of drawings, casts and photographs illustrating the principal discoveries made by Mr. Evans and his fellow-workers. Special attention is given to his exhibit on the cover of the catalogue, and from what I have seen and heard it seems clear that no room in the Burlington House has drawn a more constant or more interested concourse of visitors. In the first instance Mr. Evans only arranged to lend his drawings and photographs for the month of January, but he has been urged, and has consented, to allow them to remain there until the exhibition is closed. It is no wonder that so much interest has been aroused, and no one can see what is there displayed without realising that a marvellous contribution Mr. Evans has made to our knowledge of ancient art and of the whole history of civilisation. The wonder is that when, on the strength of such results already achieved, so comparatively small a sum as 500*l.* is asked for to complete the work it should not be immediately forthcoming. It was suggested to me the other day that a procession of "unemployed Cretan excavators" parading Piccadilly with collecting-boxes might produce the money required, but I prefer to believe that once the necessity is known the remaining 700*l.* will be easily raised without resorting to such methods. Mr. Evans is now in Crete again this week, and it is likely enough that in the course of March news will come of further discoveries. I trust that his strenuous labours will be encouraged by the news that he need not be anxious about funds, but may be free to complete one of the most fruitful excavations of modern times without further encroachment upon his own resources, which have already been drawn upon too freely. I only add that subscriptions may be paid to the account of the Cretan Exploration Fund at Messrs. Roberts, Lubbock & Co., Lombard Street, or may be sent to myself at St. Martin's Lane, London, W.C.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

THE annual dinner of this Society (allied with the Royal Institute of British Architects) was held on the 12th inst. at the Queen's Hotel, Leeds. The president of the Society (Mr. Butler Wilson) occupied the chair. Mr. Bodington, in giving the toast of "The Royal Institute of British Architects," said the problem had been propounded whether architecture was a profession or an art. He replied that it was both, or at all events that the element of art was not neglected. Of all the arts surely architecture was the most universal and the most national—the most universal, because though music might disappear and painting might pass away, so long as men required houses to live in and buildings for public purposes, architecture must flourish. More-over, of all the arts architecture most accurately expressed public sentiment, and most expressed the ideals of the national spirit of the day. If the literature of Greece, of the Middle Ages, of Egypt or of India had totally disappeared, they could have learned much of the national characteristics and national ideas of these periods from the architectural monuments which they had left. When national life was simple and architecture was simple. To-day we lived in an age of complex ideals—we scarcely knew whether we were Hebraic or Greek in our sympathies. We tried to combine the devotion of the Middle Ages with the scepticism of the Renaissance, and the result was that our architecture, while it was learned, it was careful, while it was often inspired by genius, it was the incoherence and want of simplicity of the national spirit. Under these circumstances it was of particular interest and importance that there should be architects in England, and that whom architecture would tend to become merely whim and merely a matter of individual taste. To an institution which sort the whole profession of architecture, and more than the whole public owed a great debt of gratitude.

Mr. John Belcher, A.R.A., replying to the toast, said that the Institute might be said to be the representative body of British architects throughout the Empire. The more thoroughly architects co-operated with the Institute in maintaining the status and integrity of the profession the more effectually would its status be safeguarded and the beloved art advanced. There were, he continued, other things which conducted to health besides a proper system of drainage, and he thought the authorities should not only take precautions against contamination through the senses of smell, taste and feeling, but they should also be careful that nothing should be received through the eye or ear which was corrupt, coarse or vicious. That which was repulsive must affect the mind, and the mind reflected upon the body. "Leeds," continued Mr. Belcher, "possesses many admirable buildings which may be said to be healthy in all respects, but I am sorry to say that, like other cities, there are a great many buildings that cannot be so described. I cannot say that I would suggest that this question of aspect and design of buildings should be considered by the Sanitary Department, but it is very important from the point of view of health, and there is much to be said in favour of a Minister of Fine Art, under whom some general supervision might be wisely exercised over all that is to be presented to the public eye. In the meantime we must, as architects, remember our responsibilities. We must protect and lead the public taste, and we must resist as strongly as possible such insidious, enervating and unwholesome forces as are affected by what are known abroad as "les nouveaux," and we must endeavour to encourage pure, simple and manly methods which belong to a healthy British tradition."

Mr. Fred Kinder, in proposing "The Houses of Parliament," said that, in his capacity as a member of the parliamentary committee of the City Council, he had had occasion to listen to the conduct of the nation's affairs in the House of Lords, and he had been struck by the fact that they, at any rate, lived up to the Scriptural injunction that "the earth is the Lord's and the fulness thereof." As a business man, he had never been able to discover that they were of any particular use to him. When he visited the House of Commons he listened to gentlemen on both sides snarling very politely at each other. He had honestly and sincerely come to the conclusion that the man who remained at home, and spent his time attending to a street lamp being put up where it was needed, a drain being properly carried out, a hospital being built, or even Victoria Square being beautified, was doing far more good to his fellow-men than those who comprised the talking machines at Westminster. He supposed, however, that there must be some good in those institutions, but, though he proposed the toast, he frankly said that, constituted as they were at present, he saw very little good in them.

Mr. Rowland Barran, M.P., responded to the toast. He said that perhaps the members of the Society would take a more candid and critical view of the utility of the Houses of Parliament than had been taken by Mr. Kinder. Turning from that aspect of the subject, both the direct and indirect influence of Parliament on architecture was very great, and whilst there were many architectural achievements of which past Governments might with justice be proud, there were some buildings put up by our Governments which architects preferred to pass by in silence. At the present time there were many great works going on in London in the neighbourhood of Whitehall, and thanks were due to recent administrations which had made such wonderful clearances and which inspired great hopes as to the class of building to be erected there. Mr. Barran said that he was a careful and interested observer of architecture, from some of the most ancient examples in the East to the sky-scrapers in America, and no subject gave him greater pleasure. Many of Mr. Belcher's colleagues of the Royal Academy must envy the position of a man who worked in the methods and with the substances that architects dealt with. Water-colour painters knew that in 150 years at the outside their colours would begin to fade. Those who dealt with the more durable pigments of oil realised that within a limited number of centuries, at any rate, their works must to some extent fade also. But there was in architecture an art and a science which lasted almost as long as the solid fabric of the earth itself. There were to-day buildings which dated back beyond all written history. In that there seemed to be room for a natural envy. He did not mean it to be supposed by that that a building put up, say, in Leeds, under the building by-laws, and complying with all their specifications, was likely to last till eternity. God forbid that many of them should do anything of the kind. Architects, looking around Leeds, would be inclined to say that the city had buildings of great utility, great size, erected possibly at great expense, useful and suitable buildings, but buildings that were not architecture. The Government had one advantage over commercial towns in the provinces, in being able to centralise large suites of public buildings and offices, which gave the architect an opportunity of erecting something which

was in the highest sense architecture, which some of the buildings which had to be erected in industrial centres certainly were not. Architects felt somewhat keenly those limitations. "In a city like Leeds," Mr. Barran continued, "questions of utility must take the first place, and it is therefore a very difficult thing for an architect to erect any building which can correctly be described as belonging to a high class of architecture, or to claim any amount of beauty. We have in Leeds, however, a growing number of buildings which have some claim to art. I often think that in these smoke-begrimed cities, if we could pay rather less attention to the ornamentation of our buildings and more attention to the proportions, we should achieve more architectural success than we do at the present time." In conclusion Mr. Barran spoke of the influence of the Houses of Parliament upon architecture, and said that he hoped, whatever party might in the future be in power, the Government would keep in view that we required not only a successful and prosperous nation, but that we need a cultivated nation.

The Mayor of Harrogate gave the toast of the Society, and remarked that it was one of the oldest provincial societies in existence, having been founded in 1877. He was pleased to see they were also a prosperous body, as during the past year their income exceeded their expenditure by 96%, while their membership had increased from 118 in 1901 to 124 in 1902, and 137 in the present year.

The President of the Society, in responding, said the area covered by the Society extended from Teesdale in the north to Huddersfield in the south, from a considerable distance in the west to Flamborough in the east. They had instituted a system of education for the associates of their Society, and they had ventured to name it a school of architecture. Although at present it might exist only in name, they hoped in the near future to make it a reality. They hoped to make Leeds prominent as the Metropolis of the North so far as architecture was concerned. He regretted that the old universities, such as Oxford, which owed so much to architecture, offered no rewards to the architectural student, but he hoped the time was not far distant when a degree of architecture would be offered by these ancient seats of learning. In the meantime, it had been left to the newer universities, such as the Victoria University, to take the first step, and he hoped before long that at the Yorkshire College they would have a chair of architecture.

Mr. F. G. Bowman submitted "Our Guests," and Mr. W. J. Locke (secretary of the Royal Institute of British Architects), in responding, said that, speaking unofficially, Mr. Frampton's scheme for the rearrangement of Victoria Square seemed broad and delightful, and all he could say was that when one had an artist so sensitive and yet so broad as Mr. Frampton, it was as well to leave oneself absolutely in his hands and rely upon the dictates of his genius.

The toast was also acknowledged by Mr. J. E. Bedford, chairman of the Leeds school of art committee.

HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE.

THE third sessional meeting of this Society took place on the 12th inst., Mr. W. H. Lever presiding, to hear Mr. W. Fergusson Irvine read a paper on the old historic house near Bolton, "Hall i' th' Wood." Mr. Irvine sketched the history of the house known as the "Hall i' th' Wood" from its earliest known date at the end of the fifteenth century down to the present time. He pointed out how the part that is now the east side of the house was probably the original portion built by the Brownlow family about the year 1480, and how Lawrence Brownlow, in 1591, added the north-west wing in stone, thus departing from the tradition of his ancestors, who had built in the well-known black and white style with timber and plasterwork. The next addition, Mr. Irvine pointed out, had been made in the year 1648 by Alex. Morris, a famous parliamentary leader, from whom it passed by descent to the family of Starkie of Huntroyde, in whose possession it remained until the year 1899, when Mr. W. H. Lever bought it in a very dilapidated condition, and, having restored it in a very careful and discriminating way, presented it to the people of Bolton as a museum. The lecture was illustrated by numerous excellent lantern slides, showing the house from various points of view, and also illustrating some of the interesting Mediaeval furniture which Mr. Lever had purchased and presented, so that historical students could actually see what sort of rooms our ancestors occupied and used three or four hundred years ago. Mr. W. H. Lever, in proposing a vote of thanks to Mr. Irvine, spoke at some length, and paid a high tribute to his ability as an antiquarian. This was seconded by Mr. H. C. Gorst and heartily accorded.

The International Congress for the teaching of design will be held in the first week of August, 1904, at Berne.

GENERAL.

The King visited on Wednesday the model dwelling erected by the London County Council on a portion of the site of the Millbank Prison to accommodate tenants removed from their former residences under the Council's housing improvement schemes. The visit was of a semi-private character, but the King was received by the chairman of the Council, Sir William Collins, and the deputy-chairman of the Council, Sir William Collins, chairman of the housing committee, and other representatives. The King inspected some of the tenements.

The Prince and Princess of Wales will visit the site of the dedication of the nave of the cathedral, which is to be dedicated on July 15.

Mr. Richard Arthur Roberts has been appointed by the King to be secretary to the Royal Commission on Historical Manuscripts, in succession to the late Mr. Cartwright.

Messrs. W. & J. Faulkner have offered to present to the borough of Southwark an ornamental illuminated clock tower to be erected in St. George's Circus in place of the Obelisk standing in that position.

The Arrangements for the trial of the action which Treasury has instituted against the British Museum in order to decide the right of ownership in certain Celtic gold ornaments have been completed, and it is understood that the hearing will take place without delay.

The International Fire Prevention Congress will be opened on July 7 with a general meeting, followed by several meetings on July 8 and 9. The Congress office will be at 1 Waterloo Place, S.W., where particulars can be obtained from the hon. secretary.

The Bishop of London unveiled on Monday a mosaic in the principal hall of St. Paul's School, Hammersmith, which represents the Child-Christ enthroned, in the act of teaching the Temple, with figures of the Virgin Mary and St. Joseph on either side and doctors of law in the background. There is also a representation of the miraculous draught of fish. Below the mosaic, on either side of the organ, are figures of St. Paul and Dean Colet. The general scheme of decoration comprises figures of eminent men who have been connected with the school, such as Erasmus, Milton, Lord Campbell, William Lilly, the first high master. The mosaic is the work of Mr. T. R. Spence.

The London County Council have decided to acquire the freehold of a site on Brixton Hill under Part III. of the Housing of the Working Classes Act, 1890, at an estimated cost of 7,500%.

The Dean of St. Paul's has dedicated the memorial tablet to the late Lord Lytton, erected by subscription, in the choir of the cathedral. It consists of a bronze medallion enframed in green marble with an inscription. Mr. Alfred Gilbert, the sculptor, was the sculptor.

Cadets' Quarters are in course of erection at the Naval Academy, Annapolis, U.S., which will cost 3,000,000 dollars. The principal structure is 1,385 feet in length and 500 feet in width.

The Bridlington Town Council have decided to expend 30,000% on the construction of a sea-wall and promenade for visitors, and shelters to accommodate 3,000 people.

Mr. Henry Lovegrove will read a paper before the Institution of Surveyors on Monday next on "Regulations for the Protection from Fire."

The Duke of Argyll will preside at the annual meeting of the Coal Smoke Abatement Society, which will be held at Grosvenor House on Tuesday, the 24th. Among those who will address the meeting are Sir James Crichton Browne, Michael Foster, M.P., Sir W. B. Richmond, R.A., and Shirley Murphy, medical officer of health to the London County Council.

The Late Mr. H. H. Cronk, of the firm of Messrs. H. & E. Cronk, architects, of Tunbridge Wells, left a personalty of the value of 7,503%.

The Council of the Royal Society of Painter-Engravers have elected as Associates Mr. Hedley Fitts and Mr. J. Nordhagen.

The Grand Theatre at Luton, which stands on a former site and was constructed from the design of Messrs. C. S. & Son, has been sold for 11,500%.

At the meeting of the Northern Architectural Association which will be held on Wednesday next, the 25th, Mr. G. S. Aitken, F.S.A. Scot., of Edinburgh, will, in addition to Mr. R. P. S. Twizell, A.R.I.B.A., being unavoidably prevented from lecturing on this date, read a paper on "Architecture and the Age."

Messrs. Spurrell & Murray are the architects of a new Congregational church which is being erected at Worthing.



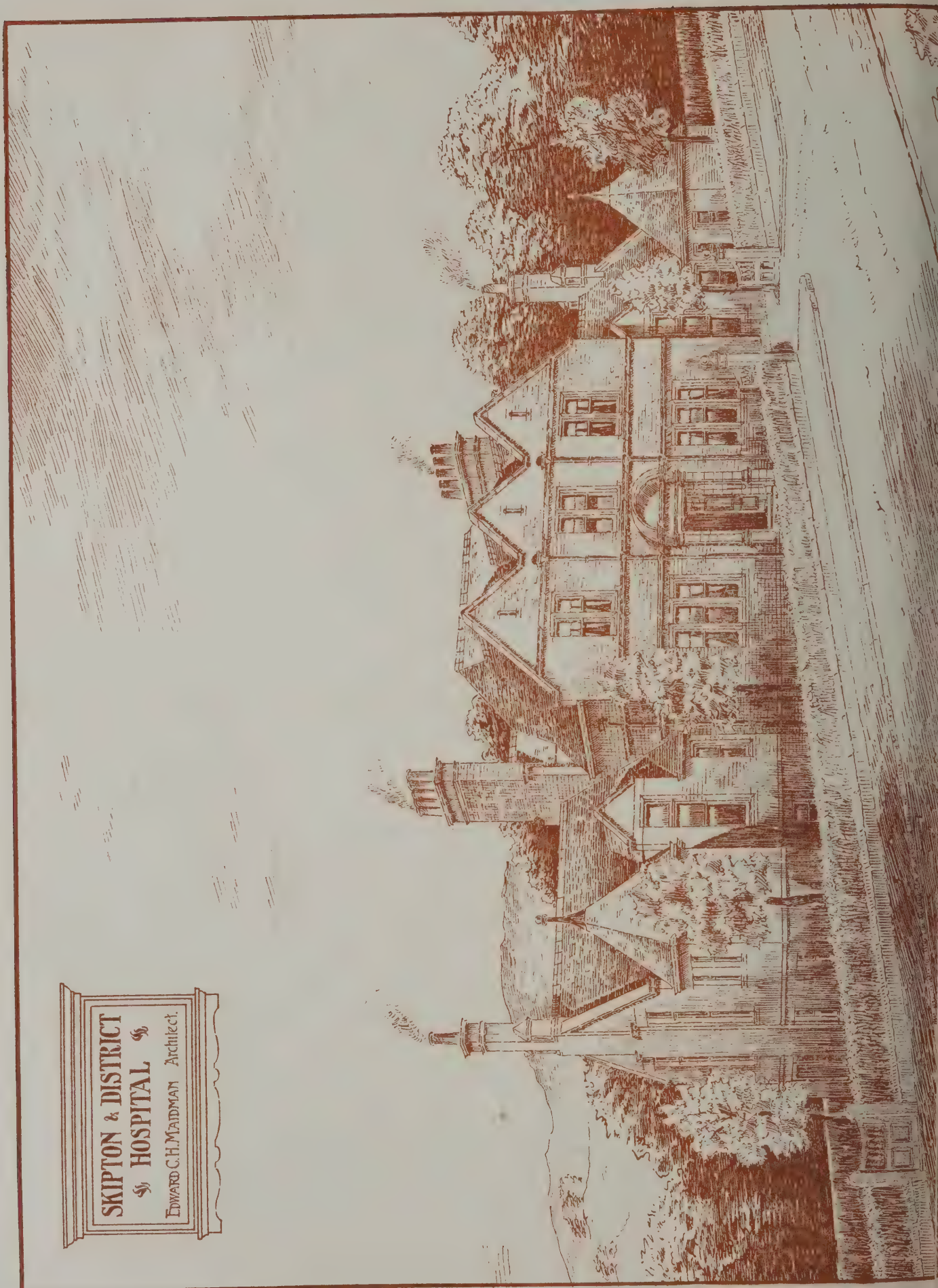
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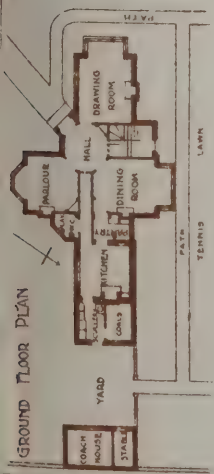
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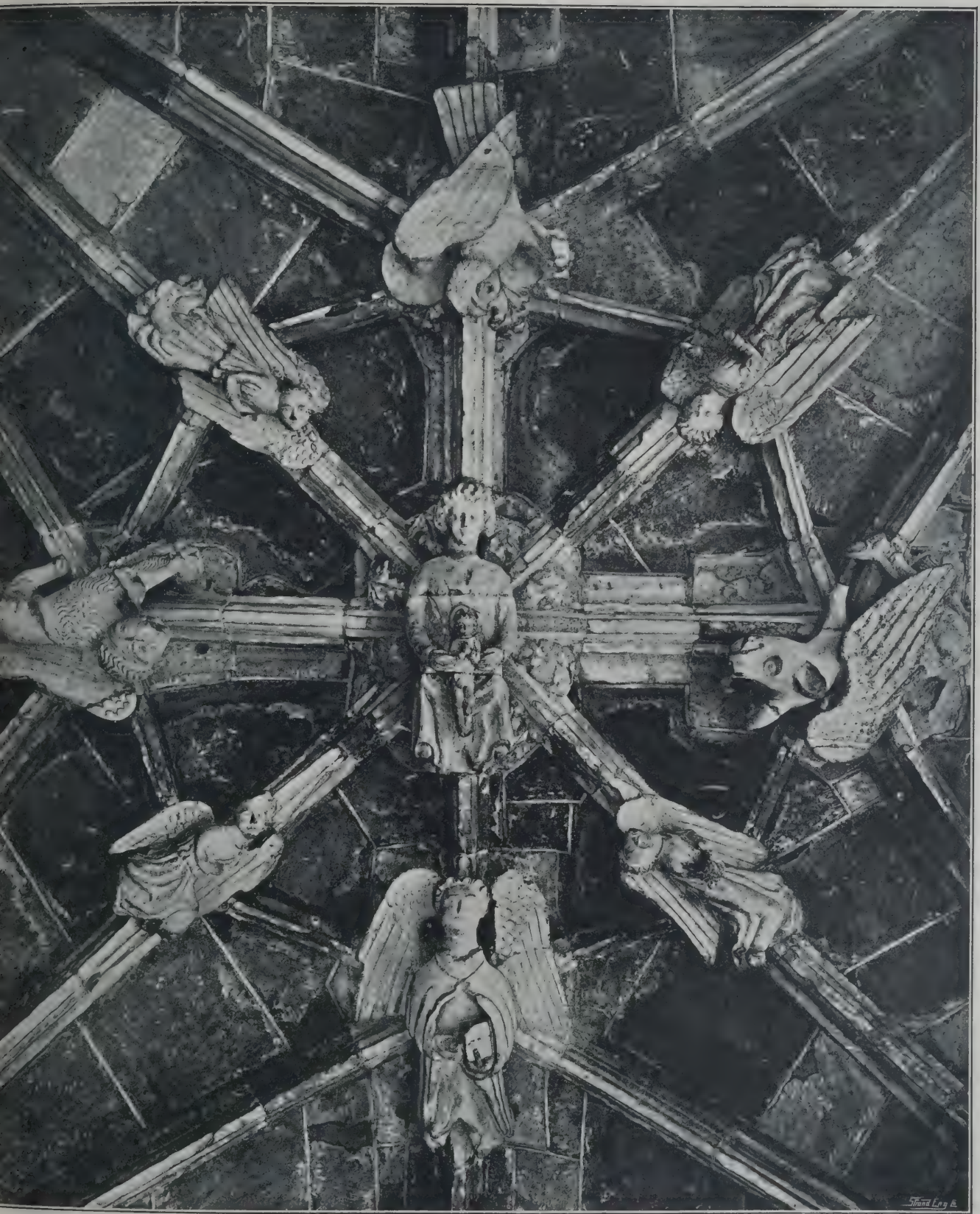




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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 15,000*l.* Premiums of 60*l.*, 25*l.* and 15*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BRIDGWATER.—Feb. 28.—Plans, specifications and estimates are invited in competition for power and appliances to deal with the accumulations of silt in portions of the river Parrett. Mr. W. T. Baker, town clerk, King Square, Bridgwater.

CASTLEFORD, YORKS.—March 31.—Designs are invited for a free library. Premiums 15*l.* and 10*l.* respectively. Mr. H. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—March 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 E. Aston Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60*l.* and 30*l.* are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall Fenton.

HULL.—March 15.—Designs in competition are invited for a memorial of the Hull soldiers who fell in the South African war. Mr. E. Laverack, town clerk, Town Hall, Hull.

HULL.—March 31.—Designs in competition are invited for extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000*l.* Premiums of 75*l.*, 50*l.* and 25*l.* respectively will be awarded. Mr. James Fildes hon. secretary, Quay Street, Manchester.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100*l.*, 50*l.* and 25*l.* will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

WALES.—Feb. 27.—Plans and specifications are invited for an infant school at Ynysmudw, Pontardawe, Swansea Valley, to accommodate 250 infants. Mr. W. L. Evans, clerk, Gwauncaegurwen.

YEOVIL.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

AYLESBURY.—Feb. 24.—For alterations and repairs at the union house. Mr. F. Taylor, surveyor, Temple Street, Aylesbury.

BARNSELY.—Feb. 26.—For erection of six dwelling-houses, sale shop and other works in Agnes Road and Pond Street. Messrs. Wade & Turner, architects, 10 Pitt Street, Barnsley.

BATLEY.—Feb. 23.—For erection of stores in Commercial Street, Batley. Mr. Harry B. Buckley, architect, 85 Commercial Street, Batley.

BILLERICAY.—Feb. 23.—For erection of a cottage on land adjoining the district hospital at Gooseberry Green. Mr. C. Edgar Lewis, clerk to Rural District Council, Brentwood.

BIRKENHEAD.—Feb. 24.—For erection of forty-two tenement dwellings for the labouring classes in Mason Street and Green Lane, and twelve tenement dwellings and a public urinal in Getley Street. Mr. Charles Brownridge, borough surveyor, Town Hall, Birkenhead.

BRADFORD.—Feb. 23.—For erection of a block of shops at the corner of Harris Street, Leeds Road. Mr. Charles E. Marsden, architect, Sunbridge Chambers, 15 Sunbridge Road, Bradford.

BRADFORD.—Feb. 24.—For alterations at the free public library, Darley Street. Mr. Frederick Stevens, town clerk, Bradford.

BRADFORD.—Feb. 27.—For erection of a ward and porter's lodge, and extensions to administrative block and laundry block at the Calverley Moor Hospital, Thornbury, near Bradford. Messrs. Kay & Long, architects, 10 St. Paul's Street, Leeds.

BRIDGWATER.—Feb. 23.—For erection of a parish room, with classrooms, offices, approaches and enclosures to the west of King Square, Bridgwater. Messrs. Samson & Cottam, architects, 43 High Street, Bridgwater.

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BRIGHTON—March 2.—For erection of electric-power station at Southwick, near Brighton. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BRIDGWATER—March 3.—For addition of a new sorting-office to the head post-office at Bridgwater, for the Commissioners of H.M. Works and Public Buildings. Particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, London, S.W.

BRISTOL—March 2.—For erection of a municipal common lodging-house, Wade Street. Mr. T. H. Yabbicom, city engineer, Bristol.

BRISTOL—March 9.—For construction at Canon's Marsh, Bristol, of a new deep-water wharf wall, having a total length of about 340 yards, together with railway sidings and hauling roads. Mr. W. W. Squire, engineer, Underfall Yard, Cumberland Road, Bristol.

BUDLEIGH SALTERTON—March 12.—For erection of Wesleyan church, &c, Budleigh Salterton, Devon. Mr. W. H. Boney, architect, 124 Chancery Lane, W.C.

BURNLEY—Feb. 28.—For erection of cookery, manual instruction and classrooms at the Burnley Wood schools. Mr. Thomas Bell, architect, 14 Grimshawe Street, Burnley.

BURY—For an extension to cotton mill. Messrs. Potts, Son & Hennings, architects, St. George's Road, Bolton.

CARBIS BAY—March 2.—For erection of five dwelling-houses at Carbis Bay, Cornwall. Mr. Henry Maddern, architect, Clarence Street, Penzance.

CARLISLE—For erection of a house, shop, bakehouse and stable in Thomson Street. Messrs. Wm. & J. Pogson, architects, Devonshire Street.

CARLISLE—For erection of four shops, London Road. Messrs. Wm. & J. Pogson, architects, Devonshire Street.

CHELSEA—March 3.—For erection of three new blocks of buildings and sundry other works at King's Road and Sydney Street, Chelsea, S.W., in extension of the workhouse and offices. Mr. Joshua Dowling, clerk to Guardians, 250 King's Road, Chelsea, S.W.

COLCHESTER—For erection of new grand theatre at Colchester. Mr. J. W. Start, architect, Colchester.

CRAYFORD—March 2.—For erection of Northend school, Crayford. Mr. C. L. Morgan, architect, 43 Cannon Street, E.C.

CROYDON—Feb. 26.—For erection of a building at the Addington waterworks, in connection with the water-softening works. Mr. Albert C. Gower, Town Hall, Croydon.

DARLINGTON—March 3.—For erection of car-shed, workshops, stores and offices. Mr. H. G. Steavenson, town clerk, Town Hall.

DARTFORD—Feb. 23.—For construction of a boundary-wall around a plot of land on the north side of the workhouse-premises at West Hill, Dartford. Mr. G. H. Tait, architect, Lowfield Street, Dartford.

DARTMOUTH—Feb. 25.—For rebuilding the pier-house, widening the pier and sundry other work at Long Reach, near Dartford, Kent. Drawings, conditions of contract, &c., may be seen and bill of quantities and form of tender may be obtained at the office of the Metropolitan Asylums Board, Embankment, E.C.

DONISTHORPE—For laying of the storm-water drain (9-inch sanitary pipes) in the Main Street, Donisthorpe; length 200 yards. Mr. H. German, Market Street, Ashby-de-la-Zouch.

DURHAM—Feb. 26.—For erection of forty four-roomed cottages at Chopwell, sixteen cottages at Leadgate and new colliery offices at Langley Park. Mr. C. E. Oliver, architect, Consett.

GREAT BROUGHTON—Feb. 23.—For erection of an infant school at Great Broughton, Cumberland, and for pulling-down the old infant school. Messrs. W. G. Scott & Co., architects, Victoria Buildings, Workington.

GREAT YARMOUTH—Feb. 26.—For erection of a chimney-shaft and extensions to the electric-lighting central station, South Denes Road. Mr. J. Wm. Cockrill, borough surveyor, Town Hall, Great Yarmouth.

GREAT YARMOUTH—March 3.—For alteration of boundary walling, removal and re-erection of children's offices, &c, at Northgate school, Great Yarmouth. Messrs. Olley & Haward, architects, Queen Street, Great Yarmouth.

HALIFAX—Feb. 24.—For erection of warehouse at Bowling Dyke. Messrs. Chas. F. L. Horsfall & Son, architects, Lord Street Chambers, Halifax.

HALIFAX—March 6.—For erection of the new Shakespeare hotel in Horton Street. Messrs. Richard Horsfall & Son, architects, 22A Commercial Street, Halifax.

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HEATON.—Feb. 23.—For erection of residence at Heaton, Yorks. Mr. Jas. Ledingham, architect, District Bank Chambers, Bradford.

HUDDERSFIELD.—Feb. 27.—For erection of twenty-three dwelling-houses in Longwood Gate and Prospect Street, Longwood. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HULL.—Feb. 26.—For erection of three shops and business premises on the north side of King Edward Street, Hull. Mr. E. Laverack, town clerk, Town Hall, Hull.

HUNTINGDON.—Feb. 26.—For making of a new roadway to be known as Montagu Street. Mr. E. Borissow, borough surveyor.

HYDE.—March 3.—For erection of a hospital near Back Bower Lane, Hyde. Mr. Thos. Brownson, town clerk, Town Hall, Hyde.

IRELAND.—Feb. 24.—For renovation of the board-room and clerk's offices at the workhouse. Messrs. Young & MacKenzie, architects, Belfast.

IRELAND.—Feb. 28.—For erection of a coastguard station and signal station at Fanad Head, in the county of Donegal. Mr. H. Williams, secretary, Office of Public Works, Dublin.

IRELAND.—March 1.—For erection of classroom at Parkgate, Belfast. Mr. Thomas Barkley, solicitor, 82 Royal Avenue, Belfast.

IRELAND.—March 1.—For erection of a new church at Kilcar, co. Donegal. Mr. D. W. Morris, surveyor, 68 Harcourt Street, Dublin.

IRELAND.—March 2.—For covering the steel footbridge at Dromin station with corrugated iron roof, timber sheeting, &c., for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—March 4.—For erection of four detached villas at Helen's Bay, Belfast. Mr. James G. Lindsay, architect, 1 Glengall Place, Belfast.

IRELAND.—March 6.—For erection of a church at Park Avenue, Londonderry. Mr. M. A. Robinson, architect, Richmond Street, Londonderry.

IRELAND.—March 10.—For erection of male block and extension of female wing at the asylum, Letterkenny, co. Donegal. Mr. J. P. McGrath, architect, Commercial Buildings, Foyle Street, Londonderry.

KENDAL.—Feb. 24.—For refronting and other alterations to business premises, 54 Strickland Gate, Kendal. Mr. Stephen Shaw, architect, Kendal.

KENDAL.—Feb. 25.—For refronting and alterations to the shop and house, 10 Finkle Street, Kendal. Mr. John Stalker, architect, Kendal.

KNUTSFORD.—March 3.—For erection of an administrative block, covered ways, &c., and for executing certain drainage works at the workhouse at Knutsford, Cheshire. Mr. Robert J. M'Beath, architect, Birnam House, Sale.

LEAVESDEN.—Feb. 25.—For erection of twenty-two cottages at Leavesden Asylum, near Watford. Particulars may be obtained at the offices of the Metropolitan Asylums Board, Embankment, E.C.

LEICESTER.—Feb. 27.—For construction of three underground conveniences for men. Mr. E. George Mawbey, surveyor, Town Hall, Leicester.

LIVERSEDGE.—March 2.—For reconstruction of the Old Oak inn, Littletown, Liversedge, Yorks. Mr. W. H. D. Horsfall, architect, 6 Harrison Road, Halifax.

LONDON.—Feb. 25.—For enlarging the buildings of the Technical Institute, Knight's Hill, Norwood. Messrs. Hart & Waterhouse, 1 Verulam Buildings, Gray's Inn.

LONDON.—March 3.—For construction of an underground convenience in Blomfield Street. Plans and specifications may be seen at the office of the Engineer, Guildhall.

LONDON.—March 10.—For erection of offices at Euston Road, N.W., for the Hearts of Oak Benefit Society. Mr. M. C. Meaby, Jessel Chambers, 88-90 Chancery Lane, W.C.

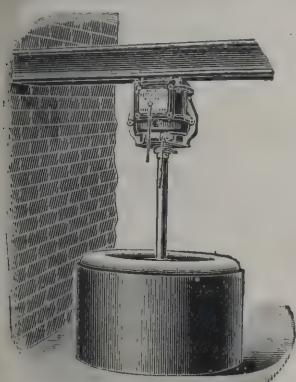
LOWER BEBINGTON.—March 2.—For supply of macadam, setts, kerbs, channels and flags. Mr. H. W. Corrie, surveyor, Council Offices, Lower Bebington.

MANCHESTER.—Feb. 26.—For erection of a number of rooms to be used as nurses' bedrooms, together with lavatory, &c., at the workhouse, Crumpsall. Messrs. T. Worthington & Son, architects, 46 Brown Street, Manchester.

MANCHESTER.—March 7.—For reconstruction of retort-house at the Rochdale Road station. Mr. C. Nickson, superintendent, Gas Department, Town Hall, Manchester.

NORTHAMPTON.—Feb. 24.—For widening the West Bridge. Mr. Herbert Hankinson, town clerk, Guildhall, Northampton.

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OKEHAMPTON.—Feb. 27.—For erection of a Wesleyan church and vestries at Okehampton, Devon. Mr. T. H. Chamings, architect, Okehampton, Devon.

OLDHAM.—Feb. 24.—For supply and erection of cooling towers, motor-driven centrifugal pumps, motors and switch-gear, pipework and overhead travelling crane, comprised in specification No. 10. Mr. Arthur Andrew, Gas and Water Offices, Oldham.

PEMBROKE DOCK.—Feb. 26.—For erection of a masonic hall at Pembroke Dock. Messrs. George Morgan & Son, architects, King Street, Carmarthen.

POLKERRIS.—Feb. 25.—For construction of a steel-framed lifeboat house, the alteration and extension of the existing masonry slip, &c., upon or near the foreshore in the harbour of Polkerris, near Par, Cornwall. Mr. Herbert E. Cooke, hon. secretary, Penellick, Par Station, R.S.O., Cornwall.

RHODESIA.—Feb. 26.—For establishment and working of an electric tramway system, Bulawayo. Messrs. Davis & Soper, 54 St. Mary Axe, London, E.C.

SALISBURY.—For erection of a school boarding house in Exeter Street, Salisbury. Messrs. John Harding & Son, architects, 58 High Street, Salisbury.

SCARBOROUGH.—For alterations and repairs to Queen Street Wesleyan chapel, Scarborough. Messrs. Danby & Simpson, architects, 10 Park Row, Leeds.

SCARBOROUGH.—Feb. 23.—For erection of a press and scorers' pavilion, new seats, railings and alterations to present pavilion, &c. Mr. Charles Edeson, architect, Huntriss Row, Scarborough.

SCOTLAND.—Feb. 24.—For erection of Boroughmuir Higher Grade school, Edinburgh. Mr. Carfrae, architect, 3 Queen Street, Edinburgh.

SCOTLAND.—Feb. 26.—For alterations and additions at Glenfintag House, Fort William; also additions on farmhouse on same estate. Messrs. L. & J. Falconer, architects, Cameron Square, Fort William.

SCOTLAND.—Feb. 27.—For erection of a coastguard station at Uzon, near Montrose, in the county of Forfarshire, Scotland. Particulars may be seen at the Watchroom, Coast-guard Station, Montrose, or at the office of the Admiralty Clerk of Works, Maybank, Hunter Place, Broughty Ferry, Dundee.

SCOTLAND.—Feb. 27.—For erection of a shop and warehouse in Cross Street, Fraserburgh. Messrs. D. & J. R. McMillan, architects, 211 Union Street, Aberdeen.

SCOTLAND.—Feb. 28.—For erection of a dwelling-house on the farm of Wellhead, parish of Dyke, Forres. Mr. Peter Fulton, architect, Forres.

SCOTLAND.—March 7.—For erection of Carnegie public library at Coatbridge. Mr. John Alston, town clerk, Municipal Buildings, Coatbridge.

SCOTLAND.—March 9.—For erection of parish church at Forres. Mr. John Robertson, architect, 39 Union Street, Inverness.

SEDGLEY.—March 9.—For alterations at Coseley Mount Pleasant Board schools, and for the erection of a new girls' department, cookery and laundry centres, and caretaker's house. Mr. S. H. Eachus, architect, Lichfield Street, Wolverhampton.

SHEFFIELD.—Feb. 28.—For erection of new electric-power station (Contract No. 19), foundations, walls and constructional steelwork up to ground-floor level in Club Mill Lane, Neepsend, Sheffield. Mr. S. E. Fedden, general manager, Corporation Electric Supply Department, Commercial Street, Sheffield.

SHOREDITCH.—March 14.—For alterations to the kitchen at the infirmary, Hoxton Street, N. Mr. F. J. Smith, architect, Parliament Mansions, Victoria Street, S.W.

SILSDEN.—Feb. 23.—For construction of a complete gas-works at Silsden by March 30, 1904. Mr. John Driver, clerk, Town Hall, Silsden, near Keighley.

SKERTON.—Feb. 23.—For erection of a Primitive Methodist Sunday-school at Skerton, Lancs. Mr. J. Parkinson, architect, 67 Church Street, Lancaster.

SOUTHALL-NORWOOD.—Feb. 24.—For supply of granite, lime, aluminiferous, cement, disinfectants, brooms, tools, oils, flints, gravel, &c. Mr. Reginald Brown, surveyor, Public Offices, Norwood.

STOCKPORT.—March 7.—For erection of sick wards, dining-room, &c., at the workhouse, Chapel-en-le-Frith. Messrs. Garlick & Flint, architects, 5 Terrace Road, Buxton.

ST. PANCRAS.—March 2.—For alterations and additions to the public washhouse, King Street, Camden Town, N.W. Mr. C. H. F. Barrett, town clerk, Town Hall, Pancras Road, N.W.

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SWINDON.—Feb. 24.—For erection of offices, &c., at Swindon, for the Great Western Railway Co. Mr. G. K. Mills, secretary, Paddington Station, W.

SWINDON.—Feb. 25.—For erection of a urinal near the entrance to the cemetery, Radnor Street, Swindon. Mr. R. Hilton, town clerk, Town Hall, Swindon.

TAUNTON.—March 25.—For erection of additional blocks for 300 patients, at the Cotford Asylum, near Taunton. Mr. J. Lodge, clerk to the committee, Cotford Asylum, Taunton.

THORNABY-ON-TEES.—For erection of a warehouse at the Cleveland Mills, Thornaby. Particulars can be obtained from the Cleveland Flour Mills, Ltd., Thornaby-on-Tees.

TICEHURST.—Feb. 24.—For erection of an administrative building at the Ticehurst isolation hospital, and for additions to the hospital buildings and outbuildings, near the Ticehurst Union workhouse, at Flimwell, Ticehurst, Sussex. Mr. J. C. Lane Andrews, clerk, R.D.C., Ticehurst.

TILSHED.—Feb. 27.—For erection of school buildings and master's house at Tilshead, Wilts. Messrs. John Harding & Sons, architects, 58 High Street, Salisbury.

WALES.—Feb. 23.—For erection of sixty-six houses at Caerau, Maesteg. Mr. W. Y. Davies, architect, Talbot Road, Maesteg.

WALES.—Feb. 23.—For erection of two cottages near Ystradgynlais station. Mr. Daniel Thomas, Railway Terrace, Ystradgynlais.

WALES.—Feb. 25.—For erection of a parish room and classrooms at Llanbradach. Mr. E. M. Bruce Vaughan, architect, Cardiff.

WALES.—Feb. 26.—For a masonic hall at Pembroke Dock. Messrs. George Morgan & Son, architects, King Street, Carmarthen.

WALES.—Feb. 26.—For erection of six or thirteen houses in Henry Street, Tonypandy.

WALES.—Feb. 28.—For erection of thirty-three cottages at Aberfan. Mr. R. Edwards, architect, Treharris.

WALES.—Feb. 28.—For additions to Mount Pleasant hotel, Cwmteillan. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—March 2.—For erection of a piece of wall near the Board schools at Cwm, Ebbw Vale. Mr. T. J. Thomas, town surveyor, Ebbw Vale.

WALES.—March 10.—For additions, alterations and improvements to the St. Helen's Board school, Swansea. Mr. G. E. T. Laurence, architect, Chandos Chambers, Buckingham Street, Adelphi, W.C.

WEMBLEY.—March 12.—For ventilating the council chamber and painting and colouring the interior of the council chamber and offices, laying-on gas to premises throughout and fencing the yard and premises at the public offices, Harrow Road, Wembley. Mr. Cecil R. W. Chapman, surveyor, Public Offices, Wembley.

WEYMOUTH.—March 11.—For construction of an electricity generating station, chimney-shaft, &c., at Sunny Bank, Stavordale Road, Weymouth. Sir Richard Nicholas Howard, town clerk, Town Hall, Weymouth.

WIMBLEDON.—March 3.—For erection of a central fire brigade station in Queen's Road, Wimbledon. Mr. C. H. Cooper, surveyor, Council Offices, The Broadway, Wimbledon.

WORKSOP.—Feb. 27.—For erection of shedding, grand stand, offices, &c., for the show to be held at Worksop on June 2 and 3, for the Nottinghamshire Agricultural Society. Mr. W. H. Bradwell, secretary, Thurland Street, Nottingham.

WORSBOROUGH DALE.—Feb. 25.—For erection of six houses in Green Street, Worsborough Dale, Yorks. Mr. Arthur Whitaker, architect, Worsborough Bridge, Barnsley.

A NEW and entirely up-to-date theatre to seat 1,488 is about to be erected in the High Street, Colchester, to be known as the Grand, for Mr. H. Slocombe. Operations are to commence as soon as possible, as it is to be opened next Boxing Day. The plans have been approved by the Council. Mr. J. W. Start, F.S.I., of Colchester, is the architect.

AN effort is being made to restore Ickford parish church, near Oxford, in memory of Archbishop Sheldon, who was presented to the benefice by Charles I. in 1636, when he was already Warden of All Souls College. Ickford Church is a fine specimen of Early English work of the beginning of the thirteenth century, and has a tower with a saddle-back roof. The building is greatly in need of repair and restoration, which will cost 1,680l.

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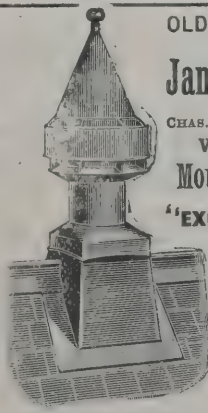
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For erection of buildings in connection with the Grove Vale housing scheme. Mr. W. OXTOBY, borough surveyor.

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Accepted tenders.

J. W. Boothroyd, mason.
R. Ledger, joiner.
G. Slater & Son, plumber.
W. H. Haigh, plasterer.
Pickles Bros., slater.
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G. E. SIMPSON, Newcastle-on-Tyne (accepted)	266	15	0

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For street works in Grove Park Terrace, back road on east side of Cold Bath Road, and roads off West Cliffe Terrace. Mr. F. BAGSHAW, engineer.

Accepted tenders.

B. Oxley, Wetherby Road, Harrogate, Grove Park Terrace, £975 8s 4d.; C. H. Dickinson, Belmont Grove, Starbeck, Harrogate, back road off Cold Bath Road £191, roads off West Cliffe Terrace £709 1s. 11d.

HARROW.

For erection of a new classroom, &c., at the infants' school at Alperton, Harrow. Messrs. HOUSTON & HOUSTON, architects, 1 Long Acre, W.C.

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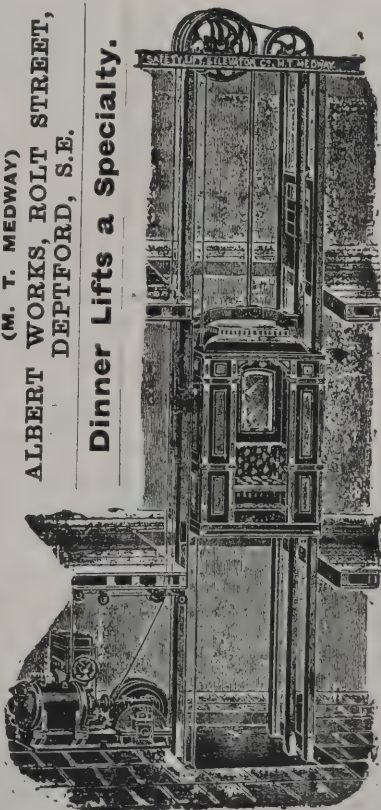
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HAWORTH.

For erection of a Church Sunday-school at Haworth, Yorks.
Mr. THOMAS W. BOTTOMLEY, architect, 16 Prince Street,
Haworth.

Accepted tenders

Bottomley & Sunderland, mason.
I. Taylor, Cross Roads, near Keighley, joiner.
T. Lambert & Sons, plumber.
B. Whitaker & Sons, plasterer.
T. Nelson & Son, Bradford, slater.
G. B. Walmsley, painter.
Total, £3,292 10s.
Architect's estimate, £3,200.
Rest of Haworth.

HINDLEY.

For erection of public offices in Wigan Road, Hindley, Lancs.
Messrs. HEATON, RALPH & HEATON, architects, Wigan.
D. A. ABLETT, Sovereign Road Sawmills,
Wigan (*accepted*) £5,370 0 0

HUDDERSFIELD.

For erection of a dwelling-house and stabling, &c., in Albert
Street, Lockwood. Messrs. J. B. ABBEY & SON, archi-
tects, 34A New Street, Huddersfield.

Accepted tenders.

Moody Bros., Springdale, excavator and mason.
J. Sunderland & Sons, Lockwood, joiner.
D. Taylor & Sons, Lockwood, plumber.
T. Longbottom & Sons, Lockwood, plasterer and slater.
G. & F. Burgoine, Moldgreen, painter.
J. Cooks, Little Royd, concreter.

IPSWICH.

For riverwork, intake chambers, cast-iron wells, pipes, valves,
strainers, &c., for condensing water supply.

J. Shilleto & Son £6,965 10 0
Sir Hiram Maxim Electrical and Engineering
Co. 6,602 15 7
S. Russell & Sons 6,516 7 0
Fraser & Fraser 5,970 15 0
S. A. Kenney 5,902 0 0
G. DOUBLE, Ipswich (*accepted*) 3,945 19 0

IRELAND

For erection of a café at Victoria Market, Londonderry. Mr.
M. A. ROBINSON, architect, Richmond Street, London-
derry.

Shannon & Routledge £1,487 10 0
A. Dunlop 1,448 0 0
M. Sweeney 1,364 0 0
R. COLHOUN, Strand Road (*accepted*) 1,300 0 0

For supplying and erecting a pump at the well at Shantallow,
Londonderry.

G. BURNS, Sackville Street (*accepted*) £15 0 0

For the construction of a sewer in Falls Road, Belfast.
J. ROSS & SON, Cliftonville, Belfast (*accepted*).

KENDAL.

For excavating, laying and jointing about 1,071 yards lineal
(Section A) and 1,062 yards lineal (Section B) of 6-inch,
9-inch and 12-inch stoneware pipes. Mr. R. HAMPTON
CLUCAS, engineer.

Section A.

R. Woodburn £380 0 0
T. & W. Dicken 319 1 0
W. CARRIDICE (*accepted*) 280 3 5

Section B.

W. Carridice 271 6 6
T. & W. DICKEN (*accepted*) 270 10 0

MORLEY.

For additions to bakery, Mitchell Street, Morley, Yorks.
Messrs. R. CASTLE & SON, architects, London City and
Midland Bank Chambers, Cleckheaton.

Accepted tenders.

G. Booth, Morley, mason.
A. Furness, Morley, joiner.
G. A. Firth, Morley, plumber.
E. Wilson, Morley, plasterer.
G. Rogerson, Morley, slater.
J. Bagshaw & Sons, Ltd., Batley, ironfounder.

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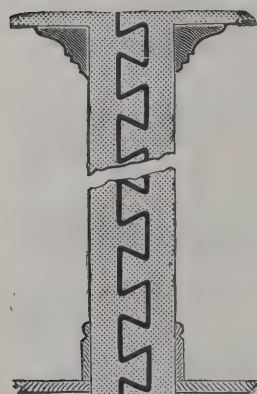
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For the construction of a new line of inclined railway at Birtley, near Newcastle-on-Tyne, with embankments, cuttings, retaining walls, two bridges, and a series of coal depôts. Mr. J. E. PARKER, engineer, Post Office Chambers, Newcastle-on-Tyne.

G. Bell	£16,592	18	10
J. E. Middlemas	16,580	0	0
G. E. Simpson	12,836	15	3
W. Dixon	11,780	0	0
R. Hudson	11,710	0	0
B. Firth	11,354	0	0
R. Blackett & Sons	11,150	0	0
Low & Thomas	10,863	16	1
S. Miller	9,785	18	0
C. BUSHBY & Sons, Preston Leyburn (accepted)	8,663	1	10
Hardy & Atkinson	—		
W. & J. Lacey	—		

ROTHERHAM.

For sewerage works at Bramley, near Rotherham. Mr. B. HEY, surveyor, 29B High Street, Rotherham.
G. GREEN & Co., Wellgate (accepted) . £129 10 0

ST. AUSTELL.

For alterations and additions to premises in Fore Street, St Austell, Cornwall Mr. T. H. ANDREW, architect, 1 Trevarrick Villas, St. Austell.
W. Giles . £586 8 0
J. BUNT, Grant's Walk (accepted) . 435 0 0

STRAND.

For electric lighting of the New Gaiety theatre, including the electrical work for the stage. Messrs. ERNEST RÜNTZ & Co., architects.
R. Phipps & Co. . £5,409 0 0
Blackburn, Starling & Co. . 4,880 0 0
H. South & Co. . 4,677 0 0
G. E. Taylor & Co. . 4,497 0 0
Strode & Co. . 4,443 0 0
R. DAWSON, LTD. (accepted) . 4,300 0 0

SCOTLAND.

For street works at Kirkcaldy.
W. DOBSON, Edinburgh (accepted) : . £1,317 5 4

SOUTHALL.

For supplying and fixing two sets of wrought-iron ornamental entrance gates, 1,000 lineal yards (or thereabouts) of wrought-iron unclimbable fencing, &c. Mr. REGINALD BROWN, surveyor.
Garrick . £945 5 6
Hoyle Bros. & Co. . 869 6 6
Motley & Green . 840 4 10
F. Morton & Co. . 761 19 6
Westminster Iron Roof and House Building Co. 722 19 6
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E. C. & J. Keay . 681 1 0
Dudley Art Metal Co. . 675 16 6
Brydon & Middleton . 665 7 9
Beaver . 646 7 3
W. Hayward & Son . 630 19 9
T. Green & Son . 625 16 4
Bain & Co. . 609 1 6
C. Barton . 609 0 6
Bayliss, Jones & Bayliss . 605 19 6
W. Miller & Son . 604 19 5
G. B. Smith & Co. . 598 6 4
Rubery & Co. . 595 10 6
Tozer & Son . 592 19 4
F. Fox . 587 1 8
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Hill & Smith . 550 10 9
Skinner & White . 547 12 0
H. White . 546 4 0
J. Elwell . 503 15 0
NAYLOR BROS., Golborne, Lancs (accepted) . 499 6 3

TOTTENHAM.

For making-up Compton Road. Mr. W. H. PRESCOTT, engineer.
C. BLOOMFIELD, Tottenham (accepted) . £977 17 7

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For supply and fixing of hand-power laundry machinery and alterations at the workhouse.

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Cherry Tree, near Blackburn (*accepted*). £201 9 6

WALES.

For widening Tyntaldwyn Road, Troedyrhiw, Merthyr Tydfil.
Mr. T. F. HARVEY, engineer and surveyor.

E. JONES, Aeron Terrace, Dowlais (*accepted*).

For sewerage works in Gלבland Street, Merthyr Tydfil. Mr.
T. F. HARVEY, engineer and surveyor.

JONES & DAVIES, Dowlais (*accepted*).

WORCESTER.

For pulling-down and rebuilding 55-58 High Street, and forming new arcade, &c, from St. Swithin Street to Church Street. Messrs. CLARE & ROSS, architects, 1 West Street, Finsbury Circus.

Pulling-down and rebuilding in High Street.

T. Vale	£8,279	0	0
Collins & Godfrey	8,273	0	0
Stokes Bros.	8,135	0	0
Wood & Sons	7,890	0	0
F. J. Briley	7,470	0	0
Bromage & Evans	7,420	0	0
J. & A. Brazier	7,380	0	0
Barnsley & Sons	7,188	0	0
W. HOPKINS, Birmingham (<i>accepted</i>)	6,900	0	0

New arcade.

T. Vale	4,763	0	0
Stokes Bros.	4,679	0	0
F. J. Briley	4,570	0	0
Wood & Sons	4,527	0	0
Collins & Godfrey	4,440	0	0
Barnsley & Sons	4,200	0	0
Bromage & Evans	4,190	0	0
W. HOPKINS, Birmingham (<i>accepted</i>)	4,100	0	0
J. & A. Brazier	4,060	0	0

WEST HAM.

For street works in Queen's Road (part), Fife Road, Watford Road, Exeter Road, Brent Road, South Molton Road, Wellington Place. Mr. JOHN G. MORLEY, engineer.

D. H. Porter	£8,687	0	0
W. Griffiths & Co, Ltd.	7,774	15	10
J. Jackson	7,316	8	6
Parsons & Parsons	7,170	16	10
Peters & Co.	7,116	0	10
D. T. Jackson	6,710	4	11
T. Adams	6,572	2	1
W. Manders	6,431	0	0
G. J. ANDERSON, 26 North Street, Poplar (<i>accepted</i>)	5,762	7	2

Received too late for Classification.

LONDON SCHOOL BOARD.

For new school. Accommodation—Boys, 360; girls, 360; infants, 362. South Grove.

J. Longley & Co.	£25,610	0	0	£343
Killby & Gayford	25,270	0	0	390
W. Shurmer & Sons, Ltd.	25,155	0	0	370
J. Grover & Son.	24,477	0	0	383
Holloway Bros. (London), Ltd.	23,936	0	0	475
F. & F. J. Wood	23,895	0	0	510
J. Chessum & Sons	23,864	15	0	308
W. M. Dabbs	23,844	0	0	470
W. Johnson & Co, Ltd.	23,842	0	0	390
Clarke & Bracey	23,772	0	0	480
C. Cox	23,613	0	0	533
Perry & Co.	23,603	0	0	590
W. Gregar & Son	23,280	0	0	350
E. Lawrance & Sons	23,165	0	0	442
McCormick & Sons	22,987	0	0	363
J. & M. Patrick	22,838	0	0	324
J. Marsland & Sons	22,728	0	0	310
Stimpson & Co.	22,640	0	0	489
Treasure & Son	21,889	0	0	219
John Greenwood, Ltd.*	21,519	0	0	342

A—Add if walls of classrooms and halls are plastered.

* Recommended for acceptance.

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LONDON SCHOOL BOARD—continued.

or providing and fixing a small high-pressure apparatus for additional heating in classrooms A, B, G and H, including independent boiler, Crampton Street (girls).
Vaughan & Brown, Ltd. £165 17 6
Werner, Pfeiderer & Perkins, Ltd. 134 0 0
J. Wontner-Smith, Gray & Co.* 112 10 0
* Recommended for acceptance.

or providing and planting shrubs, &c., Sydenham Hill Road.
W. Cutbush & Son £18 10 0
H. Welch 18 0 0
A. Durrant 17 12 6
R. Neal 12 2 6
W. C. Benedict 10 15 0
G. FOOTER (accepted) 9 19 0

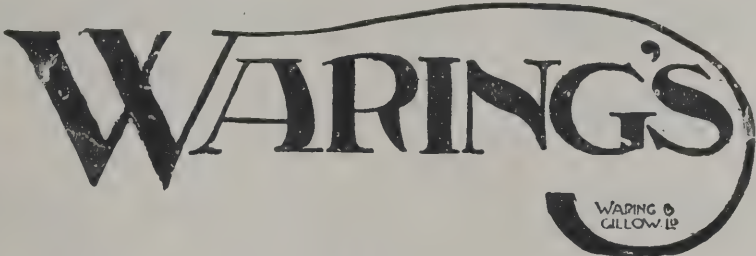
A BRIDGE, which it is said will have a central span of 840 ft, the longest for a railroad bridge in the world, is to be constructed by the Pennsylvania Company across Hell Gate, part of the East River which separates Manhattan Island from Long Island. Altogether there will be two miles of viadeway built of steel on stone piers. The centre span will be 135 feet above high-water mark. It is estimated that over 10,000 tons of steel will be used in the construction, at a cost of \$3,250,000. The contract has been placed with the United States Steel Corporation, and \$10,000,000 is set aside as the total cost of the bridge.

INTERNATIONAL FIRE PREVENTION CONGRESS, JULY 1903.

THE invitations to the International Fire Prevention Congress—issued by the British Fire Prevention Committee—having been largely and favourably responded to, it has been decided to open the Congress on July 7 with a general meeting, followed by sectional meetings on July 8 and 9. Several of the great Government Departments, such as the Local Government Board, H.M. Office of Works and the Board of Education, have notified their intention of being represented by delegates, as have also some thirty municipalities, including cities like Edinburgh, Birmingham, &c. Further, the Metropolitan Asylums Board, several similar institutions, some of the City companies, such as the Joiners' Company, the Tyler and Bricklayers' Company and quite a number of the principal technical and scientific societies have decided to send delegates. The National Fire Brigades' Union, the new Association of Professional Fire Chiefs and the Private Fire Brigades' Association will naturally be strongly represented. Further, nearly all the great American and Continental organisations interested in the subject have already decided to send deputations, foremost among them being the National Fire Protection Association of America and the International Association of Fire Engineers of America, while the great central authority, the International Council of Fire Brigades, will be sending almost all its officers. The Congress offices will be at 1 Waterloo Place, S.W., where particulars can be obtained from the hon. secretary. Those desiring to participate in the discussions or present papers should make their applications before the end of March.

FIREPROOF BUILDINGS AT BANGOUR ASYLUM.

AT a meeting of the Edinburgh District Lunacy Board—Mr. Richard Clark presiding—Mr. Williamson said he was glad to see the committee were taking steps to see that the new asylum buildings at Bangour were fireproof. He was not yet satisfied, however. They still had a good deal of wood in the construction of these buildings where, he thought, there should be iron. The Chairman said they could not classify the buildings they were going to erect as temporary buildings. The fire in Colney Hatch took place in temporary buildings, not in any way similar to the buildings they intended to erect. In the first place, they had corrugated iron as a shell, inside that they had non-inflammable felt, then



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a "fram" boarding $3\frac{1}{2}$ inches thick of solid concrete and non-inflammable. Above that they had a composite of asbestos. There was not the least danger of these buildings proving more inflammable than ordinary stone and lime buildings—in fact, they were safer. Every precaution had been taken against fire. Then they were going to have exits from the ground floor by French windows, while in the upper floor there would be outside as well as inside exits. Altogether he thought they could assure the citizens that there was absolutely no danger whatever from the buildings they were going to erect. There would be no corridors similar to those at Colney Hatch, where, he thought, the corridors did most damage. They had a good supply of water, and only forty-five persons would have been in each house instead of a big number. The minutes of the meetings of committees contained a letter from the General Board of Lunacy for Scotland with regard to fire risks, and the District Board's assurance that the General Board's desire was being kept in view. The minutes also showed that the asylum committee had accepted the estimate of 15,052*l.* of Messrs. Bain & Co., Coatbridge, for the erection of five villas and laundry at Bangour, it being agreed to arrange with Messrs. Bain & Co. to make some alterations on the elevations submitted more pleasing to the eye at a cost of 25*l.* per villa or thereby. The minutes were approved.

MR. WM. POWELL, a Liverpool merchant, has invented a new process of vulcanising timber, the agent employed being a solution of raw or common refined sugar, applied by means of saturation at boiling-point, the water being afterwards evaporated at a high temperature, and the result is to leave the pores and interstices of the wood filled in with solid matter, and the timber vulcanised, preserved and seasoned. The nature of moderately soft wood, it is claimed, is in this way changed to a tough and hard substance, without brittleness, and also without any tendency to split or crack. It is also rendered remarkably impervious to water. Hard woods similarly treated derive similar benefits. An important advantage of the process is its rapidity, two or three days sufficing for the conversion of soft into hard wood. The invention, which has been patented, is to be brought before the attention of the timber trade by a series of practical demonstrations and lectures.

TRADE NOTES.

MESSRS. JAS. LATHAM, LTD., timber and moulding merchants, of Curtain Road, E.C., are issuing a useful little letter-clip which they will be pleased to send on receipt of application to any of our readers.

MR. WM. E. FARRER, of 36 Cannon Street, Birmingham, has removed his works from Fawdry Street, Smethwick, to larger and more commodious premises, the Star Works, Cambridge Street, Birmingham.

THE Government entrusted to Messrs. Boulton & Paul, Norwich, the order for 150 wooden bungalows to be used as officers' quarters. Each is upwards of 80 feet in length and some 22 feet in width, and contains six rooms, with bath-room attached.

THE town hall, Dumfries, is being fitted with the well-known "Small Tube" hot-water heating apparatus by Messrs. John King, Ltd., engineers, Liverpool, employing their improved economical coil-heater with waterway firebars. The ventilation of the building has also been placed with the same firm, employing their patent tubular exhaust ventilators, which are guaranteed to be absolutely weatherproof.

MESSRS. MELLOWES & CO., of Sheffield, and 28 Victoria Street, London, have received the order for covering with the patent "Eclipse" glazing the roofs over the new station at Wemyss Bay, on the Caledonian Railway, the new shed for machinery at Bolton for the London and North-Western Railway, and also extensions at Messrs. Swan & Hunter's shipbuilding yard, Wallsend, Newcastle-on-Tyne.

WE are again able to congratulate the shareholders in John Oakey & Sons, Ltd., on the satisfactory nature of the report presented at the annual general meeting on Thursday night, 19th inst. It appears that the net profits for the year amount to 29,196*l.* 18*s.* 6*d.* A dividend of 6 per cent. per annum has been paid to the preference shareholders and the interim dividend of 5 per cent. to the ordinary shareholders, absorbing a sum of 12,250*l.*, leaving a balance of 16,946*l.* 18*s.* 6*d.* From this balance the Board recommend the payment of a final dividend of 5 per cent. to the ordinary shareholders, making a total of 10 per cent. for the year, and, in addition, a bonus of 2½ per cent., free of income-tax. They also recommend that 7,000*l.* of the year's profits be carried to the general reserve, raising this account to 56,000*l.*, making with the capital reserve a total reserve of 59,734*l.* 16*s.* 10*d.*, leaving a balance of 571*l.* 18*s.* 6*d.* to be carried forward to next year.

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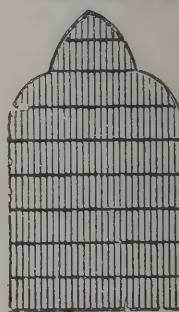
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BUILDING AND BUILDERS.

THE project of forming an automobile track is being favourably received at Clacton-on-Sea.

AT Clacton-on-Sea a new Methodist church has been opened and a new Catholic church is nearing completion.

AT a recent public meeting held at Denholm, near Hawick, B., it was unanimously agreed to take steps for the erection of a public hall for the village at a cost of about 1,000*l*.

THE memorial-stone has been laid of a new wing, to be named the Hoyle wing, of St. Paul's Sunday schools, Bennett Street, Oldham Road, Manchester.

A SITE worth 1,000*l*. for a new church at Eastbourne has been given by the Duke of Devonshire. Several thousand pounds towards the building fund have also been raised.

THE construction of the new post-office at Llandudno has commenced. It is interesting to note that the postal business at Llandudno is the third largest in the principality.

WORCESTER is shortly to have a new arcade running through from Church Street to St. Swithin's Street. The architects for this improvement are Messrs. Clare & Ross, of Salisbury Circus, London.

UP to the present the expenditure on the widening of the Blackpool promenade has amounted to about 50,000*l*., and upon a sixth of the work has been completed. Four hundred men are employed daily in carrying out this great improvement.

A GABLE at the Rinslip station of the Harrow and Uxbridge Railway, in course of construction, collapsed on Tuesday afternoon, and buried four workmen who were on the scaffolding. Fortunately there was no fatality. The most severe injury was compound fracture of one man's leg. The three others were freed about the head and body.

AT Dunfermline Dean of Guild Court on Monday a petition was presented on behalf of the trustees of the late Mr. William McLaren for the erection of a church, church hall and vestry in connection with the Church of Scotland on the site of the present iron church at Brucefield. The plans, which are by Mr. McGregor Chalmers, architect, Glasgow, were passed. The cost of the building is to be between 5,000*l*. and 6,000*l*.

AT the last meeting of the Rural District Council of Bedford, Notts, detail plans and estimates were laid before the council for the Selston sewerage and sewage disposal, and

were unanimously adopted. A resolution was passed instructing the engineers to forward them to the Local Government Board and asking for sanction to a loan of 22,000*l*. Messrs. Sands & Walker and S. Maylan, Angel Row, Nottingham, are the engineers to the scheme.

THE highways and improvement committee of the Leigh (Lancs) Town Council have resolved to reconstruct Butts Bridge, which carries the Leigh to Warrington highway over the Bridgewater Canal, to a width of 40 feet, at an estimated cost of 1,097*l*., provided the County Council will contribute one-half the cost. It is also proposed to widen Parsonage Bridge and Westleigh Mill Bridge. Pennington Mill Bridge is now undergoing reconstruction.

ELECTRIC NOTES.

AN electrical exhibition will be held at the town hall, Rhyl, on the 11th, 12th and 13th prox.

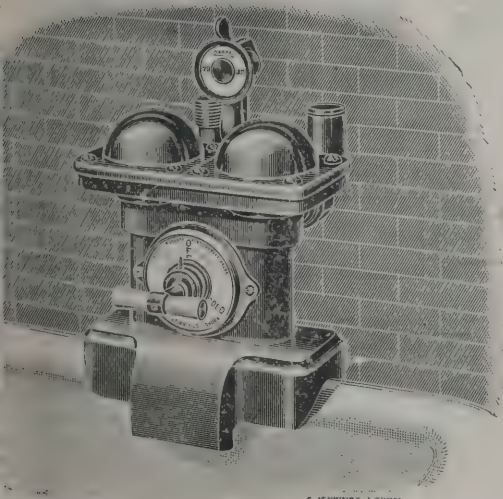
MR JOHN TAYLOR, A.R.I.B.A., of Longton and Leek, has been appointed architect for the new electric-light station for the Leek Urban District Council.

A MEETING of Clacton ratepayers, convened for the consideration of the electric-lighting scheme, favoured an application for an extension of the Council's provisional order for two years.

THE Glasgow section of the Institution of Electrical Engineers met in the rooms, 207 Bath Street, Glasgow, on Tuesday, the 10th inst., Mr. Mavor, president of the section, in the chair. Mr. M. B. Field, M.I.E.E., A.M.I.C.E., gave a paper on "Electrical Phenomena by the Aid of Oscillograms." He explained that his subject was more particularly some aspects of electrical resonance which occurred to him on observing the shape of the E.M.F. wave of the 2,500 kw. generators of the Glasgow Corporation Tramways Department. These curves were depicted on the tracing-desk of one of those instruments invented by Mr. Duddel, viz. the high frequency pattern of oscillograph. Regarding the oscillograph, he said it was a very powerful weapon in experimental research. It was only given to mathematicians to see clearly with the mind's eye the full physical interpretations of their symbols; to ordinary engineers who made no pretensions to wielding the mathematical weapons, an optical investigation of such phenomena brought home in a clearer way than pages of mathematics what was

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really going on. A discussion followed the reading of the paper, and Mr. Field was cordially thanked for his contribution.

THE Corporation of Bath were to have resumed, on Tuesday, their consideration of the recommendation of the electric-lighting committee to raise a further loan of 50,000*l.* for the improvement and development of the undertaking. Letters were read from the chairman, however, of the Bath Electric Tramways, Limited, (Sir Vincent Caillard), submitting a proposal, subject to the result of an examination of the books and accounts of the Corporation's undertaking. "My company," wrote Sir Vincent, "would be prepared to take a lease of the electric-lighting undertaking for the period necessary for the redemption of the Corporation's electric-lighting loan, and to guarantee the Corporation during such period the interest and sinking funds on such loans, the undertaking becoming the property of my company at the end of such period. My company would make themselves responsible for the raising of such further capital as may be required to put the undertaking on a thoroughly sound basis and to extend and work it in the future, and they fully believe that with judicious expenditure they would be able to materially reduce the present cost of lighting. In the event of there being any legal difficulties as to the powers of the Corporation to give effect to the above proposal, my company would be prepared, at their own expense, to apply for a special Act of Parliament, if necessary, on the understanding that the Corporation lend the company their active support in obtaining the said Act." They would be prepared also to pay down the amount the Corporation have already set aside for redemption of capital (8,000*l.* or 10,000*l.*). It was moved by Mr. Tonkin that the offer could not be considered, but an amendment moved by Mr. Matthews was carried by twenty-three votes to fifteen, providing for the consideration of the matter by the electric-lighting committee. A report is to be presented within fourteen days.

VARIETIES.

BLACKPOOL'S third new Board school was opened on Monday. They have each cost over 20,000*l.*

NEW schools to accommodate 400 children, erected by the Machynlleth School Board at a cost of 4,050*l.*, have been opened.

THE Bloemfontein Town Council contemplate extending their sewerage system at a cost of 73,000*l.* and erecting waterworks at a cost of 150,000*l.*

THE town clerk of Cheltenham, Mr. E. T. Brydges, is about to resign, and the Town Council intend to advertise for a successor at a salary of 600*l.* a year.

THE Manchester City Council on Wednesday agreed to appoint a special committee to inquire into the form of contract used for the Corporation works, in order that an arrangement can be made which will be acceptable to all concerned.

THE new district church of St. John at High Wycombe, which has been built in the industrial portion of the town to meet the needs of increasing population and for the extension of church work in the neighbourhood, was consecrated on 12th inst.

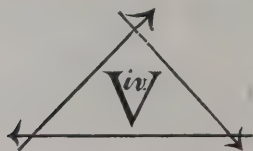
ON Saturday last the members of the Birmingham Technical School Engineering Society were shown over the Worksop Bromwich sewage disposal works, the sewage being treated bacterially. They were then driven to the tramway works for a course of construction, and afterwards visited the generating station, in which are installed Parson's steam turbines driving dynamos of 100 and 50 kilowatts capacity. A ride on the latest type of car, terminating at the town hall, where the Greatorex entertained the members to tea, brought a most instructive visit to a close.

THE church of St. Martin, Yapham, Yorks, an ancient chapel and still included in the living of Pocklington, has undergone the process of complete restoration, and was opened for service on the 11th inst. The work has been fully carried out by Mr. Wm. Anclay, of Doncaster. Included in his work are a new roof covered with red Staffordshire tiles and stone ridge, a new bell turret and the rehanging of bells, repair of the gables, replastering of the walls, new chancel step and floors, and a new east window of stained glass lights.

THE twenty-second annual meeting of the members of the Sanitary Assurance Association was held on Monday last at the offices, 5 Argyll Place, W., Mr. Andrew Stirling, president, in the chair. In the annual report the Council expressed regret that the principle of sanitary registration of dwellings in other buildings as first embodied in the Sanitary Registration Bill promoted by the Association has not yet received the sanction of Parliament. The income of the year was 23,000*l.* which, after meeting all liabilities, left a balance in hand.



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report was adopted and the retiring members of the Council—Professor T. Roger Smith and Mr. Mark H. Judge—were re-elected.

At a meeting of the Court of Common Council, the Lord Mayor presiding, the streets committee laid before the Court report recommending that the carriageways of some dozen streets in the City should be laid with asphalt at an estimated cost of 2,570*l*; that the footways of a large number of streets be laid with asphalt at an estimated cost of 3,473*l*; that the carriageway of the Minorities be relaid with asphalt at an estimated cost of 4,040*l*; and that the carriageway of Fleet Street from Bouverie Street to Temple Bar be relaid with asphalt at an estimated cost of 3,265*l*. In all, the expenditure would amount to over 16,000*l*. The recommendations were adopted with the exception of that relating to the Minorities, which was referred back to the committee.

The fifth sessional papers meeting of the Manchester Society of Architects was held on February 12, when Mr. E. Percy Hinde, A.R.I.B.A., read a paper on "Some Elementary School Buildings." The chair was taken by Mr. J. D. Mould, in the absence of the President. The lecturer pointed out the principles that affected school planning, and showed how the new code modified largely previous conditions. Plans of school buildings of various types were hung on the walls to illustrate the lecture. Mr. Willoughby moved a vote of thanks to the lecturer, which was seconded by Mr. Hodgson, and carried unanimously. The subject for the Society's last monthly competition for students was a Sundial. The prize was awarded to Mr. C. H. Potter, and a special prize to Mr. F. Osler. Messrs. A. Maclaren, Frank Dyer, R. J. Vernon, Q. M. Bluhm and Norman Taylor were awarded honourable mention.

The monthly meeting of the Institute of British Decorators (Irish Branch) was held at the rooms, Exchequer Chambers, Dublin. In the absence of the Vice-President the chair was taken by Mr. Alexander Thompson, of Belfast, president of the Irish Association of Master Painters. Advantage was taken of the presence to hand the prizes and certificates won at the Belfast Convention to the boys resident in Dublin. In doing so Mr. Thompson gave testimony to the quality of the work exhibited. Mr. Sibthorpe then delivered an interesting lecture on the spirit of the Quattrocento in Italy, which was profusely illustrated by lantern-slides. Mr. Gibson, in proposing a vote of thanks to the lecturer, said that he had rarely listened to a more instructive lecture. Mr. McIntyre seconded the motion,

which was carried unanimously. Mr. Nairn proposed, and Mr. Marks seconded, a hearty vote of thanks to Mr. R. Keatinge and Mr. Wilkins for their admirable management of the lantern. Mr. Keatinge showed a large number of slides illustrative of the decorators' visit to Italy, which were much appreciated.

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THE BUILDERS' ASSOCIATION HANDBOOK.

THE "Diary and Handbook" of the London Master Builders' Association has necessarily the highest authority as a book of reference. The information is of the kind which experience has shown to be most often required in everyday business. Colonel Stanley Bird contributes a history of the Association, a subject on which he is an authority. The Association's form of contract is given, besides various other official documents with which acquaintance is necessary.

IRISH MASTER BUILDERS' ASSOCIATION.

THE annual dinner of the Irish Master Builders' Association was held in the Antient Concert Rooms, Dublin, on the 12th inst. The room was tastefully decorated, and a large company sat down to dinner. Mr. J. Beckett (president M.B.A.) presided.

The Chairman gave the toast of "The King and his Gracious Queen," which was heartily honoured, and he then gave the toast of "Prosperity to Ireland," to which Sir Antony

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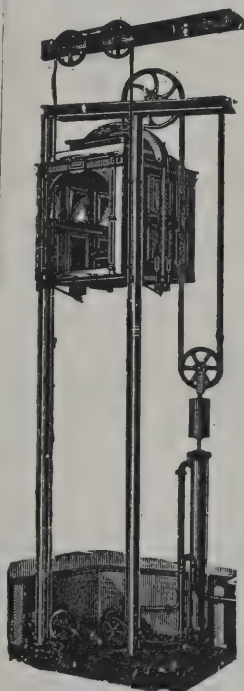
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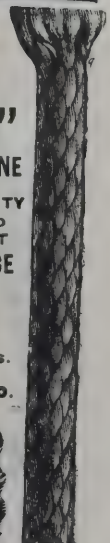
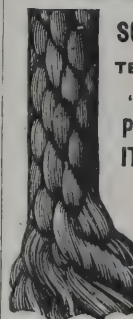
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MacDonnell responded at some length, his remarks being greeted with great applause. The Chairman then gave the toast of "Our Guests," to which the Lord Mayor replied. Other speeches followed, and the Chairman's health having been honoured, the company separated.

AMERICAN HIGH BUILDINGS.

IN a review of construction during the past twenty-five years, Mr. F. W. Skinner, in the *Engineering Record*, says:—Foundations for buildings are carried down to an indefinite depth through quicksand to hard strata, in open shafts, by the hydraulic caisson process, and foundations supporting immovably the most enormous loads are carried down to solid rock 100 feet below the water-line through mud, water, quicksand and any obstacles by the pneumatic caisson process, which was first applied to buildings in 1893. An important modification of this process enables a continuous masonry dam to be carried down to solid rock, through the worst soils, so as to permit the excavation of four or five storeys of a great building below ground water-level, and exclude the water and resist the great hydrostatic pressure on the cellar walls, as in the New York Stock Exchange. Progress has been made with a system of building foundations at great depths under ground in the worst quicksand, in totally inaccessible places, by the injection of grout in such a manner as to form masses of concrete in any desired shape and position.

In bridgework river piers are commonly made by pneumatic caissons which have been sunk more than 100 feet below water-level, and have been built in almost all parts of the world since the first important one in this country was built for the Glasgow Bridge over the Missouri. Great improvements have been made in sinking crib or open caisson foundations by internal dredging to depths beyond the limits of pneumatic caisson-work, and especially in depositing concrete in them by automatic buckets opening under water as for the Poughkeepsie, Omaha and interprovincial bridges, and by travelling chutes depositing it in continuous layers protected until placed, as for the Charlestown bridge. For sea walls, docks and quays valuable and ingenious methods and appliances have been devised for casting and handling on shore concrete blocks up to 500 or more tons weight, and they have been constructed in place weighing up to 5,000 tons by special caissons, as for the Antwerp quay wall and for the Port de Bizert.

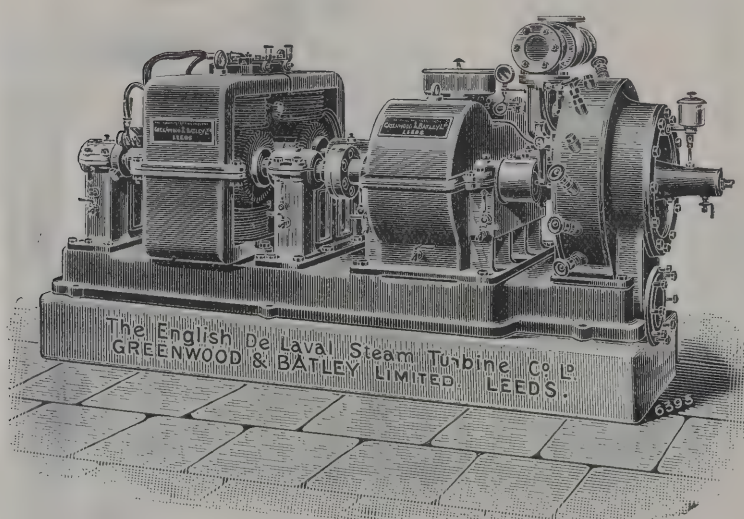
Consonant with these substructure constructions has been the underpinning of tall and heavy existing structures, which is usually done when they are in a precarious condition, and great skill and experience are required. Old methods were practically confined to the use of wooden needle beams passing through the walls. The twelve-storey wall of the Decke building, weighing 76,000 lbs. per linear foot, was a few months ago supported on double tiers of deep steel beams and its footing removed, and a new one built and carried down to the solid rock. In other cases the walls have been temporarily supported entirely from the inside or from the outside by elaborate systems of inclined shores and girders or by cantilevers. Piles are driven horizontally under heavy foundations to increase their bases, or they are extended by eccentric additions put in equilibrium by cantilever reaction girders as in the Morse building. The weights of weak or heavily loaded walls are carried down to solid rock on lines of slender columns sunk 100 feet through quicksand and boulders by the Breuchaud process without jeopardising the stability of the building, entering its cellar or obstructing the adjacent lot. Tipping piers and tall monuments with loads aggregating thousands of tons are underpinned by driving successive tunnels beneath them and filling the tunnels with masonry. The foundations of occupied tall buildings are entirely rebuilt, the superstructures are lifted 20 feet and new storeys are built under them; whole fronts are taken out and replaced, intermediate storeys are rebuilt or new storeys erected above the roof, sometimes supported on outside new foundations, all without materially interfering with the occupants. Large brick buildings are raised or lowered many feet or are moved several blocks and around corners or across large rivers without being vacated or injured.

The safety, rapidity and economy of constructing tall and heavy buildings in crowded city thoroughfares where there is no storage room and the streets cannot be obstructed have been greatly promoted by revolutionary improvements within the last score of years. The cellars are entirely covered by street-level platforms which double the area for storage and machinery, while the foundation piers are built under them and the framework erected over them long before the excavation is completed. Vaults are built far under the street beneath temporary double-deck bridges which provide office room and workyards above the sidewalks on their roofs which serve the additional purpose of protecting pedestrians. Ten-ton caissons drawn by a score of horses are quickly swung into place by

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tral derrick or by a boom mounted on a timber tower which
ers, without obstructing, the street, and moves back and forth
command the whole foundation area, while the tower affords
e storage room on its decks. Girders weighing thirty
s are lowered many feet to the cellar floor in a few minutes.
ousand tons of columns and beams are erected in a few
ks to form the twenty-storey superstructure, by special
pments of hoisting apparatus which may consist of a slender
er reaching from the cellar to the topmost storey, or of
elling derricks rising with the structure and moving over
parts of the skeleton floors to handle every column and
er. Steam and compressed air from the cellar are piped
over the building to operate the hoisting engines and
omatic rivetters, chisels and drills. The walls are simulta-
neously built in half a dozen different horizontal belts before
framework is finished. Mortar is delivered ready mixed
a central station miles away and hoisted to place by swift
ing steam elevators. Waggon loads of brick or steel are
ing in one operation from the street to the top of the work
distributed on railroad tracks, and the million-dollar
ding is completed and ready for its thousands of tenants
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NOTTINGHAM MASTER BUILDERS' ASSOCIATION.

annual dinner arranged under the auspices of the
Nottingham Master Builders' Association was held on Friday
at the Victoria Station Hotel, Nottingham. Mr. Henry Vickers
(ident) occupied the chair.

After dinner the Chairman submitted the loyal toast, which
was enthusiastically honoured.

Mr. W. Edgar, ex-president, submitted "The Mayor,
Aldermen and Corporation of Nottingham."

Councillor Jno. Wright replied, and spoke at length of the
magnitude of the various undertakings managed by the
Association, urging that they were conducted to the advantage
of the ratepayers of the city. With regard to the gas depart-
ment, however, he advocated that the price to the consumer
should be reduced, and that less should be devoted to the
cost of the rates. Councillor Wright also made mention of
the education question, the administration of the licensing
act, and a variety of subjects of interest to the building trade.

Mr. J. H. Vickers proposed "The Architects," observing

that at the present time, and for a considerable time past,
there had been absolute peace, harmony and concord existing
between the architects and builders, and he expressed the hope
that that condition of things might long continue. He heartily
welcomed the gentlemen representing the old profession of
architecture who had accepted the invitation to be present at
the annual reunion of the members of the building trade.

The names of Mr. W. D. Pratt and Mr. E. R. Sutton were
associated with the toast, which was cordially honoured.

Mr. Pratt, in reply, emphasised the importance of co-
operation between the architect and builder, and suggested
that the master builder ought to be most careful in the selec-
tion of his foremen and operatives, upon whom so much
depended.

Mr. E. R. Sutton also responded, and mentioned the great
improvement made in the forms of agreement between
architects and builders, and the satisfaction which the almost
universal inclusion of the arbitration clause in contracts had
given. In the past, Nottingham had experienced considerable
difficulty in obtaining good timber, and at one time Notting-
ham was supplied with worse timber than any other town, but
he believed it was all a question of price. He hoped the matter
would be remedied. Mr. Sutton also alluded to the question of
cost.

Mr. Thomas Flewitt next submitted "Success to the
National Federation and the Nottingham Master Builders'
Association," observing that the builders were to be congratu-
lated upon the absence of any trade dispute during the year.
In the past the Association had probably been looked upon
with a certain amount of suspicion, an idea having prevailed
that its operation would lead to an increase of lock-outs and
strikes; but, as a matter of fact, its influence had been in the
contrary direction. Mr. Flewitt raised a protest against the
Corporation undertaking work that could be more economically
done by contractors. They might, however, easily clear away
some of the slum property, and leave it to speculative builders
to erect suitable houses in their place. It was to the interest
of the Association to see that good work was done, and for
that reason it deserved the hearty support of all engaged in
the building trade. The toast was duly honoured.

Mr. Chambers (Leicester) responded, and referred to the
National Federation as an organisation established on good
grounds with the object of benefiting the building trade
throughout the country. He regarded the federation as the
House of Lords, and the Midland and other centres as being

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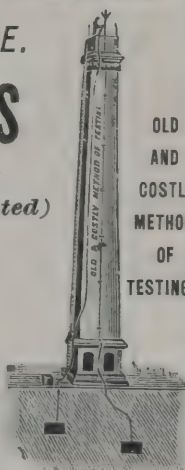
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the House of Commons. The brunt of the work would have to be undertaken by the various centres. The representatives upon that body had but one object before them, and that was to elevate one of the foremost and oldest trades in the country, and one which distributed an enormous amount of money. Mr. Chambers spoke of the value of organisation. They had been working some time for a national form of contract, and he hoped it would become an accomplished fact before long, because the varieties of agreement adopted now led to very great difficulty.

Mr. A. E. Tallis also replied.

Other toasts included "The Visitors," submitted by Mr. James Wright, and "The Chairman." During the evening the members of the Cecilia Glee Quartette (Messrs. F. W. Ball, J. Turner, G. W. Penn and E. S. Edgar) collectively and individually contributed to an excellent musical programme, the various items being keenly appreciated. Mr. Quinton Richardson sustained the humorous element admirably, and Mr. A. Williamson presided at the pianoforte and played the accompaniments and various selections with skill and discrimination.

THE AUCTIONEERS' INSTITUTE.

At the meeting of the members of the Auctioneers' Institute, held on Friday night at Hamilton House, Victoria Embankment, under the chairmanship of Mr. John Hepper (president), Mr. W. G. Nottage read a paper on "Registration of Title to Land (Land Transfer Acts, 1875 and 1897): How it Affects the Auctioneer."

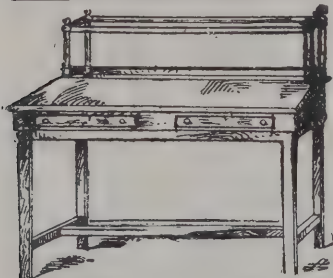
Mr. Nottage said he thought it might be taken for granted that the adoption throughout England and Wales of the compulsory provisions of the Land Transfer Acts was only a question of time. He also thought that the chief reason why the Act was not in force in any county except London was because not one landowner or prospective landowner in a hundred knew of the advantages of the system. The opposition of a section of the legal profession should not, he thought, be considered too seriously, as all solicitors were not opposed to it. Speaking of the different classes of title—absolute, qualified and possessory—Mr. Nottage said that in all probability a new rule would shortly come into force which would materially assist the applicant for an absolute title, as far as the cost was concerned. It would be to the effect that on an application for an absolute title (either on first registration or to convert a pos-

sessory into an absolute) the fee to be then paid would be considerably less than at present, and would be made to include all incidental costs hitherto borne by the applicant. He hoped that the scheme suggested for the automatic conversion of a possessory title into an absolute one would no longer be deferred, as it was that which owners of land and business men generally required. It was, he said, somewhat startling to learn that a system had been devised by which a fee was perfectly safe to buy, sell or charge land by merely reading a few entries in a book, or writing a few words on a printed form; but as auctioneers were up-to-date men of business, would not surprise them so much as it did some other members of the community. Many of them must often have deplored the hindrance to their business which the old system of conveyancing entailed, and have wondered why a cheap, simple and safe system, analogous to that which was in vogue in some of our colonies and in many European countries, could not be created. Having mentioned that another feature of the registration system was the facility with which temporary loans could be effected, he expressed the opinion that the new scale of charges under the registration system would prove to be very remunerative to the solicitor concerned, as the work and responsibility would be so greatly lessened.

A discussion followed.

STEAM PIPES.

At the last meeting of the Gloucestershire Engineering Society Mr. C. E. Stromeyer, M.I.C.E., read a paper on "Steam Pipes." He said that the duty of steam pipes was to convey steam from the boiler to the engine with as little loss as possible, and with the minimum risk. There must be a certain dimension for which the sum of percentage of steam condensed and of pressure lost was a minimum. Theory had not as yet solved this problem, and for the present practical experience had to be their guide. When steam pipes were of considerable length their expansion and contraction, due to heating and cooling, were the cause of various troubles. The size and shape of steel pipe bends were not easily determined, but according to a calculation he had arrived at the conclusion that steel pipes could be sprung twice as far as copper pipes without acquiring a permanent set. Doubtless there was a slight danger in straining copper beyond its elastic limit, and as steel could not be used with superheated steam, steel seemed to



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better material all round. The question of rigidity was an important one in many respects. After going into a few technical details, the lecturer went on to state that of many steam-pipe arrangements, had had to be criticised by and the need for the warnings contained in his paper had at once been evident when he mentioned that probably per cent of all stationary boilers were provided with steam pipes which, if the ordinary conditions of handling the stop valves were only slightly departed from, might readily bring about water-hammer blows and even explosions.

ALL OF ST. MARK'S TOWER, BANGALORE.

collapse of the new tower of St. Mark's Church, and the age done to that edifice, the oldest church in the large and military station of Bangalore, does not impress natives a belief in British skill. The damaged church, with its old tower, occupies one of the most conspicuous positions in Bangalore, facing the parade ground. *Indian Engineering*, in writing the history of the work, says:—

"The improvement of the old church of St. Mark's was a matter of much concern to all Bangaloreans for many years. Military and civil worship there, and the barn-like appearance of the old building annoyed everyone for a long time, and a wish to see an alteration was natural, but for some unexplained reason the Madras Government refused to sanction the funds. This went on till the Rev. Mr. Barry became chaplain of St. Mark's, when he went about with energy and devotion, raised 10,000 rupees by private subscriptions, expecting the Government of Madras would have added another 10,000 rupees, which would have been sufficient for all the improvements contemplated. But this the sleepy, feeble Government of Sir Arthur Havelock refused to do, and His Excellency Lord Curzon had to be appealed to. The electric current set in motion from Government House, Calcutta, can hardly be imagined than expressed. The shock so roused up Sir Arthur Havelock that he afterwards sanctioned over 10,000 rupees for the improvements to St. Mark's Church, or over five times as much as was first asked for and refused by him. It is a tableau which ought to be stamped on the minds of local and provincial Governments. After much thought and deliberation with the lay trustees and leading members of the church, a plan was evolved which met with the approval of all,

and which was to cost within 20,000 rs., one-half of which the people paid for. When it was known that the Government of Madras was willing to grant the necessary funds this plan was submitted by the Commanding Royal Engineer to his immediate superior for formal sanction, and this officer sent the plan to the Government of Madras in accordance with procedure. The plan was in due course sent to the consulting architect for opinion. But that officer, it is alleged, having views of his own in the matter, after obtaining the necessary authority, sat down and drew another on totally different lines and costing more than twice the first plan; and after obtaining the approval of the bishop to his design, submitted it to the Government of Madras for sanction. That Government sanctioned the plan and allotted more than four times the money originally asked for, and moreover allowed its architect to erect his own design. The disregard of the chaplain and his people, who had struggled so long to improve the old church, by having a design foisted on them so different to what they had planned and desired, requires explanation.

People were certainly much surprised at the parsimonious Sir Arthur sanctioning so expensive a design, and at the still more expensive arrangement of having his architect go all the way to Bangalore, entirely outside the limits of his Presidency, to supervise its construction. All this was so unnecessary. There was the Commanding Royal Engineer and his staff, who actually held charge of the church, to do what was required. If a specialist in building construction was considered necessary, they had one at hand in the Executive Engineer of the Bangalore Municipality. Anyway, the ruined tower and church are now the most depressing result of the arrangement.

WIDENING OF HAMPSTEAD ROAD.

WE have on several occasions called attention to the necessity for the immediate widening of Hampstead Road at its southern end where it joins with Tottenham Court Road. This improvement is authorised by Parliament, and has already been five times sanctioned by the County Council; but it has been allowed to lapse owing to the refusal of the local authorities to permit a tramway to run down Tottenham Court Road. The improvements committee in their last report say they feel that the Council would not be justified in delaying the

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improvement, as the narrowness of the existing road is the cause of frequent accidents, and any postponement of the work must be attended by material increase in the cost. Moreover, they consider that when the road has been widened the Council would have removed all possible ground of objection to the tramway. The gross cost of the improvement is estimated at 245,000*l.*, of which 240,000*l.* represents the cost of acquiring property. The St. Pancras Borough Council will contribute one-eighth of the net cost. It is estimated that the net cost to the Council will be about 198,000*l.*, which represents an annual charge on the rates of 9,800*l.* for interest on and the repayment of debt, and is equivalent to a rate of 059*d.* in the pound for the first year after the improvement. It is expected that the ultimate net cost will be reduced by the proceeds of an improvement charge to be levied on owners of property benefited by the improvement. In a special report upon the subject the highways committee point out the obvious advantage of provision being made to enable persons to travel by tramway from the northern part of London to Oxford Street, and state that their chairman (Mr. Benn) will move to add an amendment to the effect that no expenditure shall be incurred upon the improvement until the St. Pancras Borough Council has given its consent to the tramway.

THE CENTRAL LONDON RAILWAY.

A REPORT has been prepared for the public health committee of the London County Council, giving the results of chemical and bacteriological examinations of the atmosphere in the stations, lifts, passages and tunnels on the Central London Railway.

The chemical examination consisted in the determination of the amount of carbonic acid in the air, and of the amount of oxygen absorbed from permanganate by the organic matter present in the air. Over 100 samples taken at different periods last year were examined. It was found that the quantity of carbonic acid in the air of the railway varied considerably, while the quantity present in the air outside varied only to a slight extent. The amount of organic matter present in the air of the tubes underwent considerable fluctuations. The general result of the chemist's examination shows that the quantity of carbonic acid was highest in the air of the carriages, and that, contrary to what might reasonably have been expected, the largest quantity, 14.7 volumes in 10,000

volumes of air, was not found in the carriages where smoking was allowed, but in an ordinary passenger carriage. The smallest quantity found (9.6 volumes in 10,000 of air) was in an empty carriage. The air in the passages leading from and to the stations was generally better than in the lifts. On one occasion the air in the lifts at the Oxford Circus station contained 15.2 volumes of carbonic acid in 10,000 volumes of air, or about four times the quantity found in the fresh air outside the station. Several samples of air were collected at midnight or early in the morning after the tubes had been ventilated by the passage of air, and before the morning traffic had commenced. The examination of these samples showed in most instances that a very poor condition of the air had been produced by the ventilation, although it was still somewhat inferior to that of the outside air. Generally, about 78 per cent. of the samples collected contained more than twice as much carbonic acid as that found in outside air, and 66 per cent. contained more than 2½ times as much. The chemist considers that samples of air taken at any point on the railway should not contain more than eight volumes of carbonic acid in 10,000 volumes of air—that is, no more than twice the amount which is generally found in the streets. He suggests this standard of purity in view of the fact that all the additional carbonic acid found in the air of the tunnels has been produced by respiration, and is, therefore, of a more objectionable character than that produced by the combustion of fuel in the locomotives, or of gas or oil for lighting purposes.

A few samples of air were collected from other railways, and their examination shows the following results in volumes of carbonic acid in 10,000 volumes of air:—City and South London Railway, at London Bridge station, 7.6; in an empty carriage, 14.1; Metropolitan Railway, empty carriage, between Edgware Road and Portland Road station, 16.0; empty carriage between Baker Street and Gower Street stations, 28.0; District Railway, empty carriage, between Mansion House and Temple stations, 15.1.

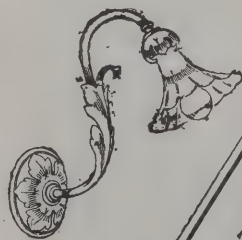
Dr. Andrewes made bacteriological examinations of twelve samples of air from different points on the Central London Railway, and compared them with twelve similar samples taken at the same time from the fresh air outside. In summarising the results Dr. Andrewes concludes that while micro-organisms are present in tube air in a somewhat greater proportion (thirteen to ten) than in fresh air, the excess is not so considerable as to cause the tube air to compare unfavourably with

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the conditions known to exist in inhabited rooms generally, and although there was considerable excess of organisms capable of growing at the temperature of the body, this excess was due to non-pathogenic sarcinæ and allied species, and no pathogenic organisms were found in the tube air. The highest averages were found in carriages and lifts—i.e. in the most crowded places examined—while the platforms and passages came out actually better than the fresh air, and the tunnels were only a little worse. There was a direct correspondence between the amount and concentration of human traffic and the number of organisms in the air.

In concluding their report, the committee state that they have been informed that the Central London Railway Company are taking steps to improve the ventilation of the tunnels by installing a large rotary fan at the Shepherd's Bush end, which will be powerful enough to draw out all the tunnel air three times in the three hours during which the traffic is stopped at night. They also state that the company are installing at the Bank station an air-compressor which will force compressed air drawn from the street level into the extreme end of the Bank sidings while the trains are in motion and thus purify that part.

IMPROVEMENTS IN MILITARY BARRACKS.

A SPECIAL correspondent of the *Times* writes on this subject:—It became clear some two or three years ago that something must be done in the direction of securing occasional privacy in barracks for the soldier, and those persons who assert that nothing has been done are grievously in error. As a matter of fact the conversion of existing barracks to the cubicle system has been tried at Woking and in Dublin, and the experiment has been full of practical value; it has been productive, too, of lessons that were apparent to me after inspection of the Woking barracks, which consist of one of the buildings, visible from the South-Western line between Woking and Brookwood, formerly used as a prison. The soldier has never been better housed than in that sometime prison. There such barrack-rooms as are used as common bedrooms are beautifully high and airy, with abundant space, and heated by hot-water pipes or radiators. The dining-rooms are separate. There are a recreation-room, with billiard tables (a regimental investment which pays its own way) and bagatelle tables provided by the War Office; a library, a reading-room, with a

space curtained off for private writing; a coffee bar, which takes more money than the wet canteen; tailors', carpenters' and shoemakers' shops; schools for adults and children, a Morris Tube range and a gymnasium. The married quarters, small houses formerly occupied by the warders and their families, are excellent. Other houses there are, too, adequate in point of size and with capabilities of pretty environment, for married officers, although for some reason or other the authorities have permitted them to fall into a shocking state of disrepair.

But it is with the cubicles, and with the opinions of the men concerning them, that I am principally concerned. They are of three types, all of them having certain features in common. That is to say, each has partitions and door about 8 feet high; each is furnished with a spring bed, mattress and blankets, a cupboard, a table and a chair, and each has a window or part of a window. And here let me pause a moment. Woking Prison was not designed for conversion into barrack cubicles, and the loss of accommodation, that is to say, in the number of men who can be accommodated in a given space in cubicles, as compared with a barrack-room, is larger than it would be in a specially-designed building, simply because the windows are not numerous enough for the purpose. At Woking it is 33 per cent. In any case, it is clearly undesirable that two men should share one window, since recognition of the merits of fresh air—and the air of Woking can be very fresh indeed—is by no means universal in the class from which recruits are drawn. The differences between the cubicles are that in some the partitions cease 5 or 6 inches from the floor, whereas in others they reach the floor all round, in others all round save at the door. The first type is recommended by some on the ground of cleanliness, there being none of the dust traps in corners which housewives know; while, on the other hand, it is objected to on the ground that it promotes draughts and that cubicle neighbours will be apt to sweep into the cubicles of one another. Again, in some cases the cubicles are warmed by pipes running through them, in others by radiators in the central corridors. The former are naturally much preferred, because they give a sense of personal warmth, although, as a matter of fact, the radiators heat the whole of the cubicled dormitory in a very efficient manner. Truth to tell, the soldier does not like either the one or the other, but has, as most of us have, an unreasonable prejudice in favour of the more cheerful, but far less effective, fire of coals. To some of us, brought up on the Spartan lines of years not so very long



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gone by, it will be in the nature of a revelation that it is considered necessary to warm the soldier's sleeping-place at all. In the barrack-rooms, no less, all united in declaring that they vastly preferred an open fire, round which they could cluster and gossip (the weakest outside, although they did not mention that), to the finest of modern appliances for heating.

Cubicles are, on the whole, very highly esteemed, although in exceptional cases they have been complained of, on the ground that they are dull, and that barrack-room life is brighter. Moreover, they have produced another little difficulty. Some barrack-rooms there are at Woking, and some there always must be by reason of space, if for that reason only. In each such barrack-room there must be a non-commissioned officer, and there have been cases in which men have declined to be promoted to be unpaid lance-corporals because promotion would involve the loss of their cubicles. It has been suggested that the former objection should be got over by having the cubicles in new barracks placed adjacent to the barrack-rooms and not, as at Woking, far away from them. This suggestion would seem to imply that those who have had experience of the cubicle system think that it is not universally applicable, and that may perhaps be a shock to unthinking folks. Yet that is the deliberate opinion of those who know the soldier and are zealous in his interests. Their view is that cubicle accommodation for 25 per cent. of the men at first, and perhaps 50 per cent. later, as well as for all non-commissioned officers save those actually required in the barrack-rooms, would be amply sufficient. They would have twelve cubicles allotted to each company, and fourteen to the best shooting company, the said cubicles being assigned to individuals at the discretion of the captain of the company, subject only to the restriction that he should not assign them either to recruits, to dirty soldiers, or to bad characters. Here, it seems to me, is a real difficulty. An object, and perhaps the main point, of the cubicle system is to encourage recruiting by holding out the promise of privacy to the recruit. If he cannot be trusted in a cubicle at once, the prospect held out to him is that of a common sleeping-room in which the good characters of the regiment do not sleep. Yet how are the company officer and his subordinates to know whether a recruit is to be trusted in a cubicle until they have had some opportunity of studying his manners in a barrack-room? The question is far from being an easy one, and I confess that I see no answer to it except to trust the recruit also with a cubicle until he shall have shown himself to be unworthy of it. This, of course, would involve more cubicles,

and perhaps some risk of damage and defilement. But, as to the first objection, the loss of space in a properly designed building would be less than in a building requiring to be converted; and as to the second, it would grow less if, and as, the right class of recruit was attracted. Certain it is that the quiet man wishing to join would not be attracted by the knowledge that recruits and bad characters alone were excluded from cubicles. But perhaps it might not pass the wit of man to keep the recruits more or less segregated during a probationary period.

So much for Woking, where the cubicle system is an unqualified success as far as it goes, and is spoken of in the highest terms by officers and men. But Woking and Dublin (of which I cannot speak as a witness, since I have not seen it) are but two places, and the important question of the future is what progress has been made in the matter of other barracks. Practically that progress amounts to this. It was recommended by Lord Roberts, a year or two ago, that a special design should be prepared for new cubicle barracks to be built somewhere near London, and Windsor was selected for the experiment. Every care has been taken, after investigation by the Army sanitary committee into the principles of the construction of "cubicular" buildings used in civil life, in the preparation of this design, and the result is somewhat alarming to the taxpayer. In a word, the design involves a considerable increase in the amount of space to be allowed for each soldier, and therefore a proportionate increase in the cost of all future barracks. That increase the country will probably be prepared to bear in the case of new barracks at least as cheerfully as it endures many other imposts. But it will be remembered that a large number of barracks are now in process of construction, and a pledge has been given to the country that these barracks shall be capable of conversion into cubicle barracks if required. The space per soldier in these barracks is not so great as that which has been declared by the Army sanitary committee to be advisable in the case of the Windsor Barracks. It remains only to hope that, while the new Windsor Barracks, when they come, will represent the most complete application of hygienic principles, the barracks already under construction may be found to provide the essential amount of space per soldier, even though it be not the ideal amount. Rich as the country is, it must still be content to cut its coat according to its cloth, and to proceed by steps; and we may at least be sure that the barracks now under construction will be a great improvement on the old ones.

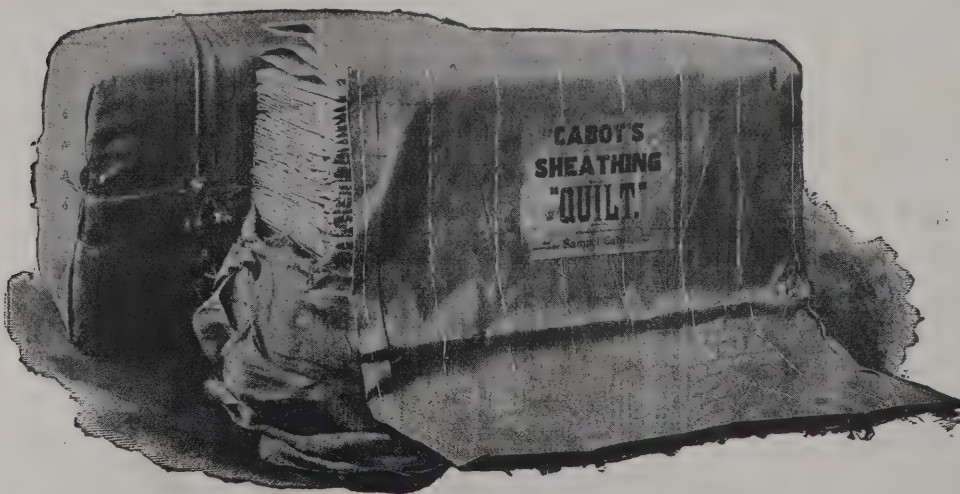
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The Architect.

THE WEEK.

It is a hopeful sign for France when judges are found to be sufficiently bold to express their opinions openly about the shortcomings of works of art. The system by which the "envois" from Rome produced by students in the Villa Médicis were considered was so lax, it has had the effect of causing a great many people to maintain that the Prix de Rome for all arts should be abolished. The worst offenders were unfortunately the architectural students. This year M. PASCAL has prepared a report, and he does not hesitate to express his opinion about the failings of the drawings. His view of the Arch of Titus is said to ill-treat a beautiful sample of architecture; some of the details have neither character nor truth, and the work is suggestive of negligence and "ennui," the perspective looking as if taken from a bad photograph. The church of Sta Maria in Cosmedin is described as unsuited for an artistic study, because the plan is irregular and there is no originality in the details. The drawings of the Baths of Caracalla show that picturesqueness was sought after and the noble composition of the edifice is sacrificed; the elevations are monotonous and without character. It is pointed out in other cases that the regulations about sending drawings have not been fulfilled. The only drawings that satisfy M. PASCAL are those submitted by a first year resident. A student must be quite confident about his future who is different to unfavourable reports from any of the members of the Academy of Fine Arts, for on his return to Paris the young architect who has complied with the regulations to the letter may rely on obtaining an appointment on some public works which will help him until he is able to secure commissions.

ONE of the paintings in the section of the Pinakothek in Munich devoted to German art is a *Nativity* by ALBERT DÜRER, which was executed for the Town Council of Nuremberg. It is a triptych, and on the right and left are knightly figures that by some are held to represent saints and by others merely portraits of the donors. It has been maintained that after the work came into the possession of MAXIMILIAN I. the landscape background and the horses were introduced by another hand. A few years ago two paintings dated 1550 were found with a future dealer, and they were assumed to be copies of the original wings by DÜRER. If the wings attached to the *Nativity* had been removed and the copies substituted, the change might find opponents, but would be certain of connoisseurs' approval. Instead of that course, it was decided to transform the two wings into a state that, while differing from the copies, was assumed to correspond to the work as it left DÜRER'S hand. This heroic operation has been accomplished. The two soldiers have become St. EUSTACHE and St. GEORGE. The landscapes and horses have been cleared away, and it is needless to say the work has now become altogether different in character from that which was so long familiar to visitors. Any German critics have condemned the transformation; they should remember that in principle it corresponds to the havoc perpetrated in German and French buildings under the guise of restoration.

THERE was a time when farm buildings in Ireland were a source of amazement to all visitors who were agriculturists. Few landlords cared to erect or improve the structures, and it was stated before the Duke of RICHMOND'S Commission that such a being as an estate carpenter, who could help in an emergency, was unknown in Ireland. Building work performed by a tenant was looked on as means to have his rent raised, and to increase the number of people who were covetous of the occupancy of his hold. There is an improvement in the law of tenure, and consequently it is now easy to borrow money on most favourable conditions for the erection of farm buildings. As Ireland is governed by several public departments, and having its traditional rules, it occasionally happens that a great deal of variance arises in the manner of

realising the intentions of Parliament. For example, tenants can purchase their farms at equitable sums, but in the calculations the value of the farm buildings is ignored. No doubt with the tumbledown cabins of old days it would be difficult to fix a price, but the matter is different when they are modern and constructed by public money granted on the understanding that it was to be repaid. A few days ago a case came before the Land Judge's Court which exemplifies the strange practice adopted. It was arranged that a farm, for which the rent was 100*l.* a year, was to be sold for 1,700*l.*, or seventeen years' purchase. On the land were buildings lately erected by the Board of Works, of which the estimated value was 500*l.* But in the calculations not one penny was allowed for them. The reason is that the Land Commission who grant the purchase money do not consider farm buildings as security for repayment of the money. The Board of Works, no doubt, can claim repayment from the landlord, and when property is sold under the new conditions the farm buildings will be made over to the tenant gratuitously. In the case in question the judge refused to be a party to the transaction, and he said that unless a sum of 2,000*l.* was paid by the tenant he would have the property thrown on the market.

THE French Government have obtained the approval of the Chamber for an outlay of 3,000,000 francs in order to execute the works most urgently required in Martinique. M. KNIGHT, as the representative senator, has demanded that the sum should be raised to 7,000,000 francs. He considers that it will be necessary to reconstruct at once several of the buildings which disappeared in the recent catastrophe, and especially the primary and secondary schools. The suggestion testifies to the importance which secular education has acquired in the minds of Frenchmen. Unfortunately the financial condition of France will not allow of so large an outlay on the colony of Martinique. It may therefore be taken for granted that rebuilding can only be gradual and that inconvenience will be suffered during several years.

MUCH disappointment will be caused by the decision of the Court of Appeal in the case *WRIGHT v. BERRY*. When an injunction was applied for by the plaintiff in March we suggested the character of the grievance which arose by saying that "ninety-nine out of every hundred people would object if they found that a hospital, or refuge, or benevolent institution were set up opposite their dwelling-houses, and more especially if they were not able to abandon them without suffering loss." The plaintiff was the purchaser of four of the "large choice plots for the erection of private residences" which were sold as part of the St. Kilda estate in Ealing. It was stipulated that "no building of any kind other than a detached or semi-detached house with appropriate offices and outbuildings to be appurtenant thereto or occupied therewith shall be erected on any plot." The defendants bought two plots, on which it was intended to build self-contained living-rooms to accommodate fourteen families. Application was made to Mr. Justice BYRNE for an injunction to prevent the construction of those cottage homes for the aged poor. But his Lordship held that although in the particulars of sale there was a distinction between residential plots and shop plots, there was no distinction between residential plots and private residential plots. The injunction was, therefore, not granted. What we remarked at the time was, "The only remedy is either to have stringent building regulations which cannot be broken, unless under a penalty, or for a purchaser to buy neighbouring plots which might be used to his disadvantage and to resell them." The Court of Appeal, consisting of the Master of the Rolls, Lord Justice ROMER and Lord Justice COZENS-HARDY, have agreed with Mr. Justice BYRNE. It will, therefore, be well for purchasers of building plots to take warning from the case. Unless there is a stipulation that the plots are to be used only as "private residential plots," there is a risk that what purchasers at least consider to be the spirit of the arrangement may be departed from with impunity.



NEREIDS WITH TRITONS BEARING SYMBOLS OF VENUS, NEPTUNE, BACCHUS AND APOLLO.

MOORLAND WATERS AND LEAD PIPES.

THEORISTS, who are inimical to the interference of Government with ordinary life have to admit that cases arise in which the organisation of a public department is best adapted to attain the ends desired. JOHN STUART MILL, for example, points out that while the greatest things have generally been done by men who had the least time at their disposal, there were investigations and experiments which required not only a long but a continuous devotion of time and attention, and for them the community collectively should bear the expense. It is satisfactory to find that some of the Government departments are of late undertaking investigations which no individual could unaided bring to a conclusion. The report to the Home Office on the ventilation of factories and workshops is one instance of what can be done. A second, and one which is more remarkable, is the report on lead poisoning and water supplies which has been prepared on the initiative of the Local Government Board.

The general employment of lead in plumbing is an English peculiarity. The material has many advantages for that purpose. Occasionally, when there are panics about lead-poisoning, the good qualities are temporarily overlooked. It should be understood that all kinds of water do not corrode lead. Where there are certain salts, chlorides or nitrates, the pipes will suffer. But when there is carbonate of lime in the water, the metal, instead of being dissolved, is protected. In the cases of salts or acids, it is also possible to neutralise the effects without any diminution of the potableness of the water. In a great many places no other source of supply is available than one which will affect pipes, and it is well to be able to know on the highest authority what is the extent of the risk incurred. That is the purpose of the investigation by Dr. HOUSTON, which was ordered by the Local Government Board.

A great many towns, including Leeds, Huddersfield, Bradford, Sheffield, Wakefield, Preston, Oldham, Halifax, Bolton, Blackburn, &c., derive their supply from moorland gathering-grounds in Lancashire and Yorkshire. Now, as moorland waters from being acid have the power to dissolve the lead of water pipes, whether new or old, they become a potential source of danger. There is in the first place the acidity of the water, and in the second place the bacterial influence which sometimes causes erosion. It is advantageous to comprehend the extent of the power of the two factors, and that has been done by Dr. HOUSTON with an elaborateness that is enough to suggest the accuracy of his data and the cogency of his conclusions. The details are set forth not merely in a great many tables, but by a series of about fifty large diagrams which at once appeal to the eye. There are also in the volume copies of the Ordnance maps showing the reservoirs and gathering-grounds referred to in the report. Everything is presented in the most circumstantial manner, and, in fact, it would be impossible to collect and adapt information with equal completeness through the agency of private enterprise.

We need not premise that the inconvenience of the presence of lead has been known for several years. Professor CLARK, whose name will always be associated with the overcoming of hardness and other defects in water, sixty years ago was employed to investigate the quality

of a supply derived from Bagshot Heath, which had poisoned some of Queen VICTORIA'S hounds and caused suffering to the huntsmen. In the course of a few days he was able to ascertain that nothing more than filtration was necessary in order to eliminate the lead. At the present time it is believed that in dealing with similar water "perhaps the most satisfactory method is ordinary sand filtration, with the addition of some neutralising material (e.g. a thin coating of lime on the surface of the sand with limestone underneath the sand) to the filter, and the subsequent addition of a trace of sodium carbonate to the neutralised water."

The Bentham reservoir at Burnmoor in the West Riding of Yorkshire was made the subject of a differential examination over a prolonged period by Dr. HOUSTON. It had acquired a reputation for an extreme degree of acidity which acted vigorously on lead. Many cases of lead poisoning were mentioned as occurring in the district. It was found, however, that some of the water had no power of dissolving lead, but this fact did not excite surprise, for it was ascertained that moorland water is sometimes devoid of plumbic solvent ability. Over two years were spent in the examination. It was known before that moorland waters which cause lead poisoning are apt to be acid, but the new investigations establish the extent to which the acidity itself was the essential factor in producing plumbic solvent. The laboratory experiments demonstrated conclusively "that an acid peaty water may be deprived of its acidity and plumbic-solvency by admixture with a sufficient quantity of neutral water. Moorland spring water possessed of acid neutralising ability. Given a continuance of favourable counterbalancing conditions, a mixed water which constantly receives a proportion of highly acid water may nevertheless remain with the ability to act upon lead."

The bacteriological examinations were very remarkable. About a dozen varieties of micro-organisms were isolated and identified from the peat soil, besides a large number not identified. Some more were obtained from cultivation of peat water. The experiments testified that the bacteria were the agents in the production of acid in peat. Sometimes a mixture of peat bacteria when grown in neutral sterile decoction made solely from peat rendered the liquid acid and plumbic-solvent. With certain species in cultivation the decoction remained neutral and was without action on lead. But "the net result of the experiments thus been to afford presumptive evidence of the strong kind that the antecedent cause of the acidity and plumbic solvent ability of a moorland water is the vital activity of particular species of bacteria in moist peat soil."

It is very remarkable that although moorland water may be acid, the water from moorland springs is only neutral and wanting in plumbic-solvent power, and possesses acid neutralising ability, which annuls, or at least lessens plumbic-solvency. A water which otherwise might be dangerous can thus become free from risk of lead poisoning. It is remarked that waterworks officials in the past have not taken sufficient notice of the advantages which come through the mixture of spring water. But they are likely to be more attentive after the Government investigations.

The laboratory experiments showed that when an acid peaty water fully filled stoppered bottles, the acidity

very slightly reduced in amount, but in unstoppered and partially filled bottles there was a distinct loss of acidity. The following conclusions about reservoirs were consequently arrived at:—"The greater the capacity of the reservoirs the more complete is the sedimentation of the water likely to be, and the less likely is the water sent into consumption to show the results of the entrance of storm water. Moreover, the greater the capacity of the storage reservoirs the longer the delay will be between the primary collection of the water and its final transmission to the consumers. But it must be remembered that the bed of some of these reservoirs is composed of peat, and that such peaty matters are washed into the reservoirs with every storm. In consequence, although there may be a loss of acidity due to long exposure of the water to the action of the air, there may also be a gain in acidity due to fermentative changes in the bed of the reservoirs. . . . When the enormous capacity of some of these reservoirs is considered in relation to the fact of observed acidity in the water contained in them, the importance of observations at this point is evident. A large reservoir might permit the storage for subsequent consumption of hundreds of millions of gallons of acid water, and water, moreover, capable of dissolving lead to a dangerous extent."

Fortunately, moorland waters are easily improved by chemical action. The water supply to Wakefield is strongly acid. But 500 gallons of a strong solution of soda, of about a pound per gallon, are mixed with a million gallons of acid water. The resultant no longer acts on lead, and is deprived of its erosive power. The only drawback is that the water is not clear. At Barnsley there is filtering through layers of sand, gritstone and limestone. In Wakefield, about two grains of lime per gallon are mixed in an apparatus with the water, which is then conveyed through several miles of channel to a service reservoir. Lime is always used at Rochdale, a grain to the gallon in old works, while in the new works the water is filtered through sand, and enough whitening is added to the water to filter beds to cover the sand with a thin coating of lime. Filtration is employed at Keighley; first, through lime, then through filter beds containing fine sandstone, and sandstone, broken sandstone and limestone, and finally through beds of polarite.

The conclusions inspire confidence. Any epidemic of lead poisoning which occurred in the North of England is mainly due to the use of untreated acid peaty water. Wakefield, for example, has a high and low-level supply. The people suffered who used high-level water until it was treated with lime, and then there was an end to lead poisoning. A similar experience was to be witnessed in Leeds. It is evident that moorland water varies in acidity, and care is therefore essential to have constant tests to determine whether there is a rise or fall in plumbous content. When projects for waterworks are brought forward it is usual to have samples tested by chemists. Owing to the variations which arise in water it would be better if the samples could be obtained at different times, especially when there were atmospheric disturbances likely to affect the gathering-ground.

MODERN SCHOOL BUILDINGS.*

No class of English buildings has improvement been more marked than in schools. From the older examples which have survived it is evident there was not much division among the pupils. Originally the school was a large room or hall; then in course of time a separation was made by the hanging of a curtain, which from its flimsiness or insecurity could easily be pulled down, and consequently severe punishment was inflicted on any scholar who meddled with it. We have from the pen of QUINCEY an account of the Manchester Grammar School, in which he became a pupil in 1800, that will best suggest the character of high-class schools of the period. The walls, which, as he said, might have been embellished

with plaster-of-Paris friezes or medallions, were as bare as those of a poor-house or lazaretto. There was not even the smallest playground attached to the school. Moreover, a lower school existed to which access was given by long flights of steps, so that reading and writing must have been taught at a considerable depth below the street level. In those days, and, in fact, during the greater part of the nineteenth century, the teacher was supposed to be the only needed force in a school, and it mattered little whether he gave instruction in the open air or in a subterranean chamber, as in Manchester. PESTALOZZI carried the system still further, for he dispensed with books. All the instructions were derived from the lectures of the master.

In a modern English school it is realised that the efficiency of the system is, to a large extent, secured by the mere arrangement of the buildings. The office of the teacher is not undervalued, but he is able to secure more satisfactory results when the planning enables him to have a classification of the students. Under the existing conditions, a school resembles a factory, and in one as in the other, it is found that expedition and successful production are aided by having the material to be operated on in its different stages kept together, so that there may be no confusion.

The progress which is now being sought is suggested by the order adopted in Mr. FELIX CLAY'S treatise. In it buildings for secondary education take precedence of those for elementary education. The days of the three R's are over, and at the present time secondary education is receiving unusual attention. It may even be doubted, whether the Bill of last year would have passed if it were not for the belief that the machinery which existed in England for teaching was not adapted for secondary education. Mr. CLAY has reason on his side when he says, "It is more desirable that the methods of secondary school buildings should find their way into the elementary schools than that those of the elementary school should be adopted in the higher schools, as has hitherto been too much the case."

In the old days an educational course, owing to its simplicity, could be defined without difficulty. At most the school was only a place of preparation for one of the universities. It was thought to denote extraordinary liberalism on the part of the Court of Chancery when the sum of 60*l.* a year was authorised to be applied for payment of a master to teach writing and arithmetic at Monmouth. The law was supposed to be strained by LYNTHURST, although judges professed to be glad of a precedent to show that such subjects as writing and arithmetic were not to be ignored. In our time science is dominant, and a secondary school is expected to possess a chemical laboratory, a physical laboratory, a balance-room, a dark room for optical experiments, a room for botany, biology and microscope work, a museum, studio, library for pupils, &c. (see page 6*r.*). Then there are classrooms, and, calculating fifty of our leading schools, there is an average of rather under sixteen boys to a master, exclusive of music masters:—"This cannot, however, be taken as a fair index to the size of the classes, as all the masters would not be teaching at one time. It is generally agreed that one teacher cannot properly manage and regularly teach a larger number than 30, though there should be one or more rooms capable of accommodating 40 or more, and there may well be some of a smaller size; but generally speaking, a class of from 25 to 30 may be considered about a standard size." That so much definite information with regard to secondary schools is presented in Mr. CLAY'S volume is evidence of the efforts lately made to supply a public want. It should be remembered that as late as 1898 a report of the Education Department announced that it was impossible even to state the number of schools which could be considered as secondary, for "the whole subject is exceedingly obscure, and has never been brought within the scope of comprehensive statistical inquiry."

Among the secondary day schools described and illustrated in Mr. CLAY'S volume are Colet House School, Bedford Grammar School, High School for Girls, Streatham Hill; High School, Blackburn; Dewsbury Grammar School, High School for Girls, Sheffield; Aske's School for Girls, Hatcham; Coborn School for Girls, Hulme Grammar School,

Modern School Buildings, Elementary and Secondary. A treatise on the Planning, Arrangement and Fitting of Day and Evening Schools. By Felix Clay, B.A. (London: B. T. Batsford.)

Hymer's College, Hull; Wimbledon High School, Stamford Hill High School, St. Paul's School, West Kensington; Mercers' School, Barnard's Inn; High School, Newcastle; High School, Birmingham; High School, Manchester; Judd Commercial School. There are also examples of schools with separate boarding-houses, training colleges, &c. On the subject of cost Mr. CLAY writes:—

A secondary day school can, by the exercise of the strictest economy and by limiting the accommodation to the barest essentials, be built for between 25*l.* and 30*l.* a head; while a quite satisfactory building can be secured by spending from 45*l.* to 50*l.* A pupil-teachers' centre now in process of erection in the Marylebone division is being carried out by the London School Board at an estimated cost of 20,993*l.* The building consists of eight classrooms with an accommodation for 325, which means a cost of about 65*l.* per head. This building would make an excellent plan for a secondary day school, and it is interesting to compare it with the plan of the Newcastle High School, which has about the same accommodation and cost under 9,000*l.* This last was built by a private company, and provides ample accommodation for the number in a handsome building. The high schools in America, which are large and very elaborate buildings, very fully equipped and often allowing over 20 square feet per head, cost from 90*l.* to 130*l.* per head. The cost of boarding-schools may rise to a very large figure; anything from 200*l.* to 600*l.* a head may be required if many additional buildings are to be supplied, such as swimming-baths, gymnasium, &c., and large playing-fields, &c. The buildings for poor law schools vary from 100*l.* to 200*l.* a head. The cottage homes (Hornchurch) were certified by the Local Government Board for 337 children, and an outlay of 51,000*l.* authorised, or a little over 150*l.* a head. The London School Board have recently worked out a scheme for dealing with deaf children by building a special residential building. The one proposed is at Anerley, and will accommodate sixty children in two blocks of semi-detached cottages. The accepted estimate for this is 19,000*l.* This seems rather a large outlay, coming to over 300*l.* a head, though, of course, the price must be greater when dealing with small numbers and those of a special class.

Modern architectural history is so quickly forgotten, it may not be generally known that up to 1872 a central hall was unknown in London schools. That feature was first introduced by Professor ROGER SMITH in the Ben Jonson school at Stepney. Mr. CLAY states that two years afterwards Mr. ROBSON, in his book on school architecture, held, "that the plan of this building was unsuitable for an elementary school, chiefly on the grounds of its great size, saying that the gathering of a large aggregation of children into one building was condemned by the experience of all Europe; secondly, on the comparative uselessness of the hall; and thirdly, on the great expense involved in such a class division." The London School Board believed the innovation was unsuitable, but in the course of a few years it was again adopted. Examples of schools are given from London, Manchester, Birmingham, Edinburgh, Glasgow, besides others, for the sake of comparison, in Germany and America. Altogether eighty-five schools are illustrated. So many types will be invaluable for architects, not only for their suggestiveness, but in saving trouble in the preparation of preliminary sketches. At the present moment there is some uncertainty about what may be desired by the new authorities, but as the Education Board will continue to be supreme their code of requirements will remain as influential as ever. In any case, the possessor of "Modern School Buildings" has at his disposition plans of the best schools erected during the past thirty years, and it is unlikely that any want will arise for which there is no example of the way to meet it introduced into the pages of Mr. CLAY'S book.

The Commissioners appointed to investigate the subject of a proposed eastern harbour and docks at Gibraltar have decided in favour of the project. The estimated cost is 6,000,000*l.*, and the work would require ten years to execute.

Workmen, while laying a sewer opposite two houses in Brighton, discovered a large well about 5 feet 6 inches from the crown of the road. On investigation it was ascertained that the depth was 140 feet to a wooden stage, so the actual depth is likely to remain a mystery. The circumference was 10 feet 6 inches. The top of the well was brick-steined, with a "W" stamped upon the frog of the bricks.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER VI. (continued).

THE feeling for symbolic or appropriate relief (and other) decoration is becoming intensified, and should receive the warmest encouragement. Such ornament is a powerful factor in differentiating the purport of various buildings, and serves to import pleasing variety into our streets, wherein mere varied treatment of sky-line is apt to



City & Guilds of London Central Technical Institution.
South Kensington.
Architect: Alfred Waterhouse, F.R.I.B.A.

The following table are given to illustrate the various types of buildings which are represented in the book. 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be unsuccessful. Cutlers' Hall has a character frieze, so also has Messrs. HEATH's establishment (the "Hatteries") in Oxford Street—to mention two metropolitan examples; and another London building worthy of notice is the Central Technical Institution at South Kensington (fig. 39). The panels on the façade, showing the arms of the subscribing City Guilds, are excellent as a feature of decoration. The alternative methods of decorating a façade are very numerous, but range themselves into three distinct classes, which it may be well to tabulate:—

Inset Decoration.	Surface Treatment.	Relief.
1. Incisions in materials. a. Brick. b. Stone. c. Sgraffito. d. Stucco. e. Wood.	1. Parti-coloured treatment of materials. 2. Painting. 3. Stencilling. 4. Combination of materials. 5. Marble (&c.) lining. 6. Flush half-timber. 7. Flint tracery.	1. Moulded ornament. 2. Carved ornament. 3. Cast ornament. 4. Sculpture. a. Bas-relief. b. Mezzo-relief. c. High relief. d. Statuary. 5. Tile hanging. 6. Pargetting.
2. Half-timber work.		
3. Recessed portions of façade.		
4. Niches.		

It is unnecessary to schedule the varieties of chiselled ornament, as this is more appropriate to a treatise on the subject, but special attention may be directed to sgraffito work. This is produced by the successive laying of differently coloured coats of stucco—as many coats as there are to be colours in the design, which is worked by cutting down the pattern at each stage to such a depth as will show the desired colour. A specimen of sgraffito may be seen in the courtyard of the Victoria and Albert Museum, London, at the entrance to the schools, the east wall of the building under the archway being thus decorated.



FIG. 40.—INSET, OR SUNK BAY WINDOW.
N.B.—SUNK INTO THE ROOM.

Some buildings of recent erection exhibit a treatment of inset decoration that has much to commend it on the score both of novelty and effect. This is obtained by recessing a portion of the façade and therefrom projecting, say, a bay window flush with the original wall surface. This treatment will bear development (see figs. 40 and 41). Another device



FIG. 41.—RECESSED FRONT TO A BANK IN BRADFORD.
J. Ledingham, Architect.

is as shown in fig. 42. This also can be made very effective, more especially if the bay is set in a thick wall. The principal difference between this and the former treatment is that in fig. 40 the recessed portion is



FIG. 42.—INSET BAY WINDOW, SUNK IN THICKNESS OF WALL ONLY.

set into the room, and is carried through one storey or more in height, whereas in the latter the treatment is applied to individual windows set in the thickness of the wall. There is not the slightest reason why the mode of treatment should not be developed on catholic lines, so as to give the effect of framed pictorial decoration.

Regarding surface ornamentation, the simplest method is the use of a parti-coloured brick or stone (or brick and stone) façade, producing, if skilfully managed, a pleasing and varied effect. In the metropolitan area, to go no further, a stock-brick elevation in monotone is very depressing. General consent has given to the adjective *monotonous* (i.e. one-toned) the connotation of unsatisfying sameness. Harmony and monotony have only a step relationship—the former is produced by the sympathetic blending of variant notes, each of which singly emits but a monotone. If, say, the keynote on a pianoforte be struck repetitively for only five minutes, the monotony would be distracting, whilst the National Anthem could be listened to in the same duration of time with great enjoyment.

Speculative builders are to the fore in recognising the necessity of variety, even if it consists in nothing more than the interspersing of a few red-brick or stone bands or lacing courses in a yellow stock brick façade, for not infrequently the generous builder introduces Bath stone dressings; he reckons not that the stone is poor in quality, and the carving (as a rule) such as would be condemned in any school of art.

In districts where stone is abundant the process is reversed, for there the small cottage dwellings have the façade relieved by the introduction of bricks for the lacing courses. It is possibly due to the fact that natural products are of a higher order than manufactured, but there is not a shadow of doubt that the stone dwellings, similar to those that may be seen in a town like Cardiff, are free from the deadly dullness that is an integral feature of so many of the metropolitan buildings.

Another point to be noted in this connection is that rubble masonry is freer from this same dullness than is ashlar masonry, and the latter again is in degree more lively, the more varied the surface of the stone. The majority of the buildings in Bath, for example, are very depressing in effect, though in the height of this town's prosperity, the monotonous treatment of the façades must have proved a suitable background for the gay plumage of the floating population.

It is worth calling attention to the constant pleasure afforded to the eye by the green hedges that border the fields, as seen during the progress of a long railway journey. When these quickset hedges give place in a stone district to stone fencing, the change is for a time interesting; but soon the traveller tires of its monotony, and welcomes the green hedges again, whose varied tones and tints not only banish but preclude a feeling of satiety, although, of course, the dominant colour will be green.

If the previous remarks are somewhat protracted, it is with the intention of emphasising the necessity of taking Nature as our guide both in what to follow and what to avoid.

To return to parti-colour decoration of surfaces, more or less elaborate treatment obtains by disposing the coloured blocks so as to form geometrical designs. Sometimes this is excellently managed, but it requires thoughtful treatment.

Half-timber work has been classed above under both inset and surface decoration, according as the whole surface is brought flush or otherwise. That this mode of ornamentation can be most picturesque, innumerable buildings in Cheshire, Shropshire and other counties in England testify. In former times it used to be con-

structional in treatment, but at the present day it is to a much larger extent merely ornamental; and from this point of view it is not of any import whether the half-timber work is constructively true or false—indeed in such a case it is easy to make a fetish of the goddess who resides at the bottom of a well. Quite recently a building has been erected in the metropolis to act as temporary premises, due to the formation of the new avenue from High Holborn to the Strand. The façade shows half-timber and rough-cast treatment—of course it is “sham,” but it satisfies the eye most thoroughly; and for those who value mediæval work, the block of buildings at Holborn Bars is still to be seen. This block was made constructively sound some years since by Mr. ALFRED WATERHOUSE, and is likely to remain as a monument of old English work for many years to come.

Marble wall linings, if deftly handled, exercise a most pleasing influence over surface decoration, but are, as a rule, too expensive for employment. The Junior Constitutional Club, London, by Mr. EDIS, is a notable example.

Glazed façades (whether in brick, tile, or faience) are to be commended for a town atmosphere, as they admit of cleansing, and at the same time are more cheerful in aspect than ordinary brick or stone façades.

Painting and stencilling are less to be recommended for practical purposes, as being more perishable in nature, but are not on that account to be dismissed lightly.

Painting may be classified as (1) plain surface tones, (2) decoration, either geometrical or free; the former will be dismissed without further comment, as not having any bearing on this series. Decorative painting requires a carefully prepared surface to gain the full effect; speaking generally, the most appropriate treatment for external purposes is a restrained application of geometrical design; internally, far greater freedom of choice exists for subjects of decoration.

In dealing with internal painting of this class, the greater play that is given to appropriate treatment, the more pleasing will be the result (the question of economy will be disregarded here). Thus, in a dining-room, a frieze to represent the preparation of a feast, or perhaps a representation of a Bacchanalian procession, may be introduced. In a drawing-room, a music-room, or a ball-room, terpsichorean friezes are in keeping; or if the desire be strong for *ouverture-de-siècle* treatment, a modern “At home” or a reception might prove interesting in representation. For libraries, various scenes and incidents *à propos* would suggest themselves, and similarly for other rooms.

A point to be noted is, where light, shade and cast shadow are used decoratively, the position of existing windows should be taken into account as far as possible; this point will not admit of labouring, however. To give a concrete example, in the matter of a large hall with clerestory windows on all sides, where a painted decorative frieze was required beneath these windows, the writer treated the cast

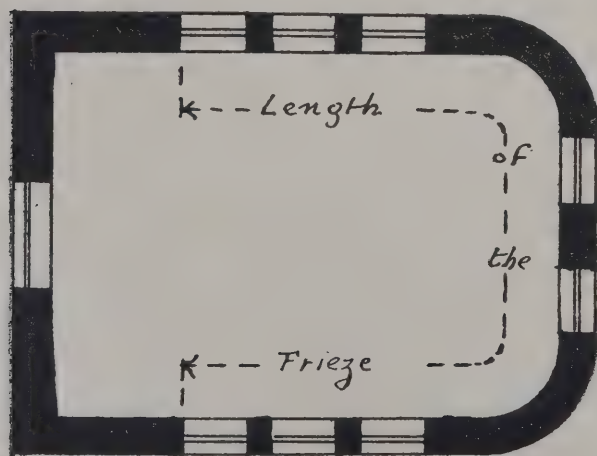


FIG. 43.—DIAGRAM CONCERNING SHADOWING.

shadows as being thrown downwards and to the left hand in *each* position, disregarding the more remote set of end windows, beneath which the decoration was not desired; the result looks highly natural. Fig. 43 indicates the general disposition of the hall referred to.

It will be of interest at this place to transcribe some remarks made at the time of the controversy regarding the decoration of the Great Exhibition buildings. Mr. E. L. GARBETT is the signatory:—“The only colours (if so we may call them) which will harmonise, or rather be non-discordant with all others, are white, black, and all the neutral tints between them. Moreover, these as well as all the tints or shades of any one definite hue are harmonious, or rather indifferent to each other.

“Accordingly, when we turn to Nature’s exhibitions we find, however the articles exhibited may be coloured, their backgrounds are neutral, or *comparatively* neutral. The purest positive colours belong to the rainbow; the purest neutrality to the clouds that back it. Primary colours are given to the flowers, not to that on which they grow. As we descend or ascend from the house to its inhabitant, from the bearer to the borne, so do we from neutrality to positive colour. The tree is more coloured than the rock or earth whence it springs, the foliage more so than the stems, the blossom or fruit more than all.”

A very pleasing treatment for pictorial decoration is by means of fresco or similar effects. The lunettes by Lord LEIGHTON in the Victoria and Albert Museum* are noteworthy, as also is the series of decorative panels to the Royal Exchange in the City of London, portraying events of ancient or modern interest to the citizens of the metropolis. Being arranged in sequence of time from the early trading with the Phœnicians to the phases of modern commerce (the latter panel is soon to be installed), the series will form when complete—and even does so in its present condition—an educational object-lesson of the highest value, whether from the standpoint of architecture, political and social history, commerce, or dress.

Just as *lettering* may be used as a medium for decorative effect in relief, so also may it be used in pigments, and the following point is of importance—the further removed from the spectator’s eye, the simpler should be the lettering. It is a moot point whether the letters should be edged in a stronger tone or colour than the body-tone, so as to prevent the appearance of “sticking” to the background; the writer prefers where possible to trust to shadowing alone. As an

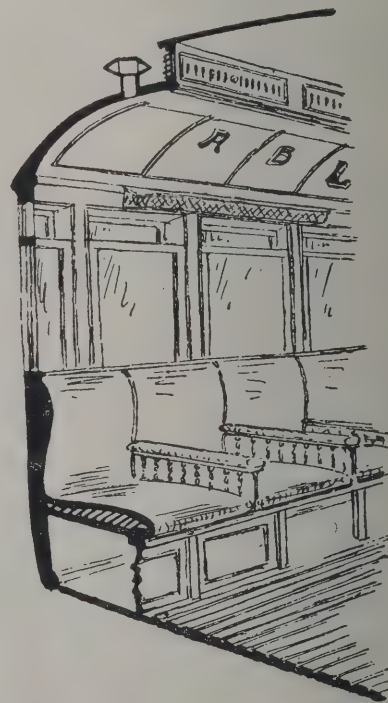


FIG. 44.—SKETCH OF CAR ON CENTRAL LONDON RAILWAY, SHOWING POSITION OF ADVERTISEMENTS.

instance of the improved condition of the advertiser’s sheet, the following may be noted. The Central London Railway carriages have the coved portions (see fig. 44) adapted for enamelled iron advertisement panels. On advertiser has taken advantage of this to show the thickness of the letters thus, as at A in figs. 44 and 45, and

* For many years known as the South Kensington Museum, London.

so deftly is this effected that the letters, though flat, yet appear solid, and still apparently parallel with the contour of the carriage. It would have been so easy to spoil the effect, that it is evident that thoughtful attention was given to preparing the cartoon. B and L (figs. 44 and 45) show the want of consideration adopted by many advertisers.

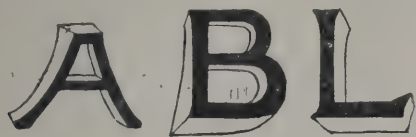


FIG. 45.

Relief decoration as introducing the benefits of chiaro-scuro is preferable to mere surface treatment, everything else being equal. The three kinds of relief elsewhere mentioned, as also statuary, have severally their appropriate places and occasions for introduction. In buildings that do not possess a story worthy the telling (and there are plenty such), statuary groups or figure-friezes are entirely out of place; but wheresoever a chance occurs to use such artistic effect, it should be introduced. A building of world-wide repute, the Albert Hall, London, will serve as an illustration of how vain a thing is a designer's art, when all has been said. This has a most notable frieze (but not in relief), illustrative of the various arts and sciences, and it might well be urged that such a frieze is not quite in keeping with a concert hall; but the point to be noted is that this edifice was erected for the purpose of a central establishment for the encouragement of the arts and sciences generally, by holding international exhibitions therein from time to time; its more limited significance is of later growth.

(To be continued.)

THE GEOLOGICAL SOCIETY.

AT the annual meeting of the Geological Society the following officers were elected for the year:—President, Professor Charles Lapworth; vice-presidents, Sir Archibald Geikie, Professor H. A. Miers, Mr. E. T. Newton and Mr. J. J. H. Teall; secretaries, Mr. R. S. Herries and Professor W. W. Watts; foreign secretary, Sir John Evans; treasurer, Mr. W. T. Blanford.

The president (Professor Lapworth), in his presidential address, dealt with the subject of geology and its fellow-sciences, emphasising in particular its economic and educational value. It was, he said, almost an impertinence to point out to an assemblage of geologists like that the relationships of geology and its applications to the material welfare of our fellow-countrymen; but those of them who were absorbed in the charms of research were now and again tempted to look askance at those who were engaged in advancing geology and the applications of geology from the side of economics. But for all that, every one of them was well aware that geology was bound up body and soul with the development of the mineral wealth of our land—that mineral wealth by means of which the enterprise of our people had placed our country at the head of the manufacturing and commercial Powers of the world. Their science had not only the charge of the working out of all the detailed phenomena, subterranean and superficial, of the great coalfields and ironfields which lay at the foundation of our commercial supremacy as a nation, but it worked out the characters and fixed the places of all the stony materials of which our cities and towns were built, our humblest dwellings were constructed and all our roads and railways were made. It dealt with the sources and the quantities and characters of our water supplies, whether deep-seated or superficial, the nature and distribution of our soils, and, indeed, with everything which we derived directly from the ground upon which we trod. Thus a knowledge of the principles and applications of geology was absolutely indispensable to the education of the miner, mine-owner, the prospector, the land agent and landowner, the agriculturist and the civil engineer, whilst a first-hand acquaintance with at least its elements was eminently desirable for the agriculturist, the geographer, the traveller and the biologist. Many might even be willing to admit that the arts-man and the man of culture would be the better for knowing something of its principles and its conclusions. But as geologists it was their bounden duty to go much further than this, and urge upon the educationalists of the day the necessity of affording the rising generation such a full opportunity of instruction in that kind of knowledge of which geology was the keystone.

CULROSS ABBEY.

A SCHEME is afloat having for its object the much-needed restoration of the historic and interesting abbey of Culross, which, having been carefully examined both inside and out, is found to be in a very bad and even alarming state of disrepair. The abbey was founded in 1217, since when it has been the centre of worship for the district. In 1824 certain repairs and alterations were carried out on the building, which not only deprived it of its original beauty and distinctive character by shutting up some of the finest specimens of Norman windows to be found in the country, but by the erection of two ill-designed galleries imposed an unnecessarily heavy task upon the preacher by removing all resonance from the interior. To such a state has the disrepair reached that matters cannot be allowed to go on much longer as they are. Accordingly the advice of Sir Rowand Anderson has been asked, and he has submitted two schemes, the first being merely to put the structure into a good state of repair by re-flooring, reseating and reroofing the building. This will cost a sum of 2,000*l*. As a second and more elaborate scheme, the eminent architect suggests the restoration of the abbey to its ancient historical state, which cannot be done under 5,000*l*. In addition to what is proposed to be done under the first scheme, the adoption of the second will bring about the removal of the objectionable east and south galleries, rebuilding the side aisles, the north and south transepts, restoring the beautiful Norman window on the east, and opening two three-light windows in the north wall. At a recent public meeting in the church the Rev. John Gordon, minister of the second charge, explained that the heritors were prepared to defray the cost of the lesser or absolutely necessary scheme, but he thought that as Glasgow's greatness and fame dated from the visit of St. Mungo, who was born in Culross, he felt that that city ought to help them in raising a fund towards the restoring and beautifying of the abbey church, and he had good reason to expect that the big city would rally to their assistance. The meeting agreed to leave the appointment of a central committee in the hands of the Kirk Session, and it was expected that sub-committees would be formed in Edinburgh and Glasgow for the purpose of collecting subscriptions from many who were well known to be interested in the ancient burgh and its abbey.

ARCHITECTURAL ASSOCIATION OF IRELAND.

THE sixth annual dinner of members of the Architectural Association of Ireland was held on the 19th inst., at the Dolphin Hotel, Dublin.

The president, Mr. F. G. Hicks, occupied the chair.

After dinner, the President gave the toast of "The King," which was enthusiastically received.

The President next gave the toast of "The Architectural Association of Ireland." He said they had been established some seven or eight years, and this was their sixth annual dinner. He thought they were doing a rather good work in a quiet way by their meetings and classes. Their membership was increasing every year. They now numbered 150. During the present session they had approached the Royal Institute of Architects of Ireland, with a view to initiating examinations for admission to their body, and the matter was still under consideration. The Institute had taken up the matter favourably, but great bodies moved slowly, and they could not, of course, expect an answer until some further time had elapsed. Still the Association intended to keep hammering away, and if the Institute did not grant their request they would probably hold an examination of their own.

The toast was cordially honoured.

The President next gave the toast of "The Guests," with which he coupled the names of Mr. Purser, president of the Junior Engineering and Scientific Society, and Mr. Crawford Smith.

The toast, which was well received, was acknowledged by both Mr. Purser and Mr. Smith. Mr. Smith said that their President would go down to posterity as the winner of the prize offered by Lord Iveagh for the best design of his projected markets in Francis Street.

During the evening vocal and instrumental items were contributed by several members of the company.

A Magnificent piece of Gobelines tapestry has just been designed specially for the Elysée. M. Hannotin, the eminent architect and decorator, is the artist. Round a centre of warm red colour is a border of yellow chrysanthemums and red carnations intertwined, this again being enclosed in another border of red carnations and pale green plane-tree leaves, while the whole is closed in by a border of red humming-birds. The dimensions of the carpet are 15 feet 2 inches by 11 feet 5 inches. Two years will be needed for the manufacture.

NOTES AND COMMENTS.

AN exhibition has been opened in Paris consisting entirely of works produced by employés on railways. On Friday next there will be another exhibition, which is to be devoted to artists engaged in the Post Office or in connection with telegraphs and telephones. Some of the contributors are students of the Ecole des Beaux-Arts, while others receive instruction in the ateliers of some of the foremost painters and sculptors of Paris. To Frenchmen the exhibitions will not appear extraordinary. Most littérateurs endeavour to secure appointments in public offices, for the risks of depending entirely on the income obtainable as a man of letters are too great to be borne. It is now found that only in exceptional cases can a painter or sculptor expect to have his first works purchased at what he reckons to be their proper value. While in a state of anxiety about his present and future prospects, a young artist is not likely to do himself justice, and it is deemed preferable to sort letters or to work a telegraphic instrument than to produce pot-boilers of a kind which are afterwards likely to be regretted.

AMERICAN artists have repeatedly expressed their disapproval of the import duties on works of art. Originally they were levied partly to increase the revenue and partly to promote native production. It is now found there are drawbacks. Excellent works of art which would be boons for American painters and sculptors are kept out of the country, and, moreover, the tax can be evaded by foreign artists visiting America. Some French painters especially have reason to be grateful, for since the duties were imposed commissions for works to be executed in the States can be relied on with as much if not more certainty as commissions from their countrymen. It is now proposed to introduce a Bill in the House of Representatives for amending existing enactments by allowing the following classes of works to be admitted free from duty:—Paintings in oil or water-colour, statuary, sculpture, drawings, engravings and etchings; provided, however, that such articles in order to become entitled to entry free of duty shall have been manufactured or produced more than fifty years before the date of importation, but said exemptions shall be subject to such reasonable regulations as to proofs of the antiquity of said articles as the Secretary of the Treasury may prescribe. It will be observed the amendment sought is limited, for it refers mainly to works which may be considered as "old masters."

THE works which were to be seen in the Holland Gallery confirm what we have said already about M. RAFFAELLI'S discovery of solid oil-colours. It is a mistake to compare them with pictures painted in oils in the common way, or with pastels or with water-colours. There is a new material, and if rightly used it is likely to lead to a new variety of painting. There is lost the peculiar texture which is imparted by the brush, and which seems to be attainable by no other tool. Again, it should be remembered that the artists who employ the new colours are to some extent in a difficulty. They have their peculiar styles, which they are endeavouring to express under novel conditions. Some men who are adepts in oil-painting fail when they attempt to use water-colours, and *vice versa*. What is to be desired is that the painters would recognise the new opportunities and utilise them to attain effects which are suited to the solid colours, and not necessarily the effects they have been accustomed to realise. M. RAFFAELLI'S own works and M. THAULOW'S are successful. But M. BESNARD shows himself to be more of the experimentalist. English artists are too conservative to attempt changes, and Mr. TUKE, Mr. EAST and others present pictures which are reminiscent of some we have already seen. In course of time we may expect that somebody will arise who will make M. RAFFAELLI'S discovery subservient to his talent. As to the durability of the new paints there is a great deal of amusing absurdity in raising the question. Very few English paintings can resist the indirect influences of the atmosphere in galleries or rooms. Chemically the new paints are not unlike those in use, and there is no reason why they should be more fleeting.

ACCORDING to VASARI, the Roman painter, PIETRO CAVALLINI, was the disciple of GIOTTO and worked with him at the famous mosaic, *The Navicella*, in St. Peter's. It is also said that he executed many frescoes in the church of Santa Cecilia in Trastevere. The frescoes in the church were supposed to be annihilated, with the exception of some fragments. But recently a *Last Judgment* by the old master has been revealed. It proves that he was still under the influence of Byzantine art as well as of GIOTTO. But he was not content with adhering to the traditions that were paramount. Evidently he had studied Roman statues and busts. This is seen in the character of the heads as well as in the draperies. The figures of apostles and saints are no mere onlookers, as in the majority of such representations, but are suggestive of members of a Roman senate engaged in solemn deliberation on some important affair. The antique spirit is further emphasised by the eagle adorning the throne of the Judge. The painting will revive an interest in CAVALLINI, of whom VASARI speaks in the highest terms both as an artist and a man.

THE competition for façades in Paris excites greater interest every year. At first it was judged to be a success if about thirty buildings were submitted in competition. In that for houses erected in 1902, which is now being arranged, nearly one hundred examples have been brought forward. This expansion is enough to show that success has brought solid advantages, for although architects might desire the contest as a means of displaying skill, proprietors would hardly care unless they knew that an increase of value was one of the consequences of a distinguished position in the return of the judges. It is also found that architecture allowed a more free hand in expenditure. No doubt it is possible sometimes to combine economy with invention, but in the streets of Paris it is difficult to depart from the normal type without the introduction of cost features.

If the Irish people had a genuine interest in the Hill of Tara, they would have purchased the tenant's interest in the most important part of it, which was lately sold by auction. A very small contribution from each "patriot" would be sufficient. By that means such insensate attempts as the digging for the Ark of the Covenant could not be attempted for a great many years. The landlord still retains his interest in the property, but he cannot prevent excavations which are approved by whoever holds the land as a tenant. The mounds on the Hill are still present within the operation of the Ancient Monuments Act of 1882, to this extent, that the Commissioners of Public Works have power to proceed against any person, other than the owner, who injures or defaces them. But the earthworks which are protected in that way are of no great importance except to confute those who imagine an architectural structure existed there. It is still possible to do irreparable injury by explorations which, although they are a mockery of archaeological research, are sure to meet with the approval of many zealots. The guardianship of the mounds should be vested in the Commissioners of Public Works. The owner has declined to take this step, and there is no power to compel him to do so. The Commissioners are doing their best under the circumstances by watching the Hill very closely, and will use every means in their power to prevent any resumption of excavation. But unfortunately, the people's interest in Tara and its "Halls" is only one of the rhetorical kind, which would be rendered more vigorous by repetitions of vandalism.

ILLUSTRATIONS.

PREMISES, LONG ACRE, W.C.

WYCHMONT, OLTON, WARWICKSHIRE.

WULVERLE, OLTON, WARWICKSHIRE.

WATERMAN'S HALL, ST. MARY-AT-HILL.

CATHEDRAL SERIES: WORCESTER.—CAPITALS IN SOUTH TRAIL
SEPT. THE CRYPT.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr H. T. Hare (president) in the chair.

On the motion of the President, a vote of condolence and sympathy with the relatives of the late Mr. F. C. Penrose was passed.

The following were elected as members:—Messrs. W. Hart Gregson, G. P. Bankart, C. L. Wright and C. F. Cargill. Mr. S. SPARROW read a paper entitled

The Stained Glass of the Future.

This title has been adopted in imitation of Richard Wagner's "Art-work of the Future." That, which was scoffed at as an idle dream and parodied as "The Music of the Future," has become a present actuality. May the omen be propitious.

There is scarcely any subject about which more ignorance prevails than in stained glass. Quite a number of people still think that the glass-stainer paints the colours on the window. I am not sure whether the idea still survives that a window is leaded up before it is put in the kiln. Even among architects, how few there are who can tell one material from another, the good from the bad, or who know which is the best for a particular purpose. One of my objects, therefore, is to place you in a position to judge for yourselves whether the best material has been given to you, and if the best use has been made of it not only with the view of enhancing the beauty of your own works but also to protect your clients, who doubtless rely upon you to see that they are not palmed off with shoddy or base metal.

I will preface the few thoughts which it is my privilege to offer you with the sweeping assertion that no one has any right to speak about stained glass who has not worked in the best material. When I have reached the end, you will probably grasp the point of view from which I make this assertion. For the present, suffice it to say that the critic can only deal with what he knows; therefore, in judging a window he can only compare it with other windows, either ancient or modern. He can never say, like the worker in the best material, that this subject should have been treated in such a manner to produce such and such a tone, or that this or that part would have been better if such and such a material had been employed. In a word, he can never look into the future and say what ought to be. The very title of this address would seem to disclose a certain dissatisfaction with stained glass as it is. It will therefore be our first task to find the cause of our dissatisfaction; to diagnose the disease, in fact, before we talk of remedies.

Imitation is the disease. And why is imitation the disease? Because it has been said, and repeated on all sides, "There is no glass like the old glass, and there will never be any windows like the old windows." Both these assertions I deny, since they are based on ignorance of the best material procurable to-day, and of the use that might be made of it. Take, first of all, the effect of those assertions on the producer of stained glass. He has been content to imitate a cheap period, viz. Perpendicular, or fifteenth-century work, and imitations of that imitation. When I say a cheap period, I mean as regards the material. It is well known that from the thirteenth to the fifteenth and sixteenth centuries the material deteriorated, becoming thinner and poorer in quality and colour. Whether this decline, which was concurrent with a natural development in the technique of painting, was due to a demand of the painters for a material that would better display their painting, cannot now be known. I am inclined to think it was, but it is not a fact of much importance. If so, it simply proves that they had lost the idea of the essential qualities of a stained-glass window—that it must look like glass and give tone. They had chosen the wrong material for the display of their painting powers. I must protest against glass being used as a material for excessive painting. If you must paint, paint on wood, on canvas, on wall; but leave to glass its essential qualities of brilliance and translucency. If, therefore, one would make a passable imitation of that period, one would have to ignore the best and most expensive glass made now, and use the cheapest and worst. Why that period should have been chosen for imitation rather than another I cannot imagine, unless it be on account of its comparatively cheap production—where so much of a window is given up to canopy and base in whites, which do not require, or at least do not receive, much thought; where the whites of the drapery and of the flesh run into the canopy and base (being usually cut out of the same tint), and the little bit of rich colour in the drapery, rich only by contrast with the white, stands absolutely alone, a shapeless mass. We will give these people the benefit of the doubt, and admit that this period is said to be that in which the highest point in the technique of painting on glass was reached. It is fortunate for them that it is also the period of the poorest glass, if we except the frightful colours of a generation or two ago. One shudders to think what their fate would have been if the style of their choice had been the most expensive to reproduce. Would there have been as many imitators?

Another plea that will doubtless be put forward by the

imitators is that if you have to put windows in a thirteenth or fifteenth-century church you must imitate the glass of those periods. But the very existence of different styles, almost coincident with the centuries, so that we speak of a thirteenth, a fourteenth or a fifteenth-century style, proves that the old men did not imitate their predecessors. There is another theory, that the old men adapted their glass to the varying styles of architecture. It may be that architects of the fifteenth and sixteenth centuries called for a lighter glass, which would show up the more elaborate carvings they indulged in. Those who hold this theory may say that the glass-stainer of to-day should adapt his glass to the architectural style of the nineteenth century. But is there a nineteenth-century style? Perhaps I am treading on delicate ground, and had better leave you, architects to settle the question amongst yourselves. The imitators, however, by no means rigidly follow their own rule; for instance, the imitators of Perpendicular can rarely do anything else but put it, with little or no variation, into every style of church. Let us leave the question of why the early glass-stainers did this or that, and assume that if they were, alive to-day they would have sufficient honesty to use the best material and sufficient talent to make the best use of it.

What, then, is to be our own course with regard to this crucial point? This is the fundamental and unalterable guide for our conduct:—One has no right to put bad glass into a window under any pretext whatever. I have already pointed out that to imitate one would have to ignore the best glass. The highest qualities of a stained-glass window are mystery and rich and appropriate colour in harmony with the subject. Do not tell me, therefore, that an imitation fifteenth-century window is appropriate when it lacks mystery and richness of colour. If a window is full of mystery and devotional feeling, a living symbolism, rich and harmonious colour, a simple and dignified design, strengthened by a bold use of the lead and an expressive tracery and painting, it is worthy to be placed in any church that was ever built.

Before describing the process of making a stained-glass window, by which you will be enabled to know what to look for in a window, and thus to protect yourselves at all points, I must attempt to give you some idea of what I have called the best material. The best material is undoubtedly Prior's "Early-English" glass or Powell's "Antique." "Early English" is a comparatively recent invention, having been in existence only some few years. One would gather from its name that it is an attempt to restore the old English glass; but in my opinion in the quality of brilliance, in its variety and richness of colour, this far surpasses its original, and I have no hesitation in saying that this is the finest glass that has ever been made for our purpose. There are three sorts of coloured glass used in the stained-glass window. Tints which go under the generic term of "whites"; pot-metals, in which the colour goes right through the sheet; and the flashed glasses—that is, the rubies, some blue and other varieties.

The method of manufacture is somewhat like this:—A piece of metal, as the molten glass is called, is taken on the end of a blowpipe, and blown into a square bottle-shape. This contact with the mould gives the glass a certain roughness and inequality, while the inside of the bottle retains a very smooth blown surface. It is this combination which is the characteristic of this kind of glass—brilliance united with body, a faculty of holding the light, while "Antique" is more or less transparent. It also varies considerably in thickness, some pieces being quite half an inch thick or more. All this helps its rich and jewel-like quality. The bottles are then cut at the edges of the sides and bottom, which gives us four sides or slabs 6 inches by 4 inches, and one bottom 4 inches by 4 inches. This is the most general size. Other sizes are 7 inches by 5 inches and 8 inches by 6 inches, the largest. It has been found that this size cannot be exceeded without losing the jewel-like quality of the glass. In flukes or accidents, which are the best things in the manufacture of material for stained glass, it is particularly rich. When the heavier chemicals sink to the bottom of the pot, the last few bottles that are made from it are streaked and varied in colour in a most wonderful and beautiful way. The colour of these bottles may be quite different from those made from the top of the pot. This quality of unexpectedness is most valuable, and a window largely carried out in this material is unique, absolutely inimitable. It must be said, however, that the scale of colour is not exhaustive, and that some of the colours are very crude (although these have their uses occasionally), so that one has to fall back upon Powell's "Antique," by far the best of the so-called "Antique" glass. Although Powell's "Antique" is not so fine as "Early English," it has qualities of its own to which, in the present state of the manufacture of "Early English," it may be regarded as complementary; thus I include it in the term "best material." Although it has not the brilliance and body of "Early English" it has those qualities in a much higher degree than other makes of "Antique," which I need not specify. I should men-

tion that there is an imitation of "Early English" called "Norman," which bears a relation to its original similar to that which the common "Antiques" bear to Powell's, and is cheaper. Let me therefore warn you, when you specify Prior's "Early English," to see that "Norman" is not substituted. When I mention that you can get "Norman" for 3 $\frac{1}{2}$ d per slab, and the lowest price of "Early English" is 6d. per slab, the reason for the substitution is obvious. Broadly speaking, "Early English" has more light, Powell's "Antique" more tone, so that one would use "Early English" for effects of light and brilliant objects, and Powell's "Antique" for the parts requiring tone, which is also good to plate a crude piece of "Early English" with, to gain variety of colour and tone.

The process of manufacture in Powell's "Antique" is quite different from the other. It is made in what is called a "muff"—that is, the metal is blown into a cylindrical form (but not into a mould) about 7 inches in diameter and about 13 inches or 14 inches high. It is then cut down the height and placed in a flattening kiln, to come out a flat sheet about 21 inches to 23 inches long. It is in the process of flattening that the glass loses some of its brilliance. In this manufacture there are also gold-pink on Venetian opal, blue on Venetian opal, and gold-pink and blue on Venetian opal. The Venetian effect is a ripple or indentation in the glass, which gives it greater brilliance than the flat "Antique" possesses. The opal is the base, and when a thin skim of blue is flashed upon it it produces a varied cool green tint, with streaks of blue. The gold-pink is a thin skim of gold flashed on the opal base, the warm tone of the opal softening the sharpness of the pink, the colour produced by the gold. The streaks of blue and gold-pink on the opal produce beautiful combinations, often with markings of a feather-like character. This is very good to work away from the gold-pink with. All these are very valuable for special effects. Powell's also make their glass into circles of about 12 inches to 14 inches diameter. These are much richer than the flat sheets, of which they seem to be a concentrated form.

Before leaving the subject of the quality of the material it will be well to devote a little attention to one colour, the most important in a stained-glass window, viz ruby. Indeed, it may be called the touchstone of a window so far as the quality of the material is concerned. There are two metals which produce the red colours we call the rubies, gold and copper. Ruby is one of the flashed glasses, that is, a base of white, amber, green tint, pale blue or purple is flashed over with a thin skim of either of those metals. Gold ruby is confined almost entirely to "Early English," in which it reaches a price calculated to freeze your young blood, and make each particular hair stand on end. You will easily understand that there must be a considerable difference in the cost of these two kinds of ruby; nor will you have much difficulty in guessing which kind is so fondly embraced by the commercial and imitation people. It will be difficult to give you much idea of the enormous difference between the two. Gold ruby is the most distinguished colour, an aristocrat among colours, whereas copper ruby is common and vulgar. Gold ruby is one of the triumphs of Prior's "Early English" glass, in which it provides an infinite variety of rubies, from the richest wine colour to the most delicate and ethereal tints. This variety is partly due to the varying thickness of the gold flash, and partly to the different kinds of base, which also varies in thickness. Spoilt ruby is also another fruitful source of variety, that is, overfired, or when the metal in the pot, decreasing in quantity, becomes too hot. Spoilt in the sense that the maker has missed his aim, but invaluable to those who seek after unique effects. Not that copper ruby is to be entirely ignored. The darkest tones of copper ruby on blue may be used as a subsidiary red, but it can never take the place of gold ruby as the chief mass of red. Powell's brown ruby, a little gold (generally too little gold) mixed with the brown flash, leads to very varied reds, generally of a sombre sort, which may be used in a similar subsidiary sense.

Having shown you which are the best materials, I must say that architects are extremely lax in the matter of seeing that they get them in stained glass. If it were a matter of drain-pipes, they would study all the different kinds and specify those of a particular maker; they would have a dim sort of idea that if they did not do that, some cheap and inferior quality would be foisted on them. Ah! you will say, but stained glass is a sacred art; its makers could not do such things; why, therefore, take such precautions? If such be your touching faith, there is nothing more to be said; yet would it not be worth while to inquire where all the rubbishy glass goes to, and why there is so little good glass made that one is absolutely forced to plate a great deal more than one would? I do not see why architects should not specify Prior's "Early English" glass and Powell's "Antique." Let us admit it as conceivable that what I call the worst glass these people may consider the best; only permit me to remark that, if so, what they consider the best is invariably cheaper, much cheaper than that which I consider the best. If it is good to see that you get the best material, if it is better to see that proper use is made of it,

it is best not to go to any designer whose highest effort has been a public-house window. When I speak of the improper use of "Early English," I think of that church built by a prominent architect who has abjured figurework in stained glass, and who resolved to have the best glass in plain glazing. One can hardly blame the man for refusing to have a lot of rubbish shot into his church; although, to ignore it, is not to develop the art. It must be grappled with—taken in hand. If you cannot afford good stained glass, I would always recommend ornamental glazing, however simple, in the best glass, rather than cheap stained glass. Unfortunately, however, these windows have been done in almost pure white, consequently there is an utter absence of tone. To enter the church is like going into an ice-house. Even in ornamental glazing, tone and variety are essential.

Let me here make another assertion. Some of you may be under the impression that we put windows in to give light. That is not so with stained glass. A stained-glass window should be put in to give tone. You may deny this, but I say that however much you may strive, you will never get mystery or poetry into your buildings otherwise. The Catholic Cathedral at Westminster is a glaring instance. The architect's ideal of stained-glass was a gin bottle. He has tried to get as near to that as possible with roundels and Norman glass, that cheap imitation of "Early English." The windows have no relation to the building, nor have they any tone. Plaster the walls as thickly as you please with gold, mosaic and marbles, there will never be any mystery or poetry about the place.

Before beginning a description of the making of a stained glass window, I am reminded of a lecture by a distinguished man in the pottery line, which I was once taken to hear. The lecture was supposed to deal with certain difficulties in the firing of pottery; difficulties which confronted the Greeks of Homer's time, who immortalised them in a song. Well, we heard all about that, but as to the lecturer's methods of overcoming those difficulties, not a word. And there the poor pottery men sat, with open mouths, waiting for the crumbs which did not fall from the rich man's table. If speech is the art of concealing thought, then was this lecture a masterpiece. I do not intend to follow this artful craftsman's example, but to describe everything with the utmost frankness; and if I should inadvertently leave anything obscure, I shall be only too pleased to supplement these remarks at the close of my address.

The first thing, then, is the design, the coloured germ of the future window. This should be made to scale. I recommend 1 $\frac{1}{2}$ inch to the foot. This is convenient for making the cartoon, $\frac{1}{8}$ being equal to 1 inch, and one can put in a fair amount of detail and suggest variety of colour. The artist first to conceive the light and tone that will be in harmony with his subject. By tone in this connection I mean that which is a partial deprivation of a particular light, and must not be confounded with light and shade. To give the most familiar instance, moonlight and tone. We see objects that the moon does shine on cooler in tone than they are in daylight because the light of the moon is cold. In the same way, whatever light the subject demands (and it is not necessarily confined to sunlight or moonlight; it can be that "Light which never was on sea or land"), the tone must correspond. Every colour in the window therefore must be influenced by either the light or the tone.

Colour, which is our next consideration, has hitherto been said to be the chief thing in stained glass. But that is not so; there is a higher aim—mystery, the result of effects of light and tone, the absolutely indispensable quality in a stained-glass window. In a window we are dealing directly with light; there is therefore no need to conventionalise it, and as there can be no colour without light, we will call light the soul animating the body, colour. The quality of your window is therefore determined by the amount of light in it. It is in the quality of dealing with light that the genius of stained glass lies. It is this which differentiates it from every other medium. The colour must have a definite keynote, also in harmony with the subject. There must be a controlling sense of key, so that one may say this is a red window, that a blue one. Let me illustrate this in the simplest way. Suppose one had to do with four elements. The fire subject would demand a red window, earth a brown window, air a blue window, and water a grey window. This does not mean that the red window would be nothing but red, but that the keynote and the predominant mass would be red, and the colours of the other subjects would be worked in to enhance its effect and to form a connecting link with them. Hitherto windows have been a hopeless jumble of colours, every one for itself, and the Devil take the window. People seem to have started colouring a design at one end, without having had the least idea what the other end would be like. Not that there is any restriction on colours as long as they are subordinated to the key colour. Indeed, we have as much variety as possible, so long as the unity and harmony of the whole are not impaired. This variety will lead you into the most subtle effects, which will always add charm

to a work, and charm is a very essential quality. Strength and subtlety should be the character of the colour scheme, strength, of course, being derived from a bold treatment of the primaries. The primaries must be as rich and full as possible, and in bold masses, if your window is to have the necessary vigour and grip. So-called æsthetic colouring is unpardonable weakness in a stained-glass window.

With regard to the treatment of a light window, that end is not to be attained by filling the window with light colours of the same value. That simply results in a washy window, which looks as if all the colour had been bleached out of it. No, use as much "tint" as you like, but there must be some rich colour to show that it is intentionally a light window. The same remark applies to an ornamental window in tints. There should be a little rich colour to give it grip, and a little pure white, by which we may define the strength of the tint. Naturalistic colouring is not essential. Indeed, the most beautiful and glassy effects result from the unexpected. But it must have the appearance of inevitability; one must feel that to replace it with anything else would result in weakness—"and her hair shall be of what colour it please the glass-stainer." The traditional and symbolical colour of the draperies of Our Lord, the Blessed Virgin, the Apostles and others, together with their types, must be preserved (the colour scheme must be adapted to them and not the reverse); so that one may see at a glance who is being represented, or, should I say, one ought to be able to see? The church window is primarily to appeal to the eye of faith, and one must not assume that the eye of faith is practically non-existent, even though one have to explain to many a learned pastor (that is, shepherd) what would have been perfectly clear to the flock (that is, the sheep) of the Middle or so-called Dark Ages. This leads me to say that the symbolical is to be preferred to a literal treatment. At the same time, the symbolism is not to be a mechanical repetition of old forms, but a vivid personal insight into the heart of things.

The lead scheme should be considered, as it emphasises the rhythm of line and controls the masses of colour. Leads of various widths should be used, in proportion to the size of the window. The lead is not to be considered simply for its use in holding the glass together, but as the most important factor in the design. It is the skeleton of the window. It is not unusual for firms to employ outside people to make designs who have no practical knowledge whatever, but who can turn out an attractive design or a pretty piece of colour, calculated to deceive the unwary. These designs are to be known by the utter absence of any lead scheme, of the use of which the designer is profoundly ignorant. The result is that the window, usually carried out in the commonest glass, is not a bit like the design. There is one fatal error that must be avoided in putting in the lead lines. I allude to that pernicious practice of putting in curved lead lines when a round object like an arm or a rounded fold of drapery has to be cut on account of its length or to obtain variety of colour. In the case of an arm the curved leads look like bracelets, and in long straight drapery folds the curved lead lines used in alternate folds give the drapery the appearance of corrugated iron. One must never forget that a window is a plane surface and that round objects must be contradicted by straight leads.

Before the cartoon can be made sizes and templates of the window must be taken—the height from point to sill and the width, with laths. The templates are the shapes of the heads of lights from the spring line and of the tracery cut out of brown paper. These will be right size, to which about $\frac{3}{8}$ inch must be added all round to go into the groove. Is it necessary to say that a cartoon should be a fresh inspiration for every window? I am afraid it is, as some firms have no objection to using a cartoon a dozen times over. It would not be a bad plan for architects to insist on seeing the cartoons for every window they order. The cartoon should be made in sepia, as more nearly approaching the tracing and painting of the window, with the leads in black and their proper widths. It should have a bold significant outline, even for the features, with a little shading, and not washy lines simply as a guide for the painter. The outline is a characteristic of stained glass of any virile sort.

The outline from which the glass is cut, and afterwards leaded on, must now be made from the cartoon. The cartoon is laid on a bench and semi-transparent ammoniac paper laid over it. One then traces over the centre of the lead line with pencil, afterwards going over this with a brush in black ink. This gives one the heart of the lead—the skeleton of the window. Nearly every piece is now cut in sheet glass, to be used first as a "pounce," and afterwards to be painted on and fired. The exceptions are those pieces of "tint" or light colour that one can see the lines of the outline through, and consequently can be cut from the outline, and they will also be painted on. The method of using the "pounce" is to hold a sheet of coloured glass, which is generally varied in tone, up to the light, move the "pounce" over it until the exact place that you want cutting out has been found, then mark round it with a piece of French chalk. Hand this over to the cutter, who

breathes on it and pounces round the shape with a pounce bag containing powdered whiting. Still holding the "pounce" firmly, he marks round it with a pointed piece of hard wood, and removing it, its shape is found outlined on the coloured glass.

The other use to which the sheet glass is put is to paint on it instead of the coloured glass. It is a rule that the better the glass the less it will stand the fire. Besides the general loss of brilliance, all streaks or other variations have a tendency to go darker. Gold ruby is an impossible colour to fire; besides the aforesaid loss, it actually changes colour, becoming a hideous pink or magenta. Venetian opal, too, is an impossibility. No glass improves by going into the kiln; but sheet glass suffers least, as it is harder than coloured glass generally is. In glazing the coloured glass is kept in front of the painted piece, so that besides preserving the paint from the action of the atmosphere, it has something of the effect of varnish on a picture, adding to the transparency of the shadows.

(To be concluded.)

SHAFTESBURY ABBEY EXCAVATIONS.

A LECTURE was given by Mr. E. Doran Webb, F.S.A., at the South Wilts and Blackmore Museum, Salisbury, on the excavations on the site of the ancient Abbey Church of Our Lady and St. Edward the Martyr, at Shaftesbury. Mr. Doran Webb is hon. director of the excavations.

The Mayor of Shaftesbury, on taking the chair, said it gave him the greatest pleasure imaginable to come to Salisbury to preside at a lecture given by one so learned and so estimable as their friend Mr. Doran Webb. He lived at Shaftesbury for many years before he was aware of the existence of the place where the old Abbey stood, but when the Wilts Archaeological Society came to Shaftesbury some eighteen years ago, he joined them, and was very interested in their deliberations. They told them where the old Abbey once stood, and from that time he was fired with a desire to have the Abbey reopened. He tried in his meek and humble way to get the work carried out, but was unsuccessful. Eventually Mr. Doran Webb turned up and he would tell them what had since been done.

Mr. Doran Webb, says the *Wiltshire Mirror*, began his lecture by explaining the derivation of the word Shaftesbury, which he said meant a town on a hill. No Roman remains had been found at Shaftesbury, although it was said that some years ago Roman architectural remains were discovered in excavating for the foundations of a new house in High Street. In this sense the town was disappointing, but on Castle Green a little to the west of St. Mary's and at Barton Hill several Roman coins had been dug up. Overlooking the railway there were some earthworks called Castle Hill, but it was impossible to solve the problem whether they were Roman earthworks without digging. There were other traces of Roman occupation in the neighbourhood. At Donhead they came to Sticklebury Hill where the Rev. Canon Short found fragments of Roman pottery, and it was thought that this was the site of a Roman camp. If that were so he (the lecturer) suggested that the camp on Sticklebury Hill might have been the Roman Shaftesbury. The camp contained about 15 acres of land; on one side was the precipitous descent of the hill and on the other (the west) a deep ditch or rampart. Other earthworks in the neighbourhood were Winklebury and Duncliff. The road from Stourpaine to Bath passed through Shaftesbury, and close to Stourpaine to the left of the road was Hod Hill with its magnificent Roman camp on the summit. This road passed through Iwerne, where General Pitt-Rivers laid bare a fine Roman villa, and Colonel Best had made some investigations respecting the course of the Roman road in the parishes of Charlton and Ludwell, but as most of the land had been laid down for agricultural purposes it was quite possible that all traces of the road had been destroyed. In support of his argument that Sticklebury Hill was probably the site of the Roman Shaftesbury, he said that in those days the conqueror did not always occupy the site of the town he had taken if he could find a stronger and better place to pitch his camp. Shaftesbury, as they saw it to-day, struck one as being an extremely strong position, and it was his theory that it was the site of the present town that was occupied.

Passing on from the Roman to the Saxon period, the lecturer said they came on firmer ground. Shaftesbury had now become an important place. The castle near St. Mary's was either in course of being built, or more probably, as was the case at Old Sarum, was being repaired and strengthened. Such defensive works at the time he was speaking of consisted of a ditch or raised bank strongly stockaded, and enclosing more often than not an irregular shaped piece of ground. Within the enclosure were rude stone buildings covered with thatch which formed the actual castle, with perhaps a stronger work in the shape of a tower which in subsequent times became the keep of our twelfth-century castle. Saxon interments such as those excavated by General Pitt-Rivers at Winklebury and elsewhere were by no means uncommon in the neighbourhood.

But the written history of Shaftesbury, apart from that which was written on the face of the earth in barrows and camps, commenced with the ninth century with a grant of land to the church and convent of Shaftesbury by King Alfred, whose daughter Elgiva lived as a nun here, becoming before she died in 946 abbess of the convent. For the next 600 years the history of the town was so closely bound up with the history of the great Benedictine house that grew up in its midst as to be quite inseparable the one from the other. They would find that as far as Shaftesbury went the ancestors of his friend Mr. Powell, the mayor, were the representatives of the lady abbess. No one could say when the first Mayor of Shaftesbury was elected or when the first Town Council sat. Like the towns of Romsey and Malmesbury, the importance of the church and its fame as a place of sanctity attracted large numbers of visitors, and so conduced to the prosperity of the town and its inhabitants. The church at Shaftesbury was richly endowed by the Saxon kings. The queen of Edmund Ironsides was buried in the church, and Canute, that monarch's great rival, died at Shaftesbury. But the greatest event in the annals of the monastery was the translation in 981 of the body of St. Edward, the king and martyr who was slain at Corfe Castle by the treacherous hand of Queen Elfrida, his step-mother. She, repenting of her crime, was said to have been instrumental in causing the removal of the saint's body, but what was more certain was that she founded Wherwell Abbey, near Andover.

In Norman times, the lecturer said, they had in the Domesday Survey the assessment of Shaftesbury. From that they learned that Shaftesbury was such an important town at the time of the Domesday Survey that it was assessed at twice as much as the county town of Dorchester, less than half as much as Old Sarum and four times as much as Exeter and Bridport. Shaftesbury was a borough by prescription. That was to say, its origin was so remote that no man could either fix a date when it was first incorporated or produce its original charter. The lecturer went on to describe the arms of the borough and the two very interesting maces in the possession of the Corporation. In the thirteenth century Shaftesbury boasted of eleven churches besides the abbey church. At the present day there was one old church, St. Peter's, in the High Street, and three modern buildings, namely, Holy Trinity, St. James's and St. Rubald. St. Peter's Church was an excellent example of what a town church was in the fifteenth or latter part of the fourteenth century. The lecturer gave a very interesting account of the old edifice, in the course of which he said that the south aisle of the church contained a large crypt, which was now used as a vault by the tenant of the adjoining public-house. He said that the church was one of the most interesting buildings that had been left at Shaftesbury, and they all hoped that some day it might be put into a better state than it was at present. As they stood on Shaftesbury Hill they were struck with the magnificent view, but it had not always been what it was to-day. Shaftesbury as late as the thirteenth century was almost surrounded by what was known as the Gillingham Forest, which was said to have reached from Blandford to Wilton. On March 23, 1539, the king seized the revenues and estates of the Benedictine house at Shaftesbury, pensions being granted for life to the last abbess, Elizabeth Zouch, and other of the nuns. The estates were partitioned out among those who were able to purchase them and others who through favour at Court could obtain a free gift of land. The effect of this wholesale destruction of religious houses throughout England, which were at once the havens of the poor and a means of support to those able to work, was that many towns such as Shaftesbury fell into ruins. This could easily be seen from an Act of Parliament passed in the 32nd year of the reign of Henry VIII, which stated that "whereas there hath been in times past many beautiful houses within the walls of (here follow the names of fifty-eight cities and towns, Shaftesbury being one), which houses are now fallen down decayed, and at this time remain unre-edified, as desolate and vacant grounds, many of them nigh running to the high streets replenished with uncleanness and filth, with pits, cellars and vaults, lying open and uncovered to the great crowd of the King's subjects, &c. &c." Passing to the appointment of John Bradley, the last prior of Wilton, as a suffragan Bishop with the living of Shaftesbury, the lecturer said they came to the Civil War period when the town became the scene of several sharp skirmishes between the forces of the king and those of the Parliament. Having spoken of the Clubmen who encamped at Shaftesbury and who cared nothing for king or Parliament, and their defeat on Castle Hill, Mr. Webb called attention to some interesting points on an old plan of Shaftesbury which was thrown upon the screen, after which pictures of the ancient wall on Gold Hill were shown.

Several photographs of the discoveries made on the site of the old abbey were exhibited and explained by the lecturer, who said the work of excavation on the site of the ancient abbey was commenced on Monday, June 9, 1902, and was con-

tinued for a period of twenty-one weeks. The cost of the work had amounted to 166*l.* 13*s.* 3*d.*, and of this sum the Mayor and Corporation of Shaftesbury gave 50*l.*, the remainder of the money being contributed by members of the committee and others who took an active interest in the success of this most important archaeological undertaking. The foundation of the north wall of the choir apse was first revealed, and following up the line of this wall westward a grave formed in the thickness of the masonry was next discovered. This grave contained three skulls and a thigh-bone. The grave has since been filled up with earth, but chiefly with human bones found scattered all over the surface of the excavations. As it was important that the northern half of the garden should first be excavated only a partial exploration of the site of the church was made. Sufficient was done, however, to prove that the church ended in this direction, both externally and internally in a semicircular apse. The base of the altar, with its footpace and portions of the steps leading up to the latter, were also uncovered. The site of the north choir aisle was next excavated. This aisle terminates in an apse internally although externally it has a square east end. It measured 12 feet in width by 56 feet 3 inches in length from the centre of the apse to where the aisle joins the north transept. The aisle is divided from the chancel by a wall 8 feet in thickness pierced at its eastern end by a doorway 2 feet 9 inches in width, which afforded a means of access from the one to the other. Fourteen inches of the western jamb of the doorway remains in position, and built into the wall at a point 2 feet 10 inches to the west of this jamb was the moulded base of the shaft of a semicircular Norman respond, the shaft measuring 1 foot 4½ inches in diameter. A low stone bench, similar in character to that existing in Salisbury Cathedral, appeared to have run the length of the aisle against the inside of the north and south walls. The floor of the aisle was divided by two steps into three levels, and some portions of the floor were covered with tiles. Though many of the tiles were defaced by wear and exposure to damp, yet on a good number of them could still be traced the arms of families connected with the neighbourhood, amongst them being those of the Montacutes, Earls of Shaftesbury. A member of the family, William Montacute, Earl of Shaftesbury, was involved in a dispute about the ownership of Sherborne Castle in 1373 with Robert Wyville, Bishop of Salisbury, which near result in a trial by combat. The Cheney's were another local family; their arms were "four fusils in fess, each charged with an escallop." Sir John Cheney lived for a short time at Wardour Castle and lies buried under a noble monument in the north aisle of Salisbury Cathedral. The arms of the Bryons and the Stourtons were also represented on the tiles. A number of graves were found whilst removing the earth on the side of the foundations at the east end of the north aisle. The excavation of the chancel and north transept was next taken in hand in the hope of finding the entrance to the crypt mentioned by the Rev. J. Reynolds as having been partially explored in 1861. The floor of the chancel so far as it had been uncovered consisted for the greater part of a tile paving in fairly perfect condition. Many of the tiles, which were thirteenth century date, were of the usual red colour, stamped and inlaid in whitish clay with various designs. Twenty-eight feet 6 inches east of the boundary wall of the abbey house garden the eastern face of the north-east pier which supported the central tower was discovered, and the steps leading down to the crypt were unearthed on September 23 last. By the middle of the next day the whole staircase was laid bare and it was found that the crypt measured 24 feet from east to west by 17 feet 11 inches in width. The crypt was evidently an addition, and, judging from the remains of the vaulting, was built in the thirteenth century. In the crypt were found immediately beneath the windows two large heaps of human skulls and bones mixed with a quantity of broken pottery, together with some pieces of stained glass, a mutilated defaced Early English capital, the base of a small statue which had been gilded, seven inches of a spiral column 6 inches in diameter, painted blue and red, and a piece of thirteenth century arcading of Purbeck marble. A large number of fragments of jambs, mullions and tracery of fourteenth and fifteenth-century windows were found all over the site of the excavations. In conclusion, Mr. Webb stated that a sum of 150*l.* was required to finish the work in the remaining portions of the garden, and after this was completed there would still remain to be excavated the nave and aisle of the church in the adjoining abbey house garden.

A Sessional Meeting of the Sanitary Institute will be held at the Parkes Museum on Wednesday, March 11, 8 P.M., when a discussion will take place on "Sewage Disposal and the qualities essential in a Sewage Effluent."

LIVERPOOL CATHEDRAL.

A LIVERPOOL correspondent writes to the *Times* in advocacy of the cathedral scheme. The Liverpool bishopric, he says, was founded in 1880. The effort in the direction of a cathedral was represented in 1900 by an antiquated Act of Parliament, the sag-end of a committee, a certain amount of experience and an empty purse. In this latter year Bishop Chavasse's inspiring dream of a cathedral, told at his diocesan conference, showed clearly enough that the hour for another effort had come, and the man. Since then many steps have been taken, 157,000*l.* raised, a site secured and other important arrangements made, the necessary Act of Parliament obtained, and five chosen architects are now preparing for the final competition, which, as in the days of Ghiberti and Brunelleschi at Florence, will decide who is to build the cathedral. It is hoped that this decision will be made within a few months' time, and that the foundation-stone will be laid by some very august person before the middle of 1904. Compared with the progress made at Truro this may seem slow work. But Bishop Benson was a very exceptional man, and the problem to be solved was far less complicated. If comparison must be made, it should rather be with the Roman Catholic Cathedral at Westminster. Liverpool has no reason to be ashamed or downhearted. The delay hitherto has probably been most helpful to the real success of the scheme.

But rapid progress ought soon to be made. The acquisition of a suitable site is, in a crowded city, a matter of the utmost importance. No more can be expected than that the best site possible (all things being considered) shall be chosen. In Liverpool, out of several competing sites, the one finally decided upon and secured is what is known as St. James's Mount, some of the highest ground in the city. It has several great merits. It is sufficiently out of the way to be quiet, and sufficiently in the town to be easily accessible. Houses in which the cathedral clergy may live are abundant in the neighbourhood. Considered architecturally the site is almost ideal. From Hope Street the cathedral will be seen across the deep hollow of St. James's Cemetery, standing up against the sky on the top of the wooded cliff, some 50 feet high, which bounds the cemetery on its western side—the whole of one long side and the principal façade being viewed without interruption from a distance of, say, 500 feet. At Durham the river Wear washes the foot of the hill on which the cathedral stands. At Liverpool the place of the Wear is filled by the very remarkable cemetery. Water has always a special charm. But, making allowance for this, comparison may fearlessly be made with Durham. Moreover, at Liverpool the Mersey has to be thought of—that river which is so great a factor in the life of the city. And from the river, on a clear day, the cathedral on St. James's Mount will look, to quote the words of Mr. J. A. Symonds, spoken of the Duomo at Siena, "as though set like a marble coronet upon the forehead of the town."

There is one objection to the site which must be noticed. With some it has no weight. With many others it weighs heavily. In building the cathedral on St. James's Mount the practice of orientation will probably have to be departed from. The Dean of Ely has, indeed, published an ingenious plan whereby the necessity of this may be avoided. But it is probable, or, at least, possible, that the Liverpool Cathedral will have to stand north and south, and so be singular amongst English cathedrals, and, in fact, almost unique amongst the cathedrals of Christendom. This is much to be regretted. But in exceptional circumstances exceptional conduct is justified, and the building of a large cathedral in a city of the size of Liverpool is certainly exceptional. There are, moreover, good precedents for a north and south position. San Petronio, at Bologna, and Sta Maria Novella, at Florence, both built when orientation was carefully attended to, and the latter built by the early Dominicans, who were most particular about that sort of thing—these two great churches were built north and south, and clearly enough for the precise reason which obtains at Liverpool, viz. the impossibility of building east and west owing to exigencies of site.

With regard to style, the competing architects have a free hand. They have, indeed, to provide an open space, unbroken by pier or pillar, in which 3,000 persons may see and hear a preacher. This might seem to point to the Renaissance and a dome. But not necessarily to the Renaissance. In St. Paul's Cathedral 4,000 persons may see and hear the preacher. But the octagon at Ely and the adjacent parts will accommodate 1,900 persons. Clearly at Liverpool the open space must be larger than that at Ely, and smaller than that at St. Paul's. Is there any reason why there should not be a "Gothic" dome? The Renaissance dome at Florence was placed upon Talenti's Gothic substructure. Why might not its details have been Gothic like those of Pisa or Ely? Does any one suppose that if an architect possessing Alan de Walsingham's taste and Brunelleschi's technical skill were to build a Gothic dome its correctness would be open to question? Hence there is no limit as to style; neither is there any limit as to expense.

Dignity and beauty and suitability to the sacred purpose are the chief matters which the architects are to have in mind. There is thus no fear that a second-rate building will be erected if a first-rate one can be planned.

It is clear that the building committee have set their hands to a work which will tax all their powers. The old cathedral builders could depend for income upon a variety of sources, such as indulgences, shrines and bishops able to contribute princely sums. These are things of the past. So, too, are the coal and wine dues, which mainly paid for St. Paul's. Only the voluntary subscriptions of churchpeople can be depended upon. Nonconformists are sometimes ready to give generous help to such undertakings, which should always be gratefully accepted, but such help cannot be counted upon, nor, without great loss of dignity, asked for. Much of the wealth of Liverpool is in Nonconformist hands. The churchmen of the diocese will probably have to be educated before they will give freely. In the city of Liverpool itself the work will be comparatively easy. Fortunately the pro-cathedral is so manifestly and even ridiculously inadequate that Liverpool churchmen have constantly before them a striking object-lesson, which makes them well aware that something must be done at once, and the thought of what the dignity of the city demands will in Liverpool, as in so many an old Italian city, secure that what is done shall be done well. But the more distant parts of the diocese may be inclined to regard the work as a Liverpool affair with which they are not concerned. Hence the diocesan spirit will have to be cultivated, and every churchman led to take the same interest in his diocese which the soldier does in his regiment.

But the building of this cathedral is a matter of more than diocesan interest, and it cannot be accomplished in any reasonable time without considerable outside help. During the last twenty-five years the diocese of Liverpool has not been idle or stingy. The foundation of the bishopric cost at least 100,000*l.* During Bishop Ryle's episcopate forty-four new churches were built at a cost (in addition to the value of many sites given) of 1397,000*l.*; 28,546*l.* has been spent upon the portion of the church-house now in use, and 157,000*l.* has been promised for the cathedral. There has thus been an abundance of self-help in the Liverpool diocese. It has received from the rest of England much excellent advice. It is doing its best to carry this out, and to build a cathedral of which the nation may be proud. It not unnaturally looks for help from many outside sympathisers.

ANCIENT ROME IN 1903.

THE first of the present year's series of Carpenters' Hall lectures on matters connected with building was delivered by Professor R. Elsey Smith, A.R.I.B.A., on Thursday evening, February 19. The lecturer, who was introduced by Mr. Aston Webb, A.R.A., P.R.I.B.A. (chairman), took for his subject "Ancient Rome in 1903," and pointed out that the city of Rome occupied an unique position amongst the still thriving cities of the world, as it could boast ever since the date of its legendary foundation 753 B.C. a continued existence and an influence in the life and history of the world such as no other single city could claim. After tracing its foundation on the great rocky eminence of the Palatine Hill, and its rapid growth under the early kings, as well as during the Republic and the period of the Empire, when the rulers vied with one another in erecting or extending palaces and undertaking mighty works for the entertainment of the populace, Professor R. Elsey Smith pointed out the vast remains of the works of the first century, A.D., which now exist to testify to the greatness and splendour of Rome. After describing the walls, the cloacæ, the roads and the water-supply, the lecturer proceeded to dilate upon some of the more strictly architectural works with which the great city was adorned, beginning at the centre of Roman life, the Forum, followed by the Temple of Vespasian, the Temple of Antoninus and Faustina, the Temple of Castor and Pollux, the Temple of Saturn, the Temple of Romulus, the House of the Vestals, the Rostra, the Arches of Titus, Severus and Constantine, the Columns of Trajan and Marcus Aurelius, the Basilica, the Baths of Caracalla, the Stadia, the Colosseum and the Pantheon. In conclusion, he remarked:—"One cannot perhaps more fittingly terminate this brief view of what still remains to us of the Rome of the ancient Romans, to whom we as a nation owe not a little, than in this great building (the Pantheon) which has stood for more than eighteen centuries, and, built as a heathen temple, has for close upon thirteen hundred years been consecrated as a Christian church, and by many Italians is especially venerated as the last resting-place of the great King Victor Emmanuel, who, with the aid of wise counsellors and great soldiers, united under his rule the scattered States of the Peninsula, and long may the Eternal City flourish as the capital of United Italy."

The lecture, which was listened to with marked attention

by a large audience, was illustrated by a number of beautiful lantern views from photographs taken for the most part by Professor R. Elsey Smith, to whom a hearty vote of thanks was tendered for the interesting and practical instruction which he had so ably afforded.

EXETER CATHEDRAL.

THE following letter from the Dean to the *Times* relates to the window scheme:—Mr. Moore has made the following statements:—(1) "That the Chapter have suffered from a chronic mania for destroying every relic of ancient art in their wonderful cathedral as opportunity offers." (2) "That his intervention prevented the removal of the great east window and the substitution of a wheel window of Scott's design." (3) That he prevented the "entire sweeping away by the Chapter of all the ancient glass in the St Gabriel's Chapel." (4) That the ancient glass "has totally disappeared." (5) "That he offered at his own cost to rearrange and replace the ancient glass and was refused by the Chapter." (6) That he has "vainly endeavoured to persuade" the Chapter to take certain steps for the preservation of the glass.

Wishing to be accurate in my reply, I have, before writing, caused search to be made in all the Chapter records and documents, minutes, &c., rough notes and letter-books during the period in which the restoration of the cathedral was under consideration and in progress. There is no mention at all of any such renewal to be found, and there is no mention of Mr. Moore's intervention. This is significant; but there is an entry, which I shall give lower down, which disproves absolutely one of Mr. Moore's accusations against the dead members of the past Chapter. But I was not content with this evidence alone. I have inquired carefully of persons who were employed on the work, such as the son of the gentleman who carried out the works, who was in daily communication with the Chapter, and of the glass artist to whom the glass was entrusted; of Mr. Battishill, the present Chapter clerk, who was the active partner of the then clerk; of Mr. Scott, the successor of the late Sir Gilbert, who was, according to Mr. Moore's story, ordered to provide the wheel window. Fancy Scott putting a new wheel to face that in the west. All these persons say that no such plan was ever for an instant in the mind of the Chapter or Sir Gilbert Scott. All speak with absolute certainty, not only in direct denial of Mr. Moore's statement, but they all concur in saying that they knew that the great east window was regarded by all the Chapter with special admiration. This, again, is significant. The documentary evidence is confirmed—the great east window never was in danger; Mr. Moore did not rescue it from the maniacal destructiveness of Sir Gilbert Scott and the then Chapter, who cannot, alas! speak for themselves. But I was not yet content; as the dead could not speak for themselves I communicated with their representatives. Dean Boyd's representative, who knew every detail of the work and loved it, tells me the great east window was the Dean's special admiration, and that he never dreamed of its removal and that Mr. Moore had nothing to do with its preservation at all. Its removal was never discussed. Again, the documentary evidence is confirmed. Mr. Freeman writes—he was closely associated with his father:—

"I cannot believe that there is any foundation for the charge. I am certain that any such proposal would have met with the strongest disapproval both of my father and of the other members of the Chapter, in whose eyes that window was held as one of the glories of the cathedral."

The same evidence is given with equal certainty by the representatives of Precentor Cook and Archdeacon Woolcombe, both always on the spot and always in the thick of the restoration. I give my own testimony last. I knew and loved all these good men as friends and fellow-workers. I frequently visited and discussed the cathedral with them during the restoration and before. I never once heard it suggested by any one of them that the great east window should be removed and a wheel window of Scott's design inserted. You have had Mr. Scott's evidence in your columns.

As to the next statement, that Mr. Moore prevented the Chapter from "entirely sweeping away the old glass in St. Gabriel's Chapel," the evidence of Mr. Luscombe and Mr. Drake, the cathedral glazier, is to the effect "that the Chapter exercised the greatest care, and that the glass was carefully laid out and examined, and subsequently, under the careful direction of the Chapter, placed where it now remains," a witness to the carefulness of the Chapter. And here comes an extract from our minute-book approving a letter received from Sir Gilbert Scott and requesting that he should prepare designs for both windows—that is, one for the old glass the other for the new—in St. Gabriel's Chapel. This does not look like sweeping away the old glass. It may be well here to quote from Mr. Drake's lecture on the glass of Exeter Cathedral, because it will not only serve to illustrate the real carefulness

of the Chapter, but will also cast a strong light on the real value of Peckett's work, which Mr. Moore admires:—

"Some very poor glass (Peckett's) was removed at this time from the great east window. The window had suffered much in an attempted restoration by Peckett, 1761. Heads of the true Georgian type were put on the figures, and the canopies were much tampered with. Mention of these figures reminds me of a curious freak of Peckett of west window renown; he it was who inserted the funny heads. In the light next the centre on the south side is a bishop; his head is covered, not with a mitre, but with a piece of a broken canopy from another window which to Peckett seemed like a mitre."

And lower down:—

"The borderings and surroundings, the work of Peckett, are of such a description that we would desire to speak gently of."

So much for Peckett in 1761. In reply to his next charge—"that the ancient glass has (by the fault of the Chapter) totally disappeared"—here we are on the firm ground of facts. What are they? The glass referred to has from time to time been carefully used, and the remainder is still carefully preserved for future use. His next statement, that he offered at his own cost to restore and replace the ancient glass, but that the Chapter refused—well, we have records over and over again of gifts and offerings which can only according to our procedure be made through the Chapter—one such offering with respect to this very glass, but it did not come from Mr. Moore. There is no mention of such an offer from him, and no one at that time connected with the Chapter can remember any such offer having been made. As an imputation lies under the statement that such an offer was refused, perhaps the refusal can be produced; there is no mention of the offer. Mr. Moore next states that he has "vainly endeavoured" to persuade the Chapter to take certain steps for the preservation of the glass, &c. No living member of the Chapter can recall any instance of this, and there is no mention of it in letter-book or minutes; and no such "vain endeavours" were necessary, as the minutes indicate sufficient care of the whole fabric from week to week, and the glass is still cared for. As to the rash nonsense of his opening charge, that the Chapter suffered from a chronic mania for destroying "every relic of ancient art in their wonderful cathedral as opportunity offers," such violent extravagance of statement carries its own refutation.

RECENT ANTIQUARIAN DISCOVERIES IN EGYPT.

A CORRESPONDENT of the *Scotsman*, Mr. W. M. Bryce, writing from Luxor on the 3rd inst. says:—While the citizens of Edinburgh are shivering with cold, we, the favoured few from the old town temporarily resident here, are in the enjoyment of perennial sunshine. Instead of golf we have the educative pastime of studying the ruins of the ancient temples and tombs which so liberally bestrew both sides of this portion of the Nile. And in respect of antiquarian matters Egypt is a land of surprises. Every year fresh discoveries are made, stretching back the history of this ancient land, and throwing new light upon the domestic life of its inhabitants. Professor Flinders Petrie has opened to us the prehistoric period, which carries back the history of the world to a period of more than 7,000 years from the present time; and now even the prehistoric period, from the discoveries made last season, is in course of division into early, middle and late. The names of new kings of the late prehistoric have recently been found by Professor Petrie at Abydos, and thus this portion of the prehistoric is losing its designation and becoming known as the predynastic.

On the Luxor side of the river Mr. Le Grand, a French official of the Museum at Cairo, is engaged in clearing out the temples at Karnac, and re-erecting the massive pillars which fell down three years ago—a huge undertaking. Last week he recovered from the mass of rubbish two fine statues of black granite—a stone much darker in colour and harder to cut than our grey Aberdeen granite. But it is to the operations conducted on the west side of the river, among the ruined temples and palaces of Thebes and the royal tombs of the kings of the eighteenth and nineteenth dynasties that attention has been drawn. A great discovery, over which Egyptologists are much excited, has been made here two weeks ago. Now there are three separate expeditions carrying on excavations on that side of the river. The most southerly is under Mr. Tytus, a young and wealthy American, who is exploring the ruins of the palace of Amenhotep III. Mr. Mond, a Hebrew gentleman and naturalised Briton, has taken the tombs above Kurna as the scene of his labours. Both of these gentlemen bear the expense of their own excavations, but the work in both cases is under the superintendence of Mr. Newberry, an Egyptologist of considerable repute. It may be here explained, that the authorities of the Cairo Museum have the privilege of selecting any of the

"finds" they desire, the remainder being at the disposal of the parties licensed to carry on excavations. The third and most important of these operations is under the able management of Mr. Carter, inspector of monuments for Upper Egypt, but at the expense of Mr. Davies, another wealthy American, and a great collector. For some years past Mr. Davies has paid for similar work, and it is rather galling to the Briton to see printed notices in Americanised English stuck over the entrance to tombs bearing the legend "Conserved by Mr. Theodore M. Davies, U.S.A." It is rather remarkable that, seeing Egypt is now practically a British possession, not one single wealthy Briton seems to take the interest which these Americans show in work of this kind. Northward of the beautiful tomb of Queen Hatasu—a lady as famous in Egyptian history as our Mary Queen of Scots—is a projecting spur of the mountains; and on the other side is a narrow winding valley, near the head of which the kings of the eighteenth and nineteenth dynasties were buried in tombs cut out of the living rock. The stone is a fine siliceous limestone. Several of the tombs, with their grand halls and passages, have been cut from 250 to nearly 500 feet into the mountain side, the sides and ceilings being ornamented with carvings in relief, all painted with colours as varied as those which adorned Joseph's coat. These paintings look as fresh as if painted yesterday. Six of these tombs are now brilliantly lit by electricity, while wooden gangways and barricades protect the traveller as well as the pictures from injury. Nowhere in our country has such magnificent provision been made for the protection of our national monuments. It is among these tombs that Mr. Carter was fortunate enough to discover on the 18th of last month the tomb of King Thothmes IV. Of this monarch very little seems to be known. He was the son of the warrior King Amenhotep II., and reigned in the latter portion of the sixteenth century B.C. His mummy had been removed to his father's tomb, whence it has been transferred to the museum at Cairo. He is mainly known to the present generation by the memorial-stone which he placed in front of the Sphinx at Gizeh, and on which he records the fact that, in obedience to a dream, he had cleared away the sand in front of that remarkable monument. The interest in the present discovery is due to the belief that, although despoiled of its gold and silver ornaments some two or three thousand years ago, the tomb has remained untouched since that date. The door has been kept closed until to-day, when it was opened in presence of Mr. Maspero, the learned head of the museum, and Messrs. Davies, Carter, Newberry and Tytus. The leather front of a war chariot is known to be among the "finds." The only chariot hitherto preserved is, I believe, in the museum at Turin. The beautiful pottery and glass—for the period of the eighteenth, like that of the twelfth, dynasty was famed for its artistic efforts—seem to have suffered at the hands of the ancient depredators. Last year there was found, during the operations conducted under the ægis of Mr. Davies, two leather aprons, soft as the finest kid, and stamped and cut into patterns like silk network. Some little time must elapse before the work of making the necessary inventory as well as transferring the contents of the tomb to Mr. Carter's house is completed, and Egyptologists must wait the result with patience. In the meantime the three young gentlemen, Messrs. Carter, Newberry and Tytus, will remain on guard, night and day, at the tomb to protect it from the Arabs. And there is certainly a great necessity for caution. Last week at Abydos, one of the best of the statues unearthed by Professor Flinders Petrie, which only a month ago he showed to Professor Sayce and myself with pride, was stolen by the Arabs living in the neighbourhood. The stone must have weighed two tons. Mr. Maspero had a somewhat similar mishap four days ago in the Governmental dahabyeh in which he arrived here. During the night thieves entered the dahabyeh and cleared out all his silver—except one fork—and linen. Fancy Madame Maspero's dismay next morning. The crew are popularly believed to have had a hand in this new mode of "excavation."

License to excavate is granted by Mr. Maspero and a committee, the majority of whom now are Britons, and the work is carried on by officially recognised societies in Great Britain, America, Germany, France and Italy, as well as by private individuals. These are all supposed to print a record of their work, and the proceeds of their "finds," after deduction of the portion selected for the museum, are expected to be handed over to museums, universities, or other public institutions. With some of the private excavators it is alleged this is not done, and hence some soreness has been expressed that parties should be allowed to make excavations for the "loot" they find. There is a law to prevent this kind of "looting." Professor Flinders Petrie's party consists of himself, two assistants, Mrs. Petrie and two lady assistants, and a posse of nearly three hundred Arabs. Mrs. Petrie occupies herself in making the drawings. The Professor represents the Exploration Fund, which is an Americano-British society. Dr. Reisner, of California, has chosen the east side of the river bank,

opposite Girga, as the scene of his labours, and his work, like that of Professor Petrie, is conducted on most methodical lines. His expenses are paid by Mrs. Hearst, the foundress of the University of California. It is not generally known that these Egyptologists, such as Professor Petrie, give their services gratuitously, their actual expenses being only refunded to them. The German expedition is mainly supported by the Emperor, who, in addition, furnishes more money for "antikas" than is given by any public or private institution—the British Museum included—in Europe. As Dr. Reisner observed, the object is largely political. The French representatives seem within the last two or three years to have sunk in importance. It was very different half a dozen years ago, when the violently anti-British Monsieur Grébaut was director of the Museum. He became latterly so impracticable to his own countrymen that they took steps for his removal. The Italians excavated at two places last year. Among the private excavators is young Mr. Garstang, of Liverpool, who works at Beni Hassan for a syndicate consisting of two bankers and a Liverpool merchant. A report is published and none of the "finds" sold. Then there is Mr. Greenfel, whose specialty is the unearthing of papyrus, and the Archaeological Survey, the president of which is our new citizen, Professor Sayce, of Oxford, with Mr. Griffith as the transcriber and translator of inscriptions.

TESSERÆ.

Fifteenth-Century Stained Glass.

IT is conjectured from agreements still extant that as the mechanical part or soldering together the almost infinite number of pieces was effected by ingenious glaziers, a design or pattern exactly coloured, and probably the work of some ecclesiastic, was provided from which a window might be composed. Still, it may be presumed that histories taken from any single object recorded in Scripture were by no means common. All the cathedral, conventual or larger parish churches built or added to in this century had many spacious windows of stained glass, but from remaining fragments it is evident that the figures were individually placed, sometimes accompanied by angels clothed in peacock's feathers, who held the escutcheons. Windows at Cirencester, in Gloucestershire, recomposed from the fragments of many others, exhibit "shapes that with one broad glare the gazer strike, kings' bishops, nuns, apostles, all alike." During this century stained glass was more generally admitted into castles and private houses of the nobility, in the chapels or oratories, halls or large apartments. The exquisitely finished sacella or sepulchral shrines were embellished with it, more delicately and minutely designed than that which was put up in the larger windows. They are universally destroyed. The exact period when stained glass was first introduced into the houses of kings and nobles cannot be ascertained. Chaucer in his "Dreme" describes the story of the siege of Troy as painted on the windows of his own house, and it may be inferred that such embellishments were sometimes seen in the structures of the fourteenth century which were not merely ecclesiastical. Charles V. of France, Chaucer's contemporary, ornamented not only his chapels, but apartments in his castles with stained glass. At Aston Hall, near Birmingham, is a series of armed portraits with tabards and the armour of the age of Edward III. There are nine figures to represent two earls of Mercia and seven of Chester. They were first set up in the great hall at Brereton, Cheshire.

Byzantine and Roman Foliage.

Byzantine foliage differed from Roman foliage inversely as Roman had differed from ancient Greek; for when the seat of Imperial Government was removed from Rome to Constantinople, the architectural sculptors seem to have reverted to Greek examples as distinguished from Roman. It followed that, not only at Ravenna, where the Byzantine style was as much at home as at Constantinople, but centuries later when the style was a second time transplanted into Western Europe, a Greek tinge was given to the works of those schools of architectural carving which were influenced by it; and this was the case not only in those parts of France where, as in Périgord, Byzantine architecture was, in a pronounced form, adopted as a model, but it extended even into the Northern provinces, whose architecture was in other respects purely Romanesque; so that while the architecture of the twelfth century about Paris was either distinctively Romanesque or a transition founded upon that style, its foliated ornamentation was as distinctly Byzantine. The capitals were not only founded on the Corinthian, but their leaves were of the Greek as distinguished from the Roman type of the acanthus. From this acanthus leaf was, by different stages and especially from specimens accidentally left unraffled, developed the very different leaf known as the *crochet*, and the very typical French capital known as the capital "*acrochet*."

Border Peel Towers.

The royal castles on the Scottish Border boasted little splendour. That of Newark, a favourite hunting-seat of the kings of Scotland, is merely a large and strong tower, surrounded by a wall of defence, or barnkin. The smaller gentlemen, whether head of branches of clans or of distinct families, inhabited dwellings upon a still smaller scale, called peels, or bastle houses. These were surrounded by an enclosure or barnkin, the wall whereof was, according to statute, a yard thick, 6 yards in height, surrounding a space of at least 60 square feet. Within this outer work the laird built his tower, with its projecting battlements, and usually secured the entrance by two doors; the outer of grated iron, the innermost of oak, clenched with nails. The apartments were placed directly above each other, accessible only by a narrow "turn-pike" stair, easily blocked up or defended. Sometimes, and in the more ancient buildings, the construction was still more rude. There was no stair at all; and the inhabitants ascended by a ladder from one storey to another. Smailholme, or Sandiknow Tower, is one of the most perfect specimens of this species of habitation, which was usually situated on the brow of a rock or the brink of a torrent; and, like the castle of the chief, had adjacent huts for the reception of those who were called upon to act in its defence. The castle of Bemerside, the residence of the ancient family of Haig, is a tower of the same kind. Upon a sudden attack from any small incursive party, these "strengths," as they were called, afforded good means of defence. Artillery being out of the question, they were usually attacked with bows, or hagbuts, the discharge of which drove the defenders from the loopholes and battlements, while the assailants, heaping together quantities of wetted straw, and setting it on fire, drove the garrison from storey to storey by means of the smoke, and sometimes compelled them to surrender. The mode of defence, by stones, arrows, shot and scalding water, was equally obvious and simple; and, in ordinary cases, by such means of resistance, joined to the strength of the place and the military disposition of the inhabitants around, who readily rose "to the fray," a desultory attack was easily repulsed.

Apsidal Chapels.

In the Romanesque churches of the South of France a quantity of chapels are attached to the choir and transepts, each consisting of a wagon vaulted compartment and a semi-domed apse. Thus, at La Charité there are five of them, radiating from the apsidal aisle, and two on each side attached to the east walls of the transept. The crypt of the church at Mont Majour, near Arles, has a similar arrangement with seven chapels, which also appears at Valence. In all these cases there is a space of wall and a window between the openings of the apsidal chapels, which serves to light the aisle. Professor Willis was of opinion that the use of radiating chapels behind the choir, which was so universally practised in Gothic, first arose in this district. The intermediate windows were afterwards abandoned, as the chapels were increased in size and touched each other, leaving no space for them. They may be found in some of the large churches of the Netherlands, however, as at St. Jacques, Antwerp, in which the apsidal aisle is polygonal and has five sides; three of these communicate in the ordinary way with large polygonal chapels, while the two intermediate sides, instead of opening into similar chapels, have large tracery windows. Part of this window can be seen from the transept of the church, and produces a very singular and beautiful effect of architectural intricacy by its combinations with the chapels and aisles. These chapels with their aisle behind the choir should be carefully examined, as the architect evidently delighted in the contrivance of intricate vaulting and plans for this place, so favourable from its form to complexity of arrangement. Amongst other specimens may be mentioned St. Sauveur at Bruges, St. Jacques at Antwerp, the cathedrals at Augsburg and Munich and St. Trophime at Arles, every one of which exhibits some singular and ingenious device.

GENERAL.

Mr. Thomas Ellis, of Manchester and Harrogate, builder, who died on November 21 last, left estate which has been valued at 161,474*l.* 4*s.* 5*d.* gross, with net personalty nil.

Mr. Alexander C. Humphreys, the newly elected president of the Stevens Institute of Technology at Hoboken, U.S.A., is a native of Edinburgh. The Stevens Institute is a special school of mechanical engineering, and has produced nearly a thousand graduates.

The Seventh Exhibition at the Whitechapel Art Gallery is to be opened by the Duke of Fife, at half-past three on March 19. The exhibition is to be one of contemporary British art.

The Birmingham City Council lately appointed a committee to advise on the subject of the tramways. The report recommends the acceptance of an offer received from the British Electric Traction Company for the leasing of existing lines and proposed new lines.

The Committee for the erection of Emile Zola's monument have offered the commission to M. Constantin Meunier, a Belgian sculptor, who has gained reputation by figures of labourers. The latter hesitates to accept it through fear the arrangement may not be pleasing to French sculptors.

A Design by M. Deperthes, architect, and M. P. Roussel, sculptor, has obtained first place in the competition for the monumental fountain to be erected in Rheims out of funds derived from a legacy of the late M. Subé.

Mr. Windsor Fry will give four illustrated lectures on "The Art of Book Illustration" at Leighton House on the four Wednesdays in March, at 5 P.M. each day.

Sir Henry Burdett will open a discussion at the Caxton Hall, Westminster, on March 3, before the Hospitals Association, on "Hospital Sites and Population in London: Ought any, and, if so, which, of the large hospitals to be moved from their present sites to new ones situate in (a) more congested districts or (b) the country?"

The London County Council have expended during the last thirteen years 1,925,000*l.* on asylum accommodation for pauper lunatics. This sum does not include the alterations to Hanwell Asylum, costing 66,840*l.*, and improvements and additions to other asylums.

The Arts Exhibition, Delhi, which was promoted mainly by Lord Curzon in order that European visitors might realise the condition of Indian art, will not be closed for some time, as it is believed the different sections will remain useful.

The Streets Committee of the Court of Common Council have proposed that, having regard to the general opposition throughout London to the Bill for the amendment of the Building Act, a representation should be made to the London County Council asking them to withdraw the measure and to arrange a conference with the Corporation and the Metropolitan Borough Councils to consider the whole subject, with a view, if possible, to a Bill being framed that will effect the object in view without needlessly oppressing property owners.

M. Trouillot, French Minister of Commerce, has received a deputation from the committee of the London International Exhibition of Appliances for Preventing Fire. The object was to decide on the measures to be taken by French exhibitors wishing to take part in the Exhibition. Representatives are to be sent by France to take part in the approaching Congress. A special committee has been formed in Paris to enable the provincial fire brigades of France to be represented in London.

A Timber Annexe of large size has been constructed on the north side of the Madeleine in Paris for the accommodation of the workmen engaged on the restoration of the church.

The Next Ordinary Meeting of the Society of Engineers will be held on Monday, March 2, at the Royal United Service Institution, Whitehall, when a topical discussion on "Road Traffic in and near Large Cities" will be opened by Mr. W. Worby Beaumont, past president.

M. Marcel Proust has completed a translation of Mr. Ruskin's "Bible of Amiens."

Mr. W. Beattie Brown, Jun., of Edinburgh, has been awarded the Alexander Thomson travelling studentship of 60*l.* and Mr. A. D. Nicholson, of Glasgow, one of 20*l.*

The Estate of the late James Foster Wadmore, architect, of London, has been valued at 15,959*l.* 15*s.* 4*d.*

Mr. James Smart, who practised as an architect in Perth for about twenty years, died on the 22nd inst. in his fifty-sixth year. Among his buildings was the Coupar Angus town hall. He was also a member of the Town Council and other public bodies in Perth.

The next Examination for certificates of qualification for appointment of sanitary inspector, or inspector of nuisances under section 108 (2) (d) of the Public Health (London) Act, 1891, will be held in London on Tuesday, May 5, and the four following days. Particulars will be forwarded on application to the hon. secretary, Mr. Wm. R. E. Coles, 1 Adelaide Buildings, London Bridge, London, E.C.

Mr. Robert Lawson, architect, of Dunedin, New Zealand, has died lately. He was a native of Newburgh, Scotland, and was a pupil of the late Andrew Heiton, in Perth. He designed about fifty churches and many Government buildings.

The Congress of the Sanitary Institute will commence on July 7 in Bradford.

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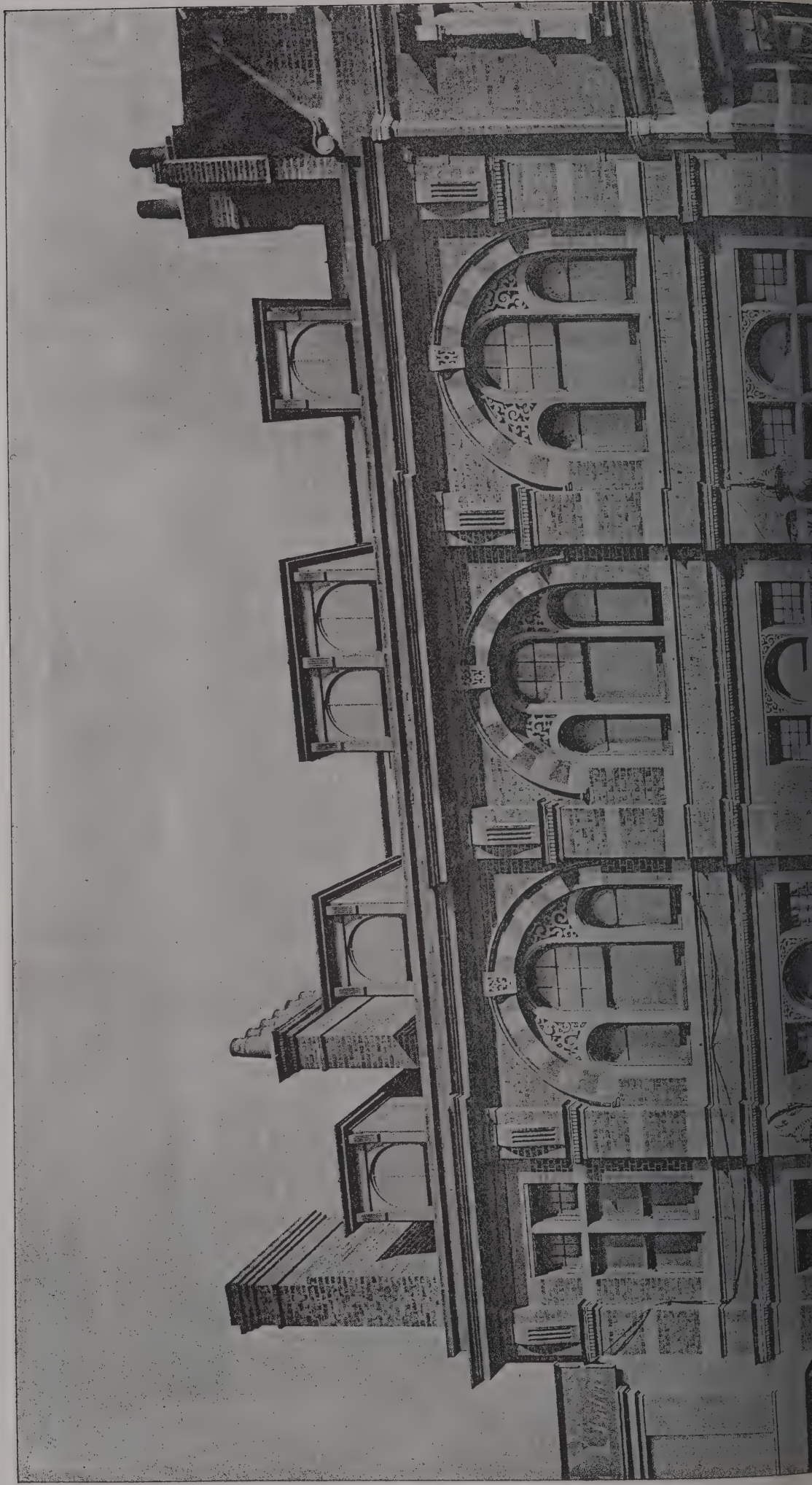
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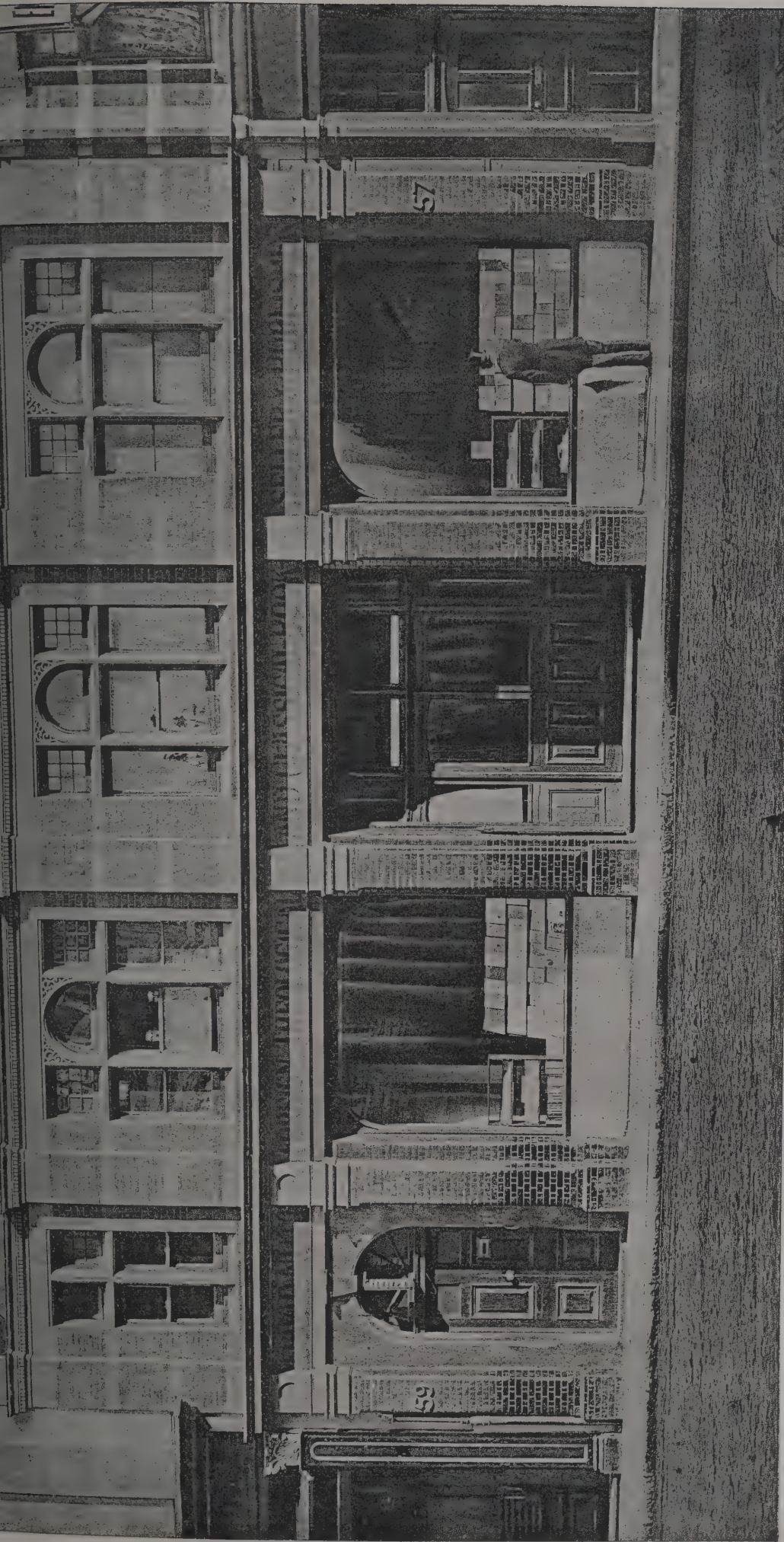
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The Architect, Feb 27th 1903.





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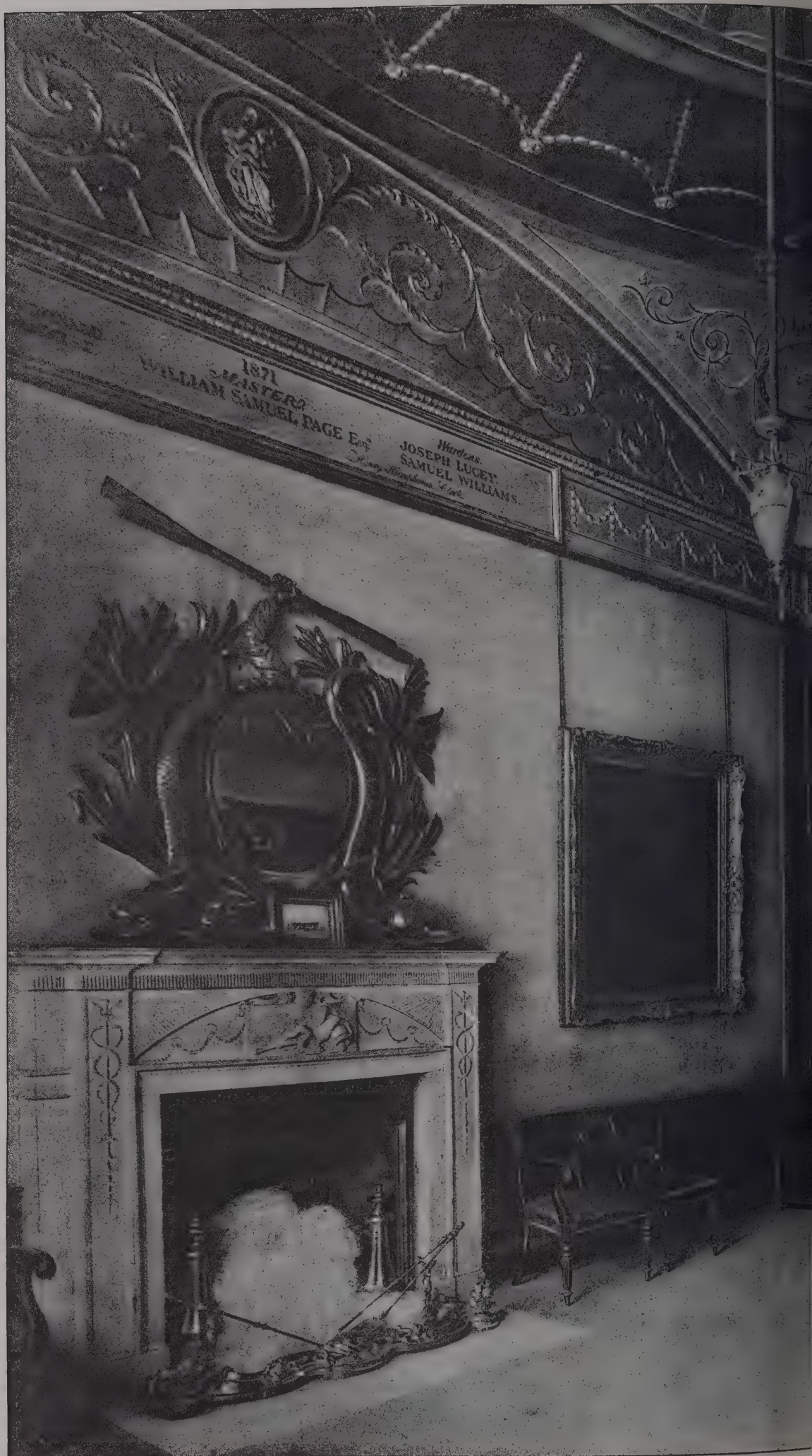
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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

ANSWER TO CORRESPONDENT.

"VERITAS."—We are of opinion that you have no claim against the tramway company. The only claim which you might have is one for damages occasioned by deterioration in value of the property, and so far as we can tell it would be impossible for you to prove these damages.

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 15,000l. Premiums of 60l, 25l and 15l will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

CASTLEFORD, YORKS.—March 31.—Designs are invited for a free library. Premiums 15l and 10l respectively. Mr. H. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—March 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 E. Aston Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60l and 30l are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—March 15.—Designs in competition are invited for a memorial of the Hull soldiers who fell in the South African war. Mr. E. Laverack, town clerk, Town Hall, Hull.

HULL.—March 31.—Designs in competition are invited for extension of the town hall. Premiums of 300l, 200l and 100l are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000l. Premiums of 75l, 50l and 25l respectively will be awarded. Mr. James Fildes hon. secretary, Quay Street, Manchester.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100l, 50l and 25l will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

YEOVIL.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ACCRINGTON.—March 7.—For converting several of the existing open sheds on the fish market into closed stores. Mr. Wm. J. Newton, borough engineer, Town Hall, Accrington.

ASHFORD.—March 12.—For erection of schoolrooms, comprising a central hall and surrounding classrooms at the schools at Ashford, Middlesex. Mr. F. W. Roper, architect, 9 Adam Street, Adelphi, W.C.

BARNSELY.—March 2.—For erection of two houses and outbuildings in Sheffield Road, Barnsley. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnsley.

BARNSELY.—March 2.—For erection of twelve dwelling-houses and outbuildings at Monk Bretton. Mr. J. W. E. Knight, architect, 22 Regent Street, Barnsley.

BARROW.—For erection of new printing works and offices for the *Barrow News and Mail*, Ltd. Mr. E. M. Young, architect, 90 Duke Street, Barrow-in-Furness.

BOCKING.—March 11.—For alterations and additions to the Bocking Board schools. Mr. Chas. W. Clark, architect, Coggeshall, Essex.

BRADFORD.—March 2.—For erection of a new tramcar depot at Saltaire. Mr. Frederick Stevens, town clerk, Town Hall, Bradford.

BRADFORD.—March 3.—For erection of a Baptist chapel and school at Legrams Lane and Horton Grange Road, Bradford. Mr. Abm. Sharp, architect, Pearl Assurance Buildings, Market Street, Bradford.

BRADFORD.—March 4.—For erection of offices and conveniences at the Bradford Moor fair ground. Mr. Frederick Stevens, town clerk, Town Hall, Bradford.

BRADFORD.—March 11.—For alterations and additions at the Barkerend Board schools, Undercliffe Street. Mr. Tho. Garbutt, clerk, School Board Office, Manor Row, Bradford.

BRIDLINGTON.—March 3.—For erection of a brick and stone lifeboat house near the Marine Drive at Bridlington, Yorks. Mr. W. T. Douglas, architect, 15 Victoria Street, Westminster, S.W.

BRIDGWATER.—March 3.—For addition of a new sorting-office to the head post-office at Bridgwater, for the Commissioners of H.M. Works and Public Buildings. Particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, London, S.W.

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BRIGHTON.—March 2.—For erection of electric-power station at Southwick, near Brighton. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BRIGHTON.—March 10.—For alterations, &c, to the ceiling and roof of the laundry at the workhouse, Elm Grove. Mr. H. S. Reed, Parochial Offices, Brighton.

BRISTOL—March 2.—For erection of a municipal common lodging-house, Wade Street. Mr. T. H. Yabbicom, city engineer, Bristol.

BRISTOL—March 9.—For construction at Canon's Marsh, Bristol, of a new deep-water wharf wall, having a total length of about 340 yards, together with railway sidings and hauling roads. Mr. W. W. Squire, engineer, Underfall Yard, Cumberland Road, Bristol.

BROOMHILL.—For erection of schools for 450 children, mistress's hostel, caretaker's house, &c, at South Broomhill, Northumberland. Mr. J. Wightman Douglas, architect, 40 Bondgate Without, Alnwick.

BUDLEIGH SALTERTON.—March 12.—For erection of Wesleyan church, &c, Budleigh Salterton, Devon. Mr. W. H. Boney, architect, 124 Chancery Lane, W.C.

BURNLEY.—March 2.—For erection of eight houses in Brunel Street, off Padiham Road. Mr. R. S. Bridge, 176 South Bank Road, Southport.

CARBIS BAY.—March 2.—For erection of five dwelling-houses at Carbis Bay, Cornwall. Mr. Henry Maddern, architect, Clarence Street, Penzance.

CHARTHAM—March 9.—For erection of an infants' school and offices and alterations to the Board school, Chartham, near Canterbury. Mr. G. Smith, architect, 34 Station Road, Canterbury.

CHELSEA—March 3.—For erection of three new blocks of buildings and sundry other works at King's Road and Sydney Street, Chelsea, S.W., in extension of the workhouse and offices. Mr. Joshua Dowling, clerk to Guardians, 250 King's Road, Chelsea, S.W.

CLACTON-ON-SEA.—March 7.—For erection of a school in Holland Road. Mr. T. H. Baker, architect, Station Road, Clacton-on-Sea.

COALVILLE—March 17.—For erection of a pumping station and engineer's cottage at Coalville, Leicester. Mr. Thomas Jesson, clerk, Urban District Council, Coalville, Leicester.

COCKERMOUTH.—For enlargement of the isolation hospital, Wyndham Row. Mr. J. B. Wilson, surveyor

COLCHESTER.—For erection of two villas in Maldon Road. Mr. Ernest R. Beckwith, architect, St. John's Street, Colchester.

CORK.—March 22.—For erection of dwelling-house at Ballinlough Road. Mr. D. J. Coakley, architect, 1 Charlotte Quay, Cork.

CRAYFORD.—March 2.—For erection of Northend school, Crayford. Mr. C. L. Morgan, architect, 43 Cannon Street, E.C.

DALSTON.—March 3.—For alterations and additions to United Methodist Free church, Dalston. Mr. H. H. Hodgkinson, architect, 9 Lowther Street, Carlisle.

DARLINGTON.—March 3.—For erection of car-shed, work-shops, stores and offices. Mr. H. G. Steavenson, town clerk, Town Hall.

DERBY.—March 2.—For alterations and additions to administrative block, infectious diseases hospital, Little Chester. Mr. G. Trevelyan Lee, town clerk, 15 Tenant Street, Derby.

DURHAM—March 6.—For enlargement at the post office at Durham. Particulars may be obtained at H.M. Office of Works, &c, Storey's Gate, S.W.

GREAT YARMOUTH—March 3.—For alteration of boundary walling, removal and re-erection of children's offices, &c, at Northgate school, Great Yarmouth. Messrs. Olley & Haward, architects, Queen Street, Great Yarmouth.

HALIFAX—March 6.—For erection of the new Shakespeare hotel in Horton Street. Messrs. Richard Horsfall & Son, architects, 22A Commercial Street, Halifax.

HALIFAX.—March 13.—For erection of a house at Hand Carr, Luddenden Foot. Mr. Thomas Hy. Tyson, architect, Fountain Street, Halifax.

HANDSWORTH.—March 3.—For erection of an open shed with galvanised iron roof supported on iron columns, and for the extension of present house at the sanitary depot, Queen's Head Road, Handsworth, Staffs. Mr. H. Richardson, surveyor, Council House, Handsworth, Birmingham.

HARROGATE.—Feb. 28.—For erection of an entrance lodge and two cottages. Rev. Dr. Haslam, New College, Harrogate.

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HEATH.—March 3.—For additions and alterations to schools at Doe Lea, near Heath, Derby. Messrs. Rollinson & Son, architects, 13 Corporation Street, Chesterfield.

HYDE.—March 3.—For erection of a hospital near Back Bower Lane, Hyde. Mr. Thos. Brownson, town clerk, Town Hall, Hyde.

ILFORD.—March 24.—For erection of a crematorium at the City of London cemetery, Little Ilford, Essex. Clerk of the City of London Burial Board, Guildhall, E.C.

IRELAND.—March 2.—For erection of business premises and dwelling-house at South Main Street, Youghal. Mr. James F. McMullen, architect, 30 South Street, Cork.

IRELAND.—March 2.—For covering the steel footbridge at Dromin station with corrugated iron roof, timber sheeting, &c., for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

IRELAND.—March 2.—For erection of two houses at Ballydaheen, Mallow. Mr. James Nunan, solicitor, Mallow.

IRELAND.—March 4.—For erection of four detached villas at Helen's Bay, Belfast. Mr. James G. Lindsay, architect, 1 Glengall Place, Belfast.

IRELAND.—March 6.—For erection of a church at Park Avenue, Londonderry. Mr. M. A. Robinson, architect, Richmond Street, Londonderry.

IRELAND.—March 10.—For erection of male block and extension of female wing at the asylum, Letterkenny, co. Donegal. Mr. J. P. M'Grath, architect, Commercial Buildings, Foyle Street, Londonderry.

ISLEWORTH.—March 18.—For demolition of old workhouse premises off the Twickenham Road, Isleworth. Mr. William Stephens, clerk, Union Offices, Isleworth, W.

KEIGHLEY.—March 4.—For erection of five shops and dwellings, Cavendish Street and Lawkholme Lane, Keighley. Messrs. Barber Hopkinson & Co., architects, Craven Bank Chambers, Keighley.

KENSINGTON.—March 10.—For the repair, strengthening and making watertight of the first-class swimming-bath at the Lancaster Road Baths, North Kensington. The Town Clerk, Town Hall, Kensington.

KETTERING.—March 9.—For erection of an electric light and power station and refuse-destructor, and a chimney-shaft for the same, near the Rockingham Road. Mr. John Bond, clerk, U.D.C., Market Street, Kettering.

KIRKBY IRELETH.—March 9.—For taking-down and re-building Bank End (Hundred) bridge on the district road from Bank End to Grizebeck, over the Grize Beck, in the township of Kirkby Ireleth. Plans may be seen at the County Bridge-master's Office, Preston.

KNUTSFORD.—March 3.—For erection of an administrative block, covered ways, &c., and for executing certain drainage works at the workhouse at Knutsford, Cheshire. Mr. Robert J. M'Beath, architect, Birnam House, Sale.

LITTLEHAMPTON.—March 4.—For construction of underground public conveniences on the Green, near Esplanade, Littlehampton. Mr. Arthur Shelley, clerk U.D.C., Town Offices, Littlehampton.

LIVERSEDGE.—March 2.—For reconstruction of the Old Oak inn, Littletown, Liversedge, Yorks. Mr. W. H. D. Horsfall, architect, 6 Harrison Road, Halifax.

LONDON.—March 3.—For construction of an underground convenience in Blomfield Street. Plans and specifications may be seen at the office of the Engineer, Guildhall.

LONDON.—March 10.—For erection of offices at Euston Road, N.W., for the Hearts of Oak Benefit Society. Mr. M. C. Meaby, Jessel Chambers, 88-90 Chancery Lane, W.C.

LONDON, W.—March 17.—For alteration to arches in the goods yard, &c., at Paddington Station, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

LOUGHBOROUGH.—March 2.—For erection of new Sunday-schools at the Wesley chapel, Woodgate, Leics. Messrs. Barrowcliff & Allcock, architects, Loughborough.

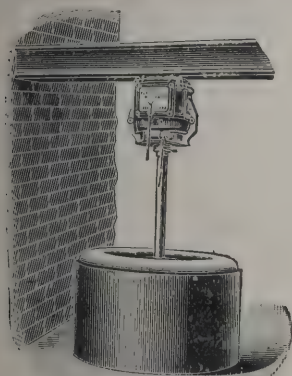
LOWER BEBINGTON.—March 2.—For supply of macadam, setts, kerbs, channels and flags. Mr. H. W. Corrie, surveyor, Council Offices, Lower Bebington.

MANCHESTER.—March 7.—For reconstruction of retort-house at the Rochdale Road station. Mr. C. Nickson, superintendent, Gas Department, Town Hall, Manchester.

MANCHESTER.—March 16.—For erection of the Victoria Baths, High Street, Chorlton-on-Medlock. Particulars may be obtained at the office of the City Architect, Town Hall Manchester.

MANCHESTER.—March 21.—For construction of an underground lavatory for males at the junction of Corporation Street and Miller Street, Manchester. Particulars may be obtained at the offices of the City Surveyor, Town Hall.

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NORWICH.—March 2.—For erection of a public convenience at the corner of Distillery Street and Dereham Road. Mr. Arthur E. Collins, engineer, Guildhall, Norwich.

NORWOOD, S.E.—March 2.—For enlarging the buildings of the Technical Institute, Knight's Hill. Messrs. Hart & Waterhouse, 1 Verulam Buildings, Gray's Inn.

RAUNDS.—March 2.—For additions to boot and shoe factory at Raunds. Mr. Frederick Peacock, secretary, Hill Street, Raunds.

ROCHDALE.—For erection of a church at Rochdale. Mr. E. H. Lingen Barker, architect, 146 St. Owen Street, Hereford.

SCOTLAND.—Feb. 28.—For erection of a dwelling-house on the farm of Wellhead, parish of Dyke. Mr. Peter Fulton, architect, Forres.

SCOTLAND.—March 2.—For erection of a hall and offices at the United Free High church, Elgin. Messrs. A. & W. Reid & Wittet, architects, Elgin.

SCOTLAND.—March 5.—For erection of a house at Banff. Mr. Charles W. Cosser, architect, 1 Carmelite Street, Banff.

SCOTLAND.—March 7.—For erection of Carnegie public library at Coatbridge. Mr. John Alston, town clerk, Municipal Buildings, Coatbridge.

SCOTLAND.—March 7.—For infectious hospital at Linlithgow. Messrs. John Melvin & Son, architects, Mar Street, Alloa.

SCOTLAND.—March 9.—For erection of parish church at Forres. Mr. John Robertson, architect, 39 Union Street, Inverness.

SCOTLAND.—March 10.—For alterations and additions to Greenhill public school. Mr. James Strang, architect, Vicar Street, Falkirk.

SEDGLEY.—March 2.—For erection of court-room, magistrates' room, inspector's house, and other additions and alterations at Sedgley, Staffs, police station. Mr. Walter H. Cheadle, architect, Stafford.

SEDGLEY.—March 9.—For alterations at Coseley Mount Pleasant Board schools, and for the erection of a new girls' department, cookery and laundry centres, and caretaker's

house. Mr. S. H. Eachus, architect, Lichfield Street, Wolverhampton.

SHOREDITCH.—March 14.—For alterations to the kitchen at the infirmary, Hoxton Street, N. Mr. F. J. Smith, architect, Parliament Mansions, Victoria Street, S.W.

SLAITHWAITE.—March 4.—For erection of dwelling-house, Howgate Wood Road, Slaithwaite, Yorks. Mr. John E. Lunn, architect, Milnsbridge.

STAINLAND.—March 2.—For erection of residence, Beestonley Lane, Stainland, Yorks. Mr. J. Akroyd, architect, South Parade, Stainland.

STALYBRIDGE.—For erection of a dwelling-house at Heyrod, Stalybridge. Messrs. J. H. Burton & J. A. Percival, architects, 150A Stamford Street, Ashton-under-Lyne.

STOCKPORT.—March 7.—For erection of sick wards, dining-room, &c., at the workhouse, Chapel-en-le-Frith. Messrs. Garlick & Flint, architects, 5 Terrace Road, Buxton.

ST. PANCRAS.—March 2.—For alterations and additions to the public washhouse, King Street, Camden Town, N.W. Mr. C. H. F. Barrett, town clerk, Town Hall, Pancras Road, N.W.

SWINDON.—March 2.—For erection of an iron cart-shed at the Corporation dépôt, Cromwell Street, Swindon. Mr. Robt. Hilton, town clerk, Town Hall, Swindon.

TWEEDMOUTH.—March 2.—For additions and alterations to bakery premises at Tweedmouth. Mr. J. Lorimer Miller, architect, 39 Hide Hill, Berwick-on-Tweed.

WALES.—For erection of a dwelling-house at Cefn Coed Farm, Pen-y-lan, near Cardiff. Mr. John J. Swallow, architect, Steam Packet Chambers, Dock Street, Newport.

WALES.—March 2.—For erection of a piece of wall near the Board schools at Cwm, Ebbw Vale. Mr. T. J. Thomas, town surveyor, Ebbw Vale.

WALES.—March 4.—For alterations and additions to the Garth infants' school, Maesteg. Messrs. E. W. Burnett & Son, architects, Jarrow House, Tondur.

WALES.—March 5.—For erection of a dwelling-house, &c., at the Pwllheli gasworks. Mr. J. Hunter, architect, Pwllheli.

WALES.—March 6.—For restoration of the tower of Bassaleg church, Mon. Mr. C. B. Fowler, architect, 6 High Street, Cardiff.

WALES.—March 7.—For erection of a vicarage at Oystermouth. Mr. E. M. Bruce Vaughan, architect, Cardiff.

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WALES.—March 9.—For alterations and additions to Abermorlais schools, Merthyr Tydfil. Mr. J. Llewellyn Smith, architect, 50 High Street, Merthyr Tydfil.

WALES.—March 10.—For additions, alterations and improvements to the St. Helen's Board school, Swansea. Mr. G. E. T. Laurence, architect, Chandos Chambers, Buckingham Street, Adelphi, W.C.

WALES.—March 12.—For construction of new pumping station buildings near the North Dock, Newport. Sir John Wolfe Barry and Partners, 21 Delahay Street, Westminster.

WALSALL.—Feb. 27.—For erection of caretakers' houses at Cheslyn Hay school and at Great Wyrley school. Mr. W. J. Boot, architect, Wolverhampton Road, Cannock.

WALLSEND.—For erection of Primitive Methodist Sunday schools, Wallsend. Mr. T. E. Davidson, architect, 32 Clayton Street West, Newcastle-on-Tyne.

WEMBLEY.—March 12.—For ventilating the council chamber and painting and colouring the interior of the council chamber and offices, laying-on gas to premises throughout and fencing the yard and premises at the public offices, Harrow Road, Wembley. Mr. Cecil R. W. Chapman, surveyor, Public Offices, Wembley.

WEST AUCKLAND.—March 21.—For erection of Primitive Methodist church and school at West Auckland. Mr. R. Race, architect, Westgate, Weardale.

WEYMOUTH.—March 11.—For construction of an electricity generating station, chimney-shaft, &c., at Sunny Bank, Stavordale Road, Weymouth. Sir Richard Nicholas Howard, town clerk, Town Hall, Weymouth.

WIMBLEDON.—March 3.—For erection of a central fire brigade station in Queen's Road, Wimbledon. Mr. C. H. Cooper, surveyor, Council Offices, The Broadway, Wimbledon.

WISBECH.—March 9.—For alterations to existing premises, new sanitary annexes, new drainage system, improvement of ventilation, heating of wards and annexes at the workhouse. Mr. F. Burdett Ward, architect, 7 York Road, Wisbech.

WROUGHTON.—March 4.—For erection of two houses in High Street, Wroughton, Wilts. Messrs. William Drew & Sons, architects, 28 Regent Circus, Swindon.

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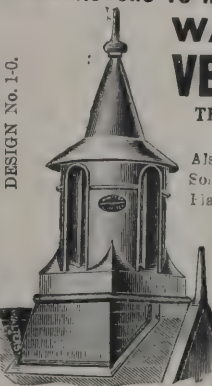
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R. Wilson	359	8	0
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J. Kyle & Sons (withdrawn)	—		
T. Jones (withdrawn)	—		

COTTINGLEY.

For erection of seven dwelling-houses at Cottingley, Yorks. Mr. WM. RHODES NUNNS, architect, Market Street, Bingley.

Accepted tenders.

S. Greenwood & Son, Wilsden, Bradford, builder and contractor	£877	0	0
W. Holmes, Wilsden, Bradford, carpenter and joiner	374	10	3
J. Edmonson, Glen Lee, plasterer	119	0	0
W. Thornton, Bromley Road, Bingley, slater	65	0	0
J. Hanson, Duckworth Lane, Bradford, plumber	54	5	0

DENMARK HILL.

For erection of a Congregational church. Mr. ALFRED CONDER, architect, Palace Chambers, Westminster.

Staines & Son	£9,748	0	0
W. H. Lascelles & Co.	8,952	0	0
E. Brown & Sons	8,697	0	0
Joseph Bowyer & Co.	8,694	0	0
John Grover & Son	8,640	0	0
L. H. & R. Roberts	8,578	0	0
Colls & Sons	8,427	0	0
Stimpson & Co.	8,420	0	0
Courtney & Fairbairn	8,399	0	0
Thos. Rider & Son	8,240	0	0
T. H. Kingerlee & Sons	8,087	0	0
McCormick & Sons	7,947	0	0
W. Akers & Co.	7,823	0	0
HENRY YOUNG (accepted with modifications)	7,777	0	0

DARLINGTON.

For enlarging the electric-power station. Mr. GEORGE WINTER, borough surveyor and waterworks engineer. Quantities by Mr. H. T. NEILSON, Darlington.

Accepted tenders.

Smith Bros, Ltd, excavator, bricklayer, mason and plasterer, Burnley.

R. T. Snaith, carpenter and joiner, Darlington.
J. Mundy, ironfounder and smith, 30 East Vale Place, Kelvinhaugh, Glasgow.

Thos. Armitstead, plumber and glazier, Darlington.
Wharton Bros, slater, Darlington.

Thos. Metcalfe, painter, Darlington.

ERITH.

For supply and erection of oak-pale fence, 7 feet in height, with angle-iron standards bedded in concrete, and removal and re-erection of existing fencing at the sewage-disposal works, Anchor Bay, Erith, Kent.

J. F. Varrall	£200	0	0
G. G. Page	194	10	0
Enness Bros.	194	0	0
Thames Steam Sawmills, Ltd.	185	15	0
F. Spencer & Son	178	10	0
FRIDAY & LING, 15 Nursery, Northend (accepted)	154	3	0

ISLE OF ELY.

For supply of materials during year ending March 31, 1904, for the Isle of Ely Urban District Council.

*Accepted tenders.**Granite.*

Grobby Granite Co, Groby.
Ellis & Everard, Bardonia Hill.
Charnwood Co, Charnwood.
Ireland & Knight, Mancetter.
Enderby and Stoney Stanton Granite Co.
L. Sommerfeld, Quenast.
W. Grimley & Co, Cliffe Hill.
J. Collett, Mancetter.

Iron slag.

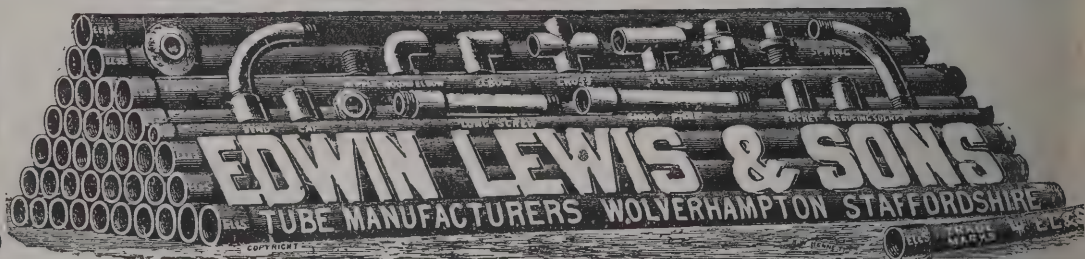
Islip Iron Co, Thrapston.

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FITTINGS**

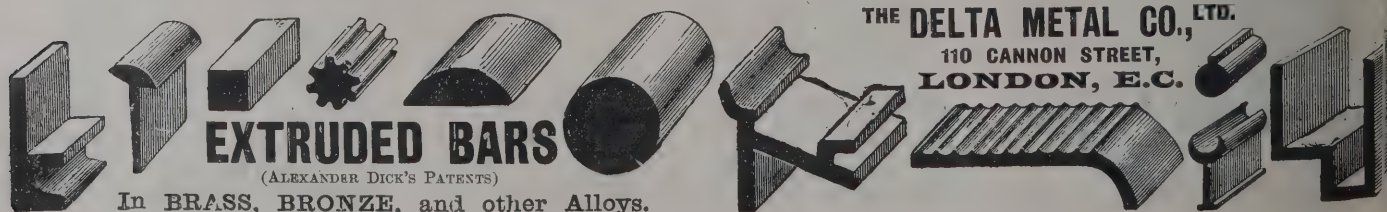


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IPSWICH.

For supply of twenty-six electric tramway cars. Messrs. KENNEDY & JENKIN, consulting engineers, 17 Victoria Street, Westminster.

United Augsburg Manufacturing Co, Nurnberg (Schuckert equipment) (tools omitted)	£17,338	16	8
Midland Railway Carriage and Waggon Co, Shrewsbury (Brill trucks—B.T.-H.)	16,460	18	0
British Thomson-Houston Co (Milnes bodies, Brill or Milnes trucks—own)	15,849	0	0
Witting Bros. (Milnes bodies, McGuire trucks—own "S")	15,827	3	0
Dick, Kerr & Co, London (Electric Tram and Railway Carriage Works—own)	15,790	8	6
G. F. Milnes & Co. (own—Westinghouse)	15,781	18	0
British Thomson-Houston Co. (Brush bodies, Brill or Milnes trucks—own)	15,745	0	0
Brush Co (own—Westinghouse)	15,679	4	6
British Thomson-Houston Co. (Milnes bodies, Brush trucks—own)	15,667	0	0
G. F. Milnes & Co. (own—B.T.-H.)	15,581	11	0
British Thomson-Houston Co (Brush—own)	15,563	0	0
Witting Bros, London (Brush—own "S")	15,489	3	0
Brush Co. (own—B.T.-H.)	15,424	6	0
Allgemeine Elektricitäts-Gesellschaft, Berlin (Brush—own)	15,404	12	0
G. F. Milnes & Co, Hadley (own—Witting)	15,393	12	0
British Electric Car Co, London (own—Westinghouse or B.T.-H.)	15,191	11	2
Brush Electrical Engineering Co., Loughborough (own—own)	15,170	17	0
BRITISH WESTINGHOUSE MANUFACTURING Co. (Brush—own) (accepted)	15,149	18	0
British Westinghouse Manufacturing Co, London (British Electric Car Co.—own)	15,019	18	0
British Thomson-Houston Co., Rugby (British Electric Car Co's car bodies and trucks—own electrical equipment)	15,004	0	0

Note.—The designation in parentheses refers to car bodies and trucks and electrical equipment.

IRELAND.

For construction of a double culvert under Whiterock Road, Belfast.

J. ROSS & SON, Cliftonville, Belfast (accepted).
--

LAMBETH.

For alterations and additions to the infirmary laundry.

J. F. Holliday	£1,837	5	0
S. R. Moss	1,398	0	0
J. T. Robey	1,379	0	0
H. L. Holloway	1,354	0	0
Davis & Clayton	1,350	0	0
B. E. Nightingale	1,315	0	0
Balaam Bros.	1,285	0	0
G. Parker	1,280	0	0
J. Shelbourne & Co.	1,270	0	0
A. E. Symes	1,265	0	0
J. Parsons	1,249	0	0
T. Pearce	1,227	0	0
J. O. Richardson	1,198	0	0
W. Lawrence & Son.	1,198	0	0
Foster Bros.	1,196	0	0
Ll. Whitehead & Co.	1,195	0	0
T. Willis	1,187	0	0
H. Kent	1,098	0	0
H. BRAGG & SON, 66 Robsart Street, Brixton, S.W. (accepted)	1,027	0	0

LONDON.

For supply and fixing of wrought-iron fencing and gates at the Joyce Green hospital.

Motley & Green, Ltd.	£3,526	16	0
W. Hayward & Sons, Ltd.	2,370	0	0
Wenham & Waters, Ltd.	2,352	0	0
D. Rowell	2,199	10	0
Bayliss, Jones & Bayliss, Ltd.	2,156	11	3
J. Priest & Son, Ltd.	2,100	0	0
Rowland Bros.	2,047	0	0
F. Morton & Co, Ltd.	1,950	0	0
M. Webb	1,867	9	9
Hill & Smith	1,860	16	0
Dudley Art Metal Co., Ltd.	1,840	5	0
W. Bain & Co.	1,798	10	10
W. Miller & Sons	1,798	0	0
E. J. Raybould & Co., Ltd.	1,697	10	10
J. Elwell	1,682	7	6
B. C. Barton	1,660	0	0
A. E. WOOD, Arabin Ironworks, Brockley, S.E. (accepted)	1,535	10	0

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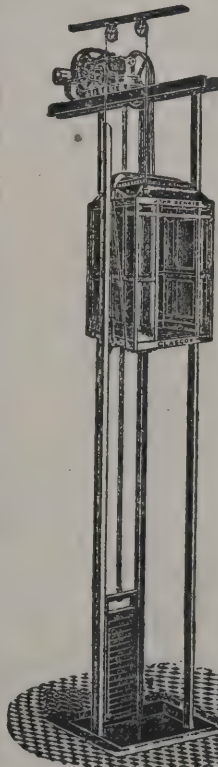
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Star Engine Works,
Moncur St., GLASGOW.

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MORPETH.

For erection of offices, iron bar division fences, cement concreting, forming entrance to market, gates and fencing, &c., in connection with the new Cattle Market; also for the formation and paving of roads from Oldgate Street to the market. Mr. J. DAVISON, borough surveyor.

F. Hepple	£2,324	16	5
T. W. Weir	2,300	0	0
R. C. Hall	2,227	18	0
R. Carse & Son	2,193	9	6
G. Dixon	2,145	6	6
Maclaren & Co.	2,142	13	5
G. Waterston & Son	2,127	10	11
J. Hadfield & Co.	2,111	0	0
M. YOUNG, Elm Grove, Hexham (accepted)	1,742	5	0

NANTWICH.

For providing and fixing two of Barford & Perkins's water heaters or calorifiers and other works at the workhouse Mr. C. E. DAVENPORT, architect, Hospital Street, Nantwich.

CLARKE & SHAKESHAFT, The Foundry, Nantwich (accepted) £82 10 0

NORTH BERWICK.

For repair of the carriageway of Fidra Terrace.

CRAIGPARK WHINSTONE QUARRY CO., 21 Port Hamilton, Edinburgh (accepted) £410 16 0

SCOTLAND.

For supplying and laying about 3,400 yards of 8-inch and 6-inch cast-iron water-pipes at Stonehaven. Mr. GEO. MURDOCH, burgh surveyor.

J. Walker	£1,948	10	3
W. Mitchell & Sons	1,710	17	6
J. Murray	1,544	15	3
A. McKay	1,491	7	0
T. S. Dick	1,477	15	6
W. Smith, jun.	1,465	9	9
J. Blaikie & Sons	1,457	0	0
J. Laing & Sons	1,447	0	0
J. ROSS, 61 Barclay Street, Stonehaven (accepted)	1,387	15	0

POOLE.

For laying a drain at Hamworthy and making-up the Canford Cliffs Road North, Parkstone. Mr. JOHN ELFORD, surveyor.

W. P. SAUNDERS, Bournemouth (accepted) £497 5 0

SEVENOAKS.

For street works in Baham Road (from Quaker's Hall Lane to Seal Hollow Road) and Circular Road, Sevenoaks. Mr. S. TOWLSON, surveyor.

ARNOLD & SON, Tonbridge (accepted) £1,800 0 0

SHEFFIELD.

For erection of offices, warehouses, workshops, furnace buildings, &c., to proposed glass bottle works at Darnall Road, Attercliffe, Sheffield. Mr. ARTHUR FAWCETT, architect, King Street, Wakefield.

Accepted tenders.

W. Newbold, Hunslet, Leeds, furnace buildings.
T. Gray & Sons, Tinsley, Sheffield, warehouses.

SWANLEY.

For erection of a police station at Swanley, Kent. Mr. F. W. RUCK, county surveyor, Maidstone.

J. F. Varrell	£4,950	0	0
T. Knight	4,089	0	0
Goddard & Sons	4,050	0	0
W. H. Archer	3,797	0	0
Corben & Co.	3,744	0	0
Enniss Bros.	3,683	0	0
H. J. Smith	3,683	0	0
J. Lonsdale	3,650	0	0
Goodwin & Jeffery	3,646	0	0
W. Smith & Sons	3,598	0	0
Pearce & Sons	3,590	0	0
Wallis & Sons	3,572	0	0
Turner & Co.	3,500	0	0
G. H. Denne	3,495	0	0
Spencer & Sons	3,483	0	0
J. A. Blessington	3,444	12	0
Barden & Head	3,400	0	0
RICHARD, Avard (accepted)	3,295	0	0

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SLAPTON.

For alterations to latrines and new drainage at the Board schools in the parish of Slapton, Devon. Mr. E. H. BACK, architect, Victoria Road, Dartmouth.

R. Watts	£225	0	0
Shepherd	224	0	0
W. Edgecumbe	210	0	0
E. WILLS, Strete, near Dartmouth (accepted)	208	5	0

STANLEY.

For sewerage works in Leeds Road and Victoria Row, Outwood. Mr. FRANK MASSIE, engineer, Tetley House, Wakefield

J. ARMITAGE, Outwood, Wakefield (accepted) . £925 0 0

TOTTENHAM.

For erection of a boundary wall and iron fencing, gates, &c., wood fencing, lodge, convenience, conservatory, green-houses, &c., at the Downhills Recreation Ground, Tottenham. Mr. W. H. PRESCOTT, engineer.

H. KNIGHT & SON, 16 Bruce Grove, Tottenham (accepted) £5,415 17 3

WALES.

For alterations and additions to 158 Cowbridge Road, Cardiff, to convert them into shop premises. Mr. EDWIN J. JONES, architect, 104 St. Mary Street, Cardiff.

Miles Bros	£540	7	11
W. Thomas & Co.	465	5	0
G. Griffiths	440	0	0
Blacker Bros.	432	12	0
G. Hallet	425	0	0
R. E. Haines	420	0	0
Williams & Hoare	405	0	0
A. Cadwallader	400	0	0
E. Harvey & Son	399	15	0
G. COUZENS & CO., Tudor Road (accepted)	392	10	0

For erection of an institute, Ammanford, for the Ammanford institute committee. Mr. DAVID JENKINS, architect, Llandilo.

JONES BROTHERS, Tirydail, Ammanford (accepted) £1,200 0 0

WALES—continued.

For erection of a cottage, Ammanford, for Mr. Thomas Lewis, Brynaraul, Ammanford. Mr. DAVID JENKINS, architect, Llandilo

JAMES DAVIES, Llanelly (accepted) £252 0 0

For erection of a church at Cwmllynfell, Brynamman, for the Revs. J. Morlais Jones and T. C. Evans, Cwmllynfell. Mr. DAVID JENKINS, architect, Llandilo.

EVANS & ROBERTS, Station Road, Brynamman (accepted) £1,737 10 0

For additions to the vicarage, Llangadock, for the Rev. Wm. Rees. Mr. DAVID JENKINS, architect, Llandilo.

DANIEL PRICE, Llangadock (accepted) £257 0 0

For erection of a memorial tower, Llanegwad, for Mr. Edward Henry Bath and Rev. Evan Thomas. Mr. DAVID JENKINS, architect, Llandilo.

WILLIAM D. MORGAN, Pencrug Gwynfe, Llangadock (accepted) £600 0 0

For erection of a master's house at Clawddown Board school, Llanfynydd, for the Llanfynydd School Board. Mr. DAVID JENKINS, architect, Llandilo.

REES THOMAS, Froodvale Saw Mills, Llanawel, Llandilo (accepted) £320 0 0

For erection of a conservatory at Llandilo, for Mr. J. W. Nicholas, Brynteilo. Mr. DAVID JENKINS, architect, Llandilo.

B. Jenkins, Brecon, superstructure £220 0 0

John Davies, Ffairfach, Llandilo, brick base 80 0 0

For constructing a cattle and sheep market, Llandovery, for the Corporation. Mr. DAVID JENKINS, architect, Llandilo.

WILLIAM D. MORGAN, Pencrug Gwynfe, Llangadock, R.S.O. (accepted) £877 10 0

For extension of Tabor Baptist chapel, Llanon, for the building committee. Mr. DAVID JENKINS, architect, Llandilo.

LEWIS DAVIES, Penygroes, Llandeibie, R.S.O. (accepted) £595 0 0

For erection of a shooting-box at Pumpsaint, Llanwrda, for Colonel Methuen. Mr. DAVID JENKINS, architect, Llandilo.

DAVID DAVIES, Bryn-crach, Pumpsaint, Llanwrda, R.S.O. (accepted) £1,562 16 0

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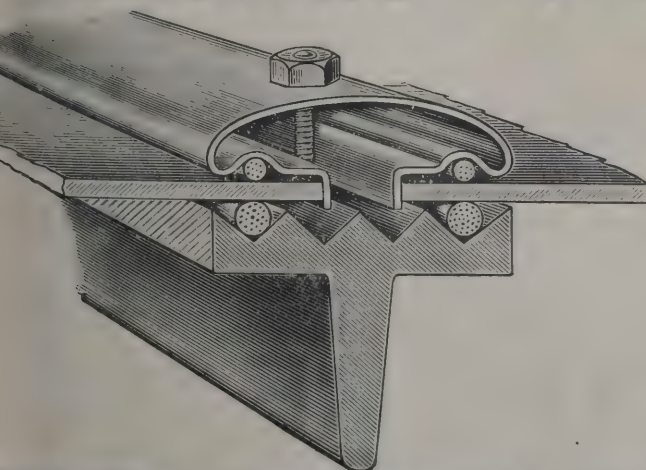
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For Index of Advertisers, see page x.



WALES—continued.

For rebuilding the Cross Inn, Rumsey, near Cardiff.	Mr. EDWARD H. BRUTON, architect, 119 Queen Street, Cardiff.
Lathey & Co.	£1,650 0 0
Fursey & Harris	1,619 0 0
Goagh Bros.	1,520 0 0
J. Allan & Son	1,400 0 0
S. Shepton & Son	1,390 0 0
Miles Bros.	1,354 3 5
Williams & Hoare	1,340 0 0
G. Mallett	1,300 0 0
G. Couzens & Co.	1,264 17 6
W. Thomas & Co.	1,249 0 0
A. W. CADWALLADER, Roath (accepted)	1,190 0 0

WATFORD.

For road works for the Watford Urban District Council. Mr. D. WATERHOUSE, surveyor.

<i>Addiscombe Road.</i>	
Bracey & Clark	£347 0 0
H. B. Watkins	339 0 0
H. BROWN, Whippendell Road (accepted)	337 0 0
<i>Durban Road.</i>	
Bracey & Clark	580 0 0
H. Brown	568 0 0
H. B. WATKINS (accepted)	554 0 0
<i>Pretoria Road.</i>	
H. Brown	448 0 0
Bracey & Clark	437 0 0
H. B. WATKINS (accepted)	427 0 0
<i>Chester Road.</i>	
H. B. Watkins	1,243 0 0
Bracey & Clark	1,228 0 0
H. BROWN (accepted)	1,198 0 0
<i>Harwood Road.</i>	
Bracey & Clark	387 0 0
H. Brown	360 0 0
H. B. WATKINS (accepted)	345 0 0
<i>Farrabine Road.</i>	
Bracey & Clark	337 0 0
H. B. Watkins	324 0 0
H. BROWN (accepted)	310 0 0

WARMINSTER.

For erection of a cottage at Victoria Road.	Mr. A. F. LONG, architect, 53 Market Place, Warminster.
C. Barnes	£563 0 0
Hodder & Son	490 0 0
H. Franklin	447 0 0
W. H. Siarey	440 0 0
R. Butcher & Son	438 18 6
P. J. PONTON, Warminster (accepted)	394 0 0
C. Weston	382 19 0

WELLINGBOROUGH.

For extension of a culvert under the Workhouse Road, and for supply and fixing of a continuous iron fence from the culvert towards the Mill House.

W. STEVENS, Wellingborough (accepted) . . . £30 3 0

YARMOUTH.

For supply of boilers, &c.

Accepted tenders.

Babcock & Wilcox, Ltd, two 250 h.p. boilers and economiser, £1,731 13s. 6d; Veritys, Ltd, carbons, £4 13s. 3½d. per 1,000 pairs.

Received too late for Classification.

ECCLESFIELD.

For sewerage works in Johnson Lane, Ecclesfield, and in Dog Leg Lane, Ecclesfield, near Sheffield. Mr. G. E. BEAUMONT, surveyor, Grenoside, near Sheffield.

J. E. NADIN, Western Road, Crookes, Sheffield, for Johnson Lane (accepted) . . . £243 12 0

J. E. NADIN, for Dog Leg Lane (accepted) . . . 107 3 0

CONTRACTS OPEN.

CAMBERWELL.—March 2.—For street works in the following new streets, viz. Bellwood Road and Hawkslade Road, Nunhead. Mr. C. William Tagg, town clerk, Town Hall, Camberwell.

CLOWN.—March 7.—For supply of best broken slag for roads, to be delivered between April and October 1903. About 2,000 tons required. Mr. E. H. Barber, Hollin Hill, Clown, Chesterfield.

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WULVERLE, OLTON, WARWICKSHIRE.

WATERMAN'S HALL, ST. MARY-AT-HILL, E.C.

CATHEDRAL SERIES: WORCESTER.—CAPITALS IN SOUTH TRANSEPT. THE CRYPT.

CROMER.—March 2.—For improvements to the Cromer West Cliff, including the construction of a shelter, paths, stairs, &c. Mr P E. Hansell, clerk, Offices of the Cromer Protection Commissioners, Cromer, Norfolk.

ECCLES.—March 16.—For supply of the following goods for the year ending March 31, 1904:—Setts (lonkey, paving, crossing, grit, no granite), flags (natural and concrete), flags (manhole, lamp-eye and gully), kerbs (straight and circular), channel stones (straight and circular), pitch, creosote oil, tar, prepared tar, limestone (broken to various gauges), limestone cubes and chippings (various sizes), granite macadam and chippings (broken to various gauges), castings, pit or river gravel. Mr. Wm. Henry Hickson, town clerk, Town Hall, Eccles.

KIVETON PARK —March 7.—For supply of the best broken flag for roads, to be delivered between April and October 1903. Mr. P. Evans, surveyor, Council Offices, Kiveton Park Station, Sheffield.

OPERATIONS for introducing the new power have been commenced at Berwick. The builders have taken in a considerable part of the old shipyard as storehouses, &c., with a river frontage of over 100 feet. Only the necessary accommodation will be erected on this space, and ground reserved for anticipated developments. Only a certain number of the principal streets are included in the original lighting scheme, but applications have come from occupants in others and from the residential properties in the suburbs. The work of fitting the connections will be begun without delay.

A HULL INDUSTRY.

THE recent outcry against the conservatism of the business methods of British manufacturers, their slowness in adapting themselves to the changing conditions and methods of supplying the markets with their products, their cautiousness in adopting improvements in plant, machinery and labour-saving devices for handling both raw materials and work in course of manufacture, was one that had less ground for the somewhat hysterical cry of "Wake up, England!" than the general public imagined. At the same time, it must be admitted that the discussions on the subject had this good effect, that it caused our manufacturers to realise the necessity of looking forward, and not resting content with holding the present standard of excellence, and stirred them to a determination that if anything was necessary to insure the continuance of the superiority of British manufactures, at all costs it should be accomplished.

To one trade, at least, however, this charge hardly seems justified, namely, the Wood-Working Industry, for one improvement after another has been so promptly adopted, both in machinery and methods of handling, that a properly equipped sawing and moulding mill might almost be cited as an object lesson of the manner in which the maximum of output with the minimum of labour can be obtained.

We recently had the opportunity of inspecting the Humber Sawing and Moulding Mills, Hull, owned by Messrs. Beecroft & Wightman, Ltd., and believe a description of them will justify our remarks, and also prove of interest to our readers.

A matter of the utmost importance must necessarily be the position in which the mill is situated, having facilities for bringing the cargoes of timber to the mills, and for despatching from them the finished work. In these respects the Humber Mills, which cover an area of over five acres, are exceptionally placed, a siding of the Hull and Barnsley Railway running on both sides, the cargoes being loaded into the trucks at the docks, and delivered direct to any desired part of the mills, where they can be immediately placed in the sawing machines, and the trucks taken round the mill to the other side to receive goods ready to be forwarded to any part of the United Kingdom.

Before the wood is further dealt with it is necessary that it should be thoroughly and properly dried—gradually effected at an even temperature. Adjoining the mill is the dry house, a large brick building of four storeys, each floor measuring 91 feet by 44 feet, the ground floor arranged to receive long

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FOR INSIDE USE. FOR OUTSIDE USE.

The attention of ARCHITECTS, BUILDERS, DECORATORS, &c., is directed to the following points in the use of these special Enamels:—

BRILLIANT GLOSS AND HARD SURFACE.
EASY FLOW AND MANIPULATION UNDER THE BRUSH.
ENORMOUS COVERING PROPERTIES.

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Made in any Tint or Colour required, or may be Tinted with Tube Colour Stainers.

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stuff, the second storey for 16 feet and under, the third for oak boards, and the fourth for doors, &c. The loads are taken inside to the hoisting apparatus, which carries one standard at a time on a trolley, and on reaching their floor are wheeled direct to their proper position and crosspiled and lathed, where they remain until thoroughly dried. The building is heated throughout by steam, and a uniform heat maintained, insuring that all wood before being worked up is in a thoroughly dry condition, without which it would be impossible to obtain the satisfactory results that are accomplished at these mills.

The sawmill, which is over 200 feet in length by 90 feet wide, is thoroughly equipped with modern machinery embodying the latest improvements, and contains twenty-three sawing, planing and moulding machines, including two large drag sawbenches to cut logs up to 15 inches deep, four ordinary deal sawbenches, three double planing and moulding machines, nine single planing and moulding machines, which, on the occasion of our visit, were making architraves in oak, 1½ inches by 6 inches, and cutting window sills, planed and grooved, at the same operation; one large single planer capable of working timber 6 by 14, or turning out match-boarding planed, grooved and tongued complete; a double planer taking two boards at a time, with an output of seven standards a day, and also general joinery and other machines.

All these machines are fitted with ducts through which the chippings and refuse are conveyed by a large cyclone propeller direct to the furnace at the power-house, which is automatically fed, the refuse providing practically the whole of the fuel required for generating steam for the works, and for driving the necessary machinery for the electric light, which is in use throughout the mills and offices. We may here mention that a special building is devoted to keeping the saws and cutters, of which there are an enormous number, and is fitted with saw-setting and tool-cutting machinery in charge of an efficient staff.

Messrs. Beecroft & Wightman, Ltd., hold very large stocks of architraves, mouldings in oak and redwood, doors, windows, &c, electric-wire casings, special floorings in various widths and sizes, deals, battens, boards, &c, consisting of over 3,000 standards; and they are also large importers of mantles, &c. We cannot speak too highly of the work we inspected, and the large and increasing output of the mills confirms our good opinion.

The set of room mouldings to match, "the Harrogate pattern," are excellent, and were used exclusively at the Hôtel

Majestic, where the firm also supplied 300 yellow pine doors 7 feet by 3 feet.

Messrs. Beecroft & Wightman, Ltd., also make a special feature of sawing Jarrah-wood into blocks, the whole of the wood used by the Hull Corporation for road paving being entrusted to them for sawing. We have no space to mention the extensive storing sheds, timber yards, or joiners' shops, nor to refer to the firm's large inland mills and yard at Bradford covering an area of 4½ acres, but have said sufficient to give our readers some idea of a modern sawing and moulding mill fitted with the best of the latest machinery, and that the result is work of the best character will be easy for them to satisfy themselves.

MARCH MAGAZINES.

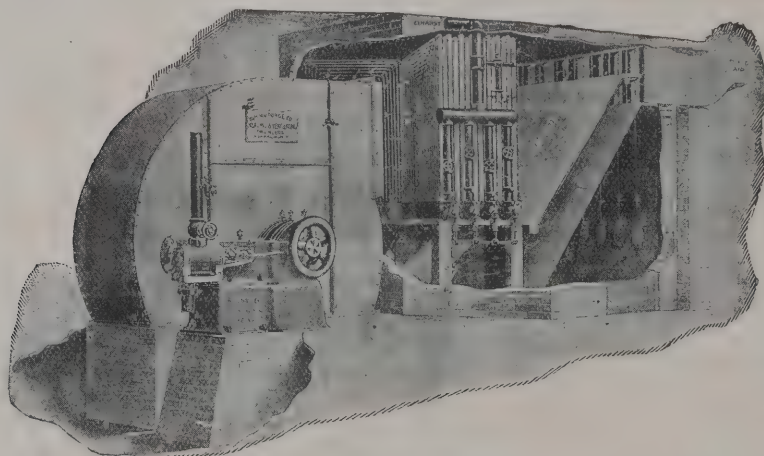
"THE MAGAZINE OF ART" for March contains much of interest to the lover of art. "The German Emperor's Collection of French Paintings," "British Arts and Crafts in 1903," "Belgian Art of To-day," "Indian Art at Delhi," &c., all profusely illustrated.

The *Pall Mall Magazine* for March is as usual full of interesting letterpress, and contains an interesting illustration of the Prime Minister's Scottish home.

The *World's Work*, the new monthly edited by Mr. Henry Norman, M.P., and published by Mr. William Heinemann, contains some specially interesting articles in the March issue. The article entitled "Glasgow, the Second City of the Empire" is particularly readable, and contains some good illustrations. Also an illustrated article on Dr. Mond's new system of producing gas.

NEW CATALOGUES.

MESSRS. R. H. & J. PEARSON, of Notting Hill Gate, have just issued a new and eminently businesslike catalogue descriptive of their extensive stock of close and open fire kitchen ranges, improved portable or self-setting ranges, registers, grates, mantel registers and interiors, wood mantels, tile hearths, fire brasses, curb fenders, warm-air stoves, railings, gates, sanitary goods, electric-lighting fittings, electrical heating and cooking apparatus, gasaliers and gas-fittings. It is well illustrated, and all prices are given. A smaller list does with paints, oils, varnishes, brushes, &c.



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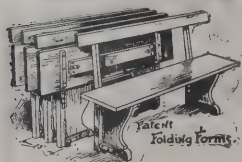
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Patent Automatic Chairs.

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Entire satisfaction where in use.

15 per cent. more seated.
Increased Revenue.
Rows can be spaced 24 in. apart.
Pack away into minimum space.

Prices, Particulars, and Samples of all above on Application.

For Index of Advertisers, see page x.

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“VELURE.”

OUR attention has recently been called to an enamel paint produced by Messrs F. Chancellor & Co, of 13 Clerkenwell Road, who claim for it an exceptional measure of elasticity and covering power. We have seen numerous testimonials which have from time to time been received by Messrs. Chancellor & Co., and they are unanimous in praise of “Velure.” It has been used with entire satisfaction in a number of public buildings, including such important institutions as London Hospital and Middlesex Hospital, baths and washhouses, swimming-baths, sanitary and other municipal buildings, large hotels, laundries, &c., as well as numerous yachts, where its great wearing power and sanitary properties are now gaining recognition; in explosive factories (as Messrs. Nobel’s) and important chemical laboratories (as Messrs. Burroughs, Wellcome & Co) It has been used with satisfactory results on the King’s estate at Sandringham and on His Majesty’s yacht, the *Victoria and Albert*; on the East Indian and Canadian and Brazilian railways and in the Royal Indian Marine. “Velure” is made in 120 colours, and it is claimed for it that surfaces coated with it may be exposed to sun or frost without fading or peeling, hammered without crumbling, bent without cracking, or baked or boiled without blistering.

TRADE NOTES.

WE regret very much that owing to a clerical inadvertence a reference in our last week’s “Index to Advertisers” was made to Messrs. Minton, Ltd., which should have been to Messrs. Minton, Hollins & Co., whose advertisement occupied the back page.

THE Blackpool Corporation new stables are being ventilated by means of a number of Shorland’s patent ridge ventilators, by Messrs. E. H. Shorland & Brother, of Manchester.

MESSRS. ANDREW HANDYSIDE & CO, LTD., of Derby and London, makers of steel bridges, roofs, buildings and structures, have received the contract for the supply of the roofing, &c., for a new station at once for the Buenos Ayres Western Railway Company.

THE London Fireproof Plate Wall Company, Ltd., are bringing out a new price list which, in addition to the ordinary description of the plates, contains also a number of copies of

testimonials from architects, builders, &c., who are unanimous in their expressions of satisfaction with the goods supplied to them.

MR. SAM DEARDS, of Harlow, has just exported some 14,000 feet super of his patent self-locking glazing for glass-roofing to Mexico for the new electric tram car sheds; a short time back a similar order was received for Cape Town. The system of patent glazing supplied by Mr. Deards is simply and easily fixed; unskilled labour can be used. The orders were placed for both places in consequence.

WE understand that Messrs. Woodforde & Wing, of Stamford, who are working the Edithweston freestone quarries, have recently taken over the Peasenhurst quarries, near Ashover, lately worked by Mr Robert Simpson. Entirely new and modern machinery is being laid down by the proprietors, who are already obtaining blocks of remarkable dimensions. The stone is supplied at an extremely low price, and is hard and durable. Everything necessary is being carried out so as to avoid any delay in executing orders.

VARIETIES.

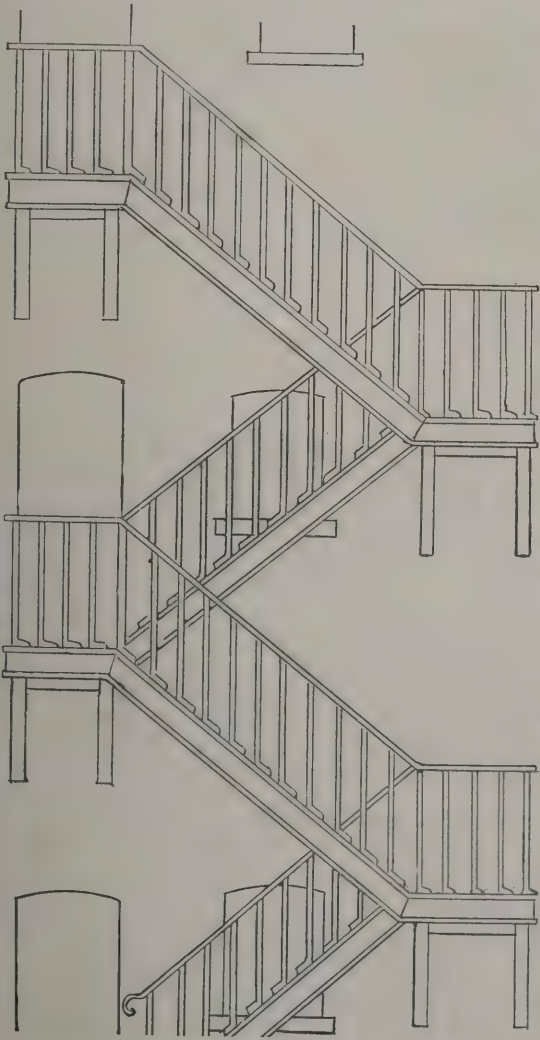
THE Bishop of Southwell opened a new church at Holloway Notts, for the recently sanctioned parish of Dethick Lea and Holloway. The building has cost 4,500*l*.

THE deputy town clerk of Bolton (Mr. Joseph Henry Field, LL.B.) has been appointed town clerk of Huddersfield at a commencing salary of 800*l*., rising by sums of 50*l*. annually to a maximum of 1,000*l*. a year.

THE newly erected Baptist church, in Devon Crescent, Ilkley, the first meeting-house of the denomination in Wharfedale, was opened on the 19th inst. The site and building, which has been erected on the central hall plan, has cost 4,000*l*.

THE ceremonial opening of the new offices of the Farnham Urban District Council in South Street, Farnham, Surrey, which have now been in partial use for some time, took place last Friday in the presence of a large gathering of the principal residents, who attended on the invitation of the chairman and members of the Council. The ceremony was performed by His Grace the Archbishop of Canterbury.

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Makers of Every Description,
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**ESTIMATES GIVEN
ON RECEIPT OF PLANS.**

QUOTATIONS FOR CASTINGS.

BLACKPOOL'S second Board school, in Devonshire Road, was opened on Wednesday. Mr. Gill said the Board was in its dying moments, and he hoped the new authority which superseded it would look well to the education of the future generation, without unduly taxing the present generation. During its three years of existence the Board had commenced three large Board schools at a cost of 60,000*l.* The Board schools in the town accommodated 3,113 children, the voluntary schools 3,491, and there were still 2,000 children who were in need of school places. The new school has cost 19,150*l.*

THE third of a series of lectures on "The Building of a House" to the members of the Edinburgh Architectural Association was delivered by Mr. A. Hunter Crawford, F.R.I.B.A., the president, in the Association's Rooms, 117 George Street, on the 18th inst. Mr. Crawford dealt at the outset with the building of the walls of a house, which he illustrated by photographs, and followed the construction from the wall head to the completion of the roof, giving details of the carpenterwork, plumberwork and the tiling. On the motion of Mr. W. M. Page, seconded by Mr. Henry F. Kerr, Mr. Crawford was awarded a vote of thanks.

AT the rooms of the Northern Architectural Association, Northumberland Street, Newcastle, last week, there were on view the Royal Institute of British Architects' annual selection of prize drawings, together with the intermediate and final examination testimonies of study. The works, which were highly appreciated by a very large number of visitors, included the following:—Two measured drawings for the Royal Institute silver medal, by Mr. Andrew Rollo, awarded the medal and 10 guineas; design for a town church, four strainers, by Mr. Edwin F. Reynolds, awarded the medallion and 10*l.*, and by Mr. L. Rome Guthrie, two strainers, awarded medal of merit and 10 guineas; the Tite prize design for a pavilion in a public garden, two strainers, by Mr. David Smith, awarded the certificate and 30*l.*; the Grissell gold medal design for a stone dome for a *porie cochère* to a large public hall, two strainers, by Mr. J. B. Fulton, awarded the medal and 10 guineas; and testimonies of study, eighteen sheets, drawings by Messrs. A. C. Bossom, J. L. Fouracre, William Heywood and S. Warwick.

A SCHEME for applying business methods to church matters has been submitted by the Rev. E. F. Crosse, vicar of St. Luke's, Barrow-in-Furness, and son of Canon Crosse, of Norwich Cathedral, to the St. Luke's parishioners. The present Sunday-school buildings have to come down for road

improvements, and are also inadequate to meet the requirements of the rapidly increasing population in the Salthouse district of Barrow, and 2,500*l.* being required to erect new buildings, a limited liability company is to be formed, and 2,500 *l.* debenture shares, to bear interest of 2 per cent., will be issued to parishioners, and the ordinary shares will be held by the vicar of the parish and six other prominent churchmen in different parts of the country. The buildings will be held by a trust deed, and as ordinary shareholders can buy up the debenture shares by giving three months' notice to the holders, the new schools and men's institute will rapidly become the property of the church. One great point in the scheme appears to be the fact that building can be commenced at once. Mr. Crosse is confident of success, and already many applications have been made for debenture shares, full recovery being guaranteed.

AT Westfield, Norfolk, on the 19th inst. the parish church was reopened after undergoing extensive restoration. The works comprise three new principals, new cladding and half new slating to the roof. New troughing and down pipes were fixed, the water being carried away by a drain to the adjoining field. A new stone coping and cross were fixed on the east gable, and coping where requisite on the west. A new window of cathedral glass has been fixed on the south side. The tower has been completely restored, and four new pinnacles fixed at the angles. The interior has also received attention. The walls have been newly coloured, and the bench heads and seats cleaned. The Communion rails have been freed from their coating of paint, thus showing the grain of the oak of which they were made. The floor of the sacarium has been partially raised and paved with red encaustic tiles, with a green and black border. A large tortoise stove has been erected with pipe carried through the roof. The font still needs repair especially at the base. Some 40*l.* are still needed to complete the work. About 300*l.* have been spent. The work has been carried through under the direction of Mr. A. J. Lacey, architect of Norwich, by Messrs. J. Springall & Sons, of Dereham and Swanton.

AT the adjourned licensing sessions, the Bench passed the plans for a very extensive addition and the practical rebuilding of the Queen's Hotel, Rhyl. The property has been acquired by the Rhyl Property Company, and Mr. Biddescombe, of Manchester, explained to the Court that between 5,000*l.* and 6,000*l.* will be spent on it.

HEWETSONS' REBUILDING SALE

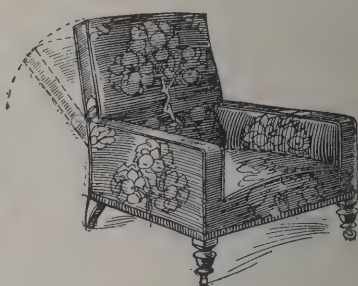
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BUILDING AND BUILDERS.

a meeting of the building committee, the plans for the proposed new church and hall at Burton Wood, submitted by C. E. Deacon, of Liverpool, were, with the approval of the Bishop and patron, provisionally accepted. It is proposed to proceed with the minor of the two buildings as soon as the estimated expenditure reaches 1,500*l.*, which it is hoped it will by Easter.

A SCHEME is under consideration for the restoration of St. Peter's Church, Wallingford, Berks, of which Judge Blackstone, on his death was interred in a vault at the east end of the church, took a leading part in the rebuilding in the year 1769. The plans provide for an apsidal chancel, a vestry and organ chamber, a heating apparatus, and an open oak roof. The estimated expenditure is 1,500*l.*

AT a recent meeting at Barrow in connection with the Wesleyan extension scheme, which comprises the building of a large hall and two new churches, one in Vickerstown, it was decided that the total cost would be 11,250*l.* Towards this sum grants had been made amounting to 5,375*l.*, including 1,500*l.* from Mr. Walker, of Whitehaven, being 500*l.* for each part of the scheme, 1,000*l.* placed in the hands of the Rev. Dr. Pope for building schemes, 1,700*l.* from the Twentieth Century Fund, and 250*l.* from the Chapel Building Fund.

NEGOTIATIONS have been practically completed for the purchase of a site for the erection of the King's sanatorium. The locality selected is near Haslemere, a beautiful stretch of partially-wooded land standing over 600 feet above sea-level, and within a short distance of Hindhead Common. The site is considered by authorities on tuberculosis to be one of the best for the purpose obtainable in England. On this site, which is 125 acres in extent, will be built a palatial hospital on lines similar to those employed with great success on the Continent. There will be a hundred beds in the hospital. The majority of these will be set apart for necessitous patients, who will pay a nominal fee. The remainder will be placed at the disposal of others who may desire treatment in the sanatorium. From this class of patient a larger fee will be asked, perhaps five pounds per week, the rate current in some of the best man institutions.

A MEETING of the members of the Edinburgh Building Trades Exchange, Ltd., was held on the 19th inst. in the rooms 26 George Street, Edinburgh, Sir Thomas D. Gibson, Bart., presiding. A lecture was delivered by Mr. Henry F. Kerr, his subject being "A Glimpse of some of the

great Mediæval Churches of Britain." In the course of his lecture, which was illustrated by limelight views, Mr. Kerr referred to the current of architecture from Egypt to Rome. For the greater part the lecturer dealt with the plan of our great Mediæval churches founded upon the Roman basilica, and afterwards he described in some detail the various churches of Great Britain, such as Durham, Salisbury, Peterborough, Elgin, Canterbury, York and Melrose. In moving a vote of thanks to the lecturer, which was heartily accorded, the chairman spoke of the benefits to be derived from such lectures. He urged the members to attend all the meetings, as he believed that by assembling together occasionally all those connected with the various branches of the building trade would profit considerably.

THE prospect of obtaining large grants from the Million Guinea Fund has led, says the *Manchester Guardian*, to a remarkable development in Wesleyan Methodist chapel building. Since it has been known that the Connexional Chapel committee was prepared to commence the distribution of the 300,000*l.* allotted to it by the Conference for chapel building purposes the officials at the headquarters have had a busy time receiving and considering applications. Including the February returns, the number of applications dealt with exceeds 600. Grants have been made in 597 cases. Supposing the erections to extend over two years, that means that a new Methodist chapel or mission-hall will be opened every day for the next two years. The total outlay on schemes already sanctioned amounts to 1,841,177*l.*, and at the rate the applications are coming in the total expenditure sanctioned will soon reach two millions sterling. To the cases already sanctioned the committee have made grants amounting to 207,129*l.* The Manchester district is responsible for fourteen applications, involving an expenditure of 53,805*l.*, and secures grants amounting in the aggregate to 5,268*l.* Bolton district makes twenty-seven applications, proposing to spend 120,440*l.*, and secures the promise of 13,785*l.* in grants. Liverpool district has relatively a small number of applications for so large a district, the total proposed expenditure being 58,728*l.*, and the grants 7,160*l.* The Macclesfield district makes sixteen applications, the total outlay being 18,204*l.* and the amount of grant voted 1,985*l.* The first London district secures the first place in the amount it proposes to spend, namely, 196,802*l.*, towards which the committee has promised 19,245*l.* The Birmingham district is a good second. Its new schemes involve an outlay of 171,051*l.*, and to these 19,163*l.* is promised

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They also invite the particular attention of the trade to their IMPERIAL PATENT BLIND LINES, which are very superior to anything yet offered.

They can be obtained of all Rope-makers, Ironmongers, Merchants, Factors and Wholesale Houses in town and Country.

N.B.—Please note that all our goods, as advertised above, are labelled either inside or outside with our Trade Mark—"The Anchor."

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GOLD MEDAL, Inventions Exhibition, 1885.

Telegrams, "Turnstile London," Telephone No 188 Holborn.

in grants. The Nottingham district holds the first place in the number of applications made, but is outstripped by Newcastle-on-Tyne, Third London, and Bolton in the amount proposed to be spent and in the grants secured from the Twentieth Century Fund. The smallest amount voted to any one district is 260*l.* to the Channel Islands, where it is only proposed to spend 2,707*l.* on three cases.

THE ARCHITECTURAL SOCIETY OF IRELAND.

A MEETING of the Architectural Society of Ireland was held on the 17th inst. in the Grosvenor Hotel, Dublin. Mr. F. J. Hicks presided.

Mr. W. Kaye Parry, M.A., read an interesting paper on "Fireproof Floors." He said that whatever might be the differences of opinion regarding the merits of the various materials for fireproof or fire-resisting floors, it could not be denied that the ordinary timber floor left much to be desired. Whilst improvements in the methods of construction of human habitations had been numerous in other directions, architects and builders displayed a tendency to cling to the old-fashioned floors. Little could be said in favour of timber floors, except that they were so simple as to come within the knowledge of the veriest tyro in construction, and so cheap as to form an irresistible allurements to the economist and to the jerry-builder. Mr. Parry proceeded to refer to the distinctions between ordinary fireproof floors and the more complete and more costly fire-resisting floors, and he mentioned the experiments which had been made with a view to securing a satisfactory description of a fire-resisting floor. A floor, he said, to be a real fire-resisting one should have the girders encased in a fire-resisting material.

On the motion of Mr. Beckett, seconded by Mr. Patrick O'Sullivan, a warm vote of thanks was passed to Mr. Parry for his interesting paper.

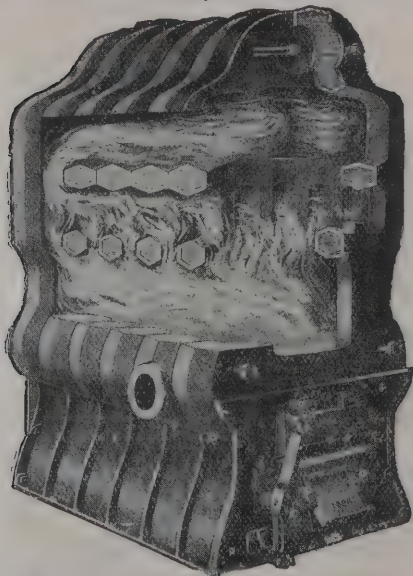
ROYAL HIBERNIAN ACADEMY.

ON Monday a deputation representing the Royal Hibernian Academy waited on the Lord Mayor and Corporation of Dublin for the purpose of obtaining their support in favour of the reconstitution of the Independent Chartered National Guild of Artists, and the procuring of a site for a new academy.

Sir Thomas Drew, president of the Royal Hibernian Academy, said he wished to express his sense of the Lord Mayor's courtesy in inviting and encouraging a visit of deputation of the Royal Hibernian Academy of Arts, and permitting the time of the Municipal Council to be taken from the business in hand to be occupied by a subject which it brought to the attention of the citizens. The action of his lordship only carried out that traditional courtesy which had been always his privilege to receive during years of citizenship in Dublin from every officer—from lordship's predecessors in high office, and all subordinate officers. It was right that the Chartered Guild of Artists representing the interests of art culture in modern and contemporary art should move to address the Corporation of Dublin on a movement stirring in nearly every city and town of England and Scotland for the culture and enjoyment of the people at large, by art exhibitions' annual and permanent. Dublin was yet behind in such a movement. The Academy of Arts had been for 70 years the sole exponent of contemporary art in a partial and inadequate way by maintaining, with quite insufficient means and with struggles and self-sacrifice of its members, annual exhibitions of contemporary art for two or three months in each year. It was a national institution, and with Imperial claims no less than the Academies of London and Edinburgh. It had been treated with comparative injustice and neglect, with hostility from inferiors and with departmental English officialdom. Nevertheless, with all discouragements, it had not failed in duty to the Dublin public since Francis Johnston, citizen of Dublin, founded it with the modest endowment of a building in Lower Abbey Street in 1826. A very favourable opportunity had arisen to stir this whole question. A wave of interest and enthusiasm for art had broken out in Dublin, a winter exhibition of old masters, from old Dublin mansions, at the Academy, accomplished by the energy and knowledge of Mr. Hugh Lane, had been popular beyond belief. Therefore they seized the opportunity to bring before the Council the incumbent municipal duty, recognised elsewhere, to bring about better permanent conditions for culture and education in modern art. The public spirit with which the Dublin Corporation had, in spite of its poverty and burdens, recognised its responsibilities towards the art of music and technical education, convinced him that the provision for fine arts, respectfully suggested by the Corporate Guild of Artists, would receive every consideration. This appeal of theirs was not for their own candidates especially, but in the cause of contemporary art and the means

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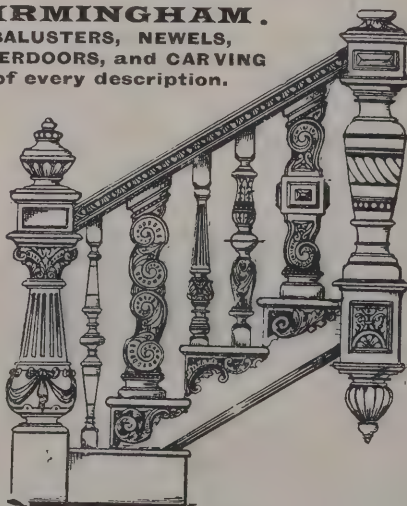
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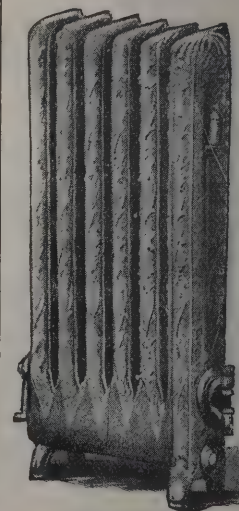
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culture in it which were wanting in the cities of Ireland. A national academy, as in the capitals of England and Scotland, which claims on Imperial support, should receive encouragement and financial contribution from the purse of the Imperial taxpayer. He thought the treatment that the Irish Academy had received made this the time to come to the bar of Irish public opinion, and where more fittingly than to the bar of the Corporation of Dublin? He contrasted in detail the provisions made from the Imperial purse for the Academies of London and Edinburgh with the niggardly treatment of Dublin. They urged for the support of public opinion that could not be obtained in support of a reconstitution of the Independent Incorporated National Guild of Artists, a re-chartering of it subject to no condition or limitations not known in the sister Academies, absolutely home-ruled and autonomous by a body of living artists in touch with living artists outside it, by which the living and contemporary art could be brought to the notice of Dublin. The Government were now proposing to acquire by Act of Parliament a large piece of land for science and art purposes. A little extension of that scheme would secure not only what would be sufficient for a site for a new Academy, but for a municipal art gallery. Sir Thomas Drew, in conclusion, urged the establishment of a municipal art gallery in Dublin, and pointed out what had been done in this direction in a large number of English towns. The Lord Mayor said he thought he spoke for the whole Council when he said that he felt humiliated that they should be unable to make some efforts for art such as were made by English communities. There were statutory difficulties in the way of using their funds, but the subject had been before the minds of the Council for a very long time, and he thought he could pledge the Council to gladly second any efforts made by the Academy. He thought they had a very great grievance in this country when they compared the small sum of 300l. with the generous assistance given elsewhere. He was sure if it was agreed that this Society should call on the Chief Secretary or the Lord Lieutenant a deputation of the Council would be very glad to accompany them. He did not know whether any resolution would be submitted, but he was sure the whole Council would assist the deputation in any way they could.

In the course of a short discussion which followed, sympathy was expressed with the object of the deputation, and Mr. Beattie said he thought the Academy had been treated unfairly.

The Lord Mayor, in conclusion, said he should be very glad to get representatives of the Council to accompany him on any deputation to the Chief Secretary or the Lord Lieutenant with a view to bringing the matter before them.

The deputation then withdrew.

THE SURVEYORS' INSTITUTION.

THE annual dinner of the Surveyors' Institution was held on Friday night at the Trocadéro Restaurant, Piccadilly Circus. Mr. Arthur Vernon (president of the Institution) occupied the chair, supported by Lord Sandhurst, Lord Cottesloe, Lord Addington, Sir J. Rolleston, M.P., Mr. Coningsby Disraeli, M.P., Mr. Jesse Collings, M.P., Sir R. D. M. Littler, K.C., Sir T. H. Elliott, Sir T. Brooke-Hitching, Mr. Grenfell, M.P., Archdeacon Sinclair, Sir Henry Howse (president of the Royal College of Surgeons), Mr. Aston Webb and Judge Rentoul.

The loyal toasts, proposed by the Chairman, having been received, Mr. Charles Bidwell (vice-president) gave the toast of "The Houses of Parliament."

Lord Sandhurst replied for the House of Lords, and mentioned that he was the only peer who had nothing to do with land surveyors in any shape or form. The only land property he possessed was the flower-box in front of his dining-room window.

Mr. W. H. Grenfell, M.P., replied for the House of Commons.

Mr. E. Stafford Howard submitted "The Landed Interest," and said that, taking the land question as a whole, it was pleasant to find that the relations of landlord and tenant in this country were so satisfactory. If they wanted to get the labourers back to the land and keep them, they would have to give them good wages and provide comfortable homes. There was no use in asking Parliament to interfere any further in the matter.

Mr. Coningsby Disraeli, M.P., in response, said that this question of landed interest dealt with the greatest industry of the country. It affected the tenants, labourers and, he might even say, the Church.

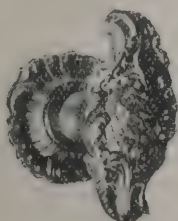
Sir John Rolleston, M.P. (past president) proposed "The Bench and Bar," to which Judge Rentoul and Sir Ralph Littler replied.

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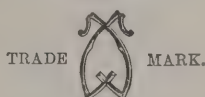
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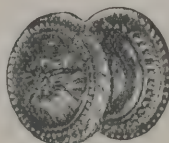
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Mr. Jesse Collings, in giving the toast of "The Surveyors' Institute," said it was a wonderful Institution, and it now had between 3,000 and 4,000 members. That the management of the land should be governed by the best advice was the hope of the country, and there was no other foundation for the permanence of a nation than the land.

The President stated, in response, that they believed that their Institution was yearly becoming more representative of the profession. For the good of the profession and the advantage of the public, they were pursuing what they considered the right path, and the landowners of the country would benefit. What they wanted was to give assistance to the overcrowded cities and relieve congested traffic, and make everything as pleasant as they could.

PLUMBERS' RULES IN LIVERPOOL.

THE Secretary of the Liverpool Master Builders' Association writes:—

As you are aware, differences of opinion have arisen between the Liverpool Master Builders' Association and the United Operative Plumbers' Association with regard to the following questions:—

1. The men allege that the proper place for taking on men is the master's place of business, and not on the job, while the masters contend that they are at liberty to take on a man either at the master's place of business or on the job.

2. The men allege that where a man is engaged at the shop and is discharged at the job, wherever the place of payment may be, his time and expenses are to be paid as if he were discharged at the shop instead of on the job, while, on the other hand, the masters allege that though a man is engaged at the shop, if he be paid and discharged at the job payment is to be made only up to the time of such discharge.

The first dispute has been going on for something like eighteen months, and the second took place about three months ago, resulting in a lock-out. Both these questions were submitted for final decision by the mutual consent of the two associations concerned to Mr. Joseph Hamilton Glover, solicitor, of 60 Castle Street, Liverpool, as arbitrator. The following undertaking was signed by the presidents and secretaries of the respective associations:—"We also hereby agree on behalf of the members of our respective associations to be bound by your decision in both cases in future so long as

the rules relating to the matters in dispute shall remain in force as at present."

Mr. Glover, after a very lengthy hearing, took time to consider his decision, and has now given his award, which is as follows:—

1. "As to the first point submitted to me, I find and award that a master may take on or engage men for work either at his shop or place of business or at a job."

2. "As to the second point submitted to me I find an award that where a workman is engaged at the employer's shop, but is discharged at a job (except a country job), wherever the place of payment may be the workman shall be paid down to the time of such discharge only." Mr. Glover also ordered that the costs should be borne in equal shares by the respective associations.

It will therefore be seen from the above award that the employers were right in their contention with regard to both questions, and that it is now clearly laid down as follows:—

(1) That an employer is entitled to take men on at a job, and when he does so he only has to pay such men the rate of wages for the district—no expenses at all. (2) That when a man has been sent from the shop, but paid and discharged at the job, the employer need not pay him for taking his tools back to the shop, the man only being entitled to be paid up to the time of such discharge.

EMPLOYERS AND LABOUR LEGISLATION.

At a conference of representatives of employers' associations connected with the various interests in the United Kingdom held under the auspices of the Employers' Parliamentary Council at the Westminster Palace Hotel on Tuesday, the following resolutions were adopted, and steps were taken to give effect to them:—(1) "In view of the attitude of political parties towards industrial problems, of the growing strength of the Socialist Labour party upon local government bodies, and of the efforts of the Labour party in the House of Commons to promote legislation to nullify the effect of the recent legal decisions with respect to conspiracy and picketing, this conference of representatives of employers' associations connected with the various interests in the United Kingdom affirms the desirability of a closer and more effective combination of employers for the purpose of protecting the interests of trade

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free contract and of labour against undue interference with interests on the part either of Parliament or of local authorities;" (2) "That this conference is of opinion that, independent of party politics, steps should be taken at all Parliamentary and municipal elections to insure that the views of employers are brought under the notice of candidates in order to the efforts of the Labour party to control Parliament and that governing bodies may be resisted; and this conference desires to impress upon employers' associations and upon individual employers the need for personal communications being addressed to their local members of Parliament with respect to all questions arising in Parliament affecting the relations of employers and workpeople;" (3) "That this conference of employers' associations, representing the chief industries in the United Kingdom, expresses its regret that Parliament has failed to appoint the joint committee on municipal trading, and declares that inasmuch as it is essential to the commercial and trading interests and to the progress of the nation that an exhaustive inquiry into the character and extent of trading by municipal authorities should be made without further delay, urges upon His Majesty's Government that a Royal Commission of inquiry be appointed to define the extent to which municipal trading should be sanctioned by Parliament, and further submits that the consideration of all provisions in local Bills for the extension of municipal trading should be postponed until the said Royal Commission has reported on the matters in question."

CHESTER IMPROVEMENTS.

The Duke of Westminster, through his agent, the Hon. Cecil Barker, has sent an important letter to the Mayor of Chester protesting against the Corporation's decision to seek to borrow money on the security of the rates to build workmen's houses. The letter states that philanthropy is commendable, but not when money is taken out of other people's pockets against their will. His Grace is assured there is no real lack of housing accommodation in Chester to make it necessary for the Council to embark on housing speculation at the ratepayers' risk. Since the Council have been committed to building cottages letting them at lower rents than are paid for similar houses in private ownership the policy," says His Grace, "will have to be followed until every so-called working-man, never good his wages, is supplied at the ratepayers' cost;

the consequences of course being not only a prodigious debt being piled up, but the levelling down of the rents of privately owned cottages, and therefore of the annual value on which the rates are raised, thereby increasing the rate in the £ not only on the present cottage owner, but also on property occupied by tradesmen and others, some of whom perhaps are not really better off than many of the so-called working-men and for whom no house can be provided out of the rates." His Grace thinks that if the rates are to be resorted to it should be for improving and in some cases abolishing existing slum cottages, of which he is informed Chester still has too many, and he for one would not complain of money judiciously expended out of the rates with the knowledge and approval of the ratepayers.

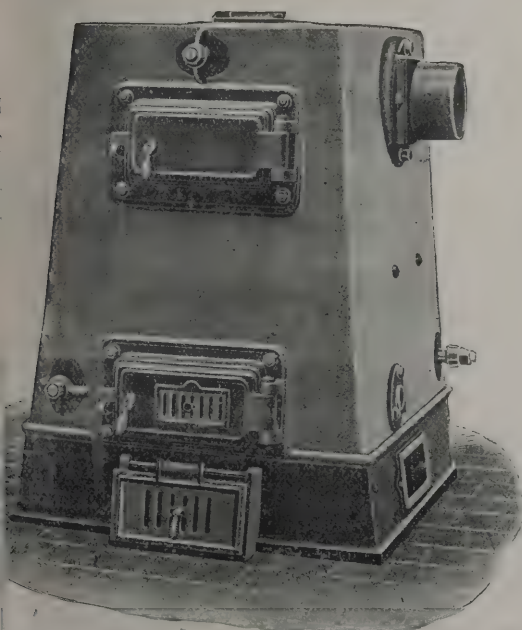
HOUSING IN GLASGOW.

A LECTURE on "The Structural Aspect of the Housing Problem" was given by Mr. A. B. McDonald, the city engineer, in the Berkeley Hall, Glasgow. He began by giving an account of the work done by the Corporation after the extension of the city in 1846 by the inclusion of the burghs of Calton, Gorbals and Anderston, when a sum of 30,000*l.* was devoted for the purpose of eliminating some of the worst plague spots in High Street, Gorbals and Calton. He also noticed the labours of the health committee appointed in 1857, of which the late Mr. John Ure was chairman. In co-operation with the late Mr. John Carrick, master of works, Mr. Ure stimulated public interest in the regulation of new buildings, the control of nuisances, the prevention of overcrowding, and other sanitary arrangements that were ultimately formulated in the Police Act of 1862, in which there appeared for the first time a statutory definition of the amount of space to be provided for each occupant of a dwelling, the cubic measurement being 300 feet to each adult person. This allowance of cubic space was increased by subsequent legislation to 400 feet, and this important statute, confirmed and amended, remained in operation as the Glasgow Police Act, 1866. Thirty years had elapsed since the more important of these improvements under that Act were carried out, so that the former state of things must to many persons be a mere second-hand reminiscence. But even among those who were old enough to recall the past, how few were there who could realise the narrow, tortuous Main Street of Gorbals, with its deep hollow between Puddock Row and Adelphi Street, now replaced by a spacious, level



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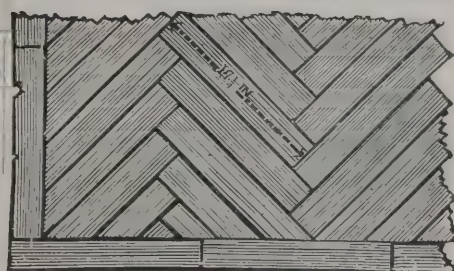
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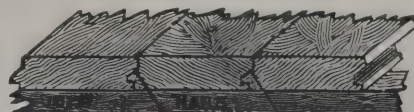
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street, 70 feet in width at its narrowest part, the narrow irregular line of Saltmarket, barely 30 feet wide, now broadened to 7 feet, debouching on Trongate, widened from 70 feet to 150 feet. And how few bore in mind the narrow ascent of the Bell of the Brae to the congeries of old rookeries in Kirk Street, Drygate Lane and Drygate, which had been cleared away and replaced by the amplitude of Cathedral Square, conferring on modern eyes the fine vista of the ancient fane that was denied to earlier observers. These clearances were begun about 1870, and as showing the benefit to the public health thus obtained he stated that the death-rate in Gorbals, which in 1871 was 38.5 per thousand, was now 28.3; Saltmarket, formerly 38.3, was now 23.3; and High Street had been brought down from 43.2 to 29.7. The improvements effected under subsequent statutes were also briefly sketched, and it was mentioned that if the Corporation were to exercise the powers conferred upon them by the Buildings Regulation Act of 1900 it would involve the closing up of dwelling-houses in which at the present time about 20,000 persons find accommodation. The class of persons who would be displaced was next noticed, and a description was given of the types of houses which should be provided for their accommodation, as set forth in the evidence given by the lecturer before the Housing Commission. The lecture was illustrated by a number of beautiful limelight views.

FALL OF A CHURCH TOWER, BANGALORE.

A CORRESPONDENT of *Indian Engineering* writes:—The tower of St. Mark's as a structural and architectural work was a very small thing indeed, only about 20 feet square and about 90 feet high. It formed the central portion of the transept of the church, and in its lower storey was thus well supported by the rooms on the sides; so that, however badly designed, this part of it was supported on four sides by the nave, transepts and apse, and could not fall. It was immediately above the first storey and at the base of the second storey that the tower toppled over. Here the shaft extended barely 60 feet in height, and with the four rooms already mentioned as a base to the shaft, it seems almost incredible that it should have been so badly designed as to fall immediately after construction.

The cause of failure seems to be the clumsy way in which the square section of the tower was turned into the octagon. Any number of large and small towers have been built in

Madras within the last ten years. Had the builder, without any other knowledge, but used a little observation, he would have known the correct way of getting over this difficulty. Architectural buildings, where, for ornament and structural effect, masses of masonry have to be concentrated at certain points, it requires the knowledge and the training to know how to arrange this, so that there will not be undue strain and stress at those points. All knowledge of this kind is conspicuous by its absence in the construction of the tower of St. Mark's, so though it is, showing that the builder was extremely careless or knew very little of his business.

I understand that this small tower is the first tower designed by Mr. Harris as consulting architect to the Madras Government. It has been already explained that his design was in opposition to that of the Commanding Royal Engineer. Had the design for St. Mark's tower fallen into the hands of a competent builder I feel sure that he would have quickly detected its defects and so altered its structural arrangement without destroying its architecture, that the tower would have stood as firm and as solid as good construction can make it, with all the beauties of copied architecture.

There are now so many and such beautiful illustrations of architecture, more than in any art, that it is very easy for an amateur to copy a pretty or a striking illustration, but what such a man fails in is the constructive part of the design. The details of construction cannot be copied, as these are very seldom published, and hence failure and collapse in construction, so that architectural constructive ability seems in actual work even more important than high architectural knowledge.

From inquiries made I understand that the construction of St. Mark's tower was entrusted to the Superintendent of Light houses during Mr. Harris's absence, one who has had experience in the construction of architectural designs, whose assistant, therefore, slavishly followed every constructive detail as best he could, with the resultant collapse. In a building life an architect is more prone to look to his architecture distinct from construction, and to give it the preference. An experienced builder then steps in, and does not alter the architecture, but perfects the constructive details, so that everything is stable and well balanced, without undue strain or stress, any one place or point and well tied all around.

If Lord Curzon's rule is to witness an architectural revolution all over India, these remarks will apply not only to the Madras Presidency, but to all parts of the Empire. Had the collapse at St. Mark's taken place a little earlier or a little later, many

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ave soldier would have been buried in the debris, and there could have been a wail extending beyond the shores of India; I would warn those concerned to take these remarks in good th. The authorities should see to it that every Presidency s its well-trained architectural builders, who should be em- oyed on only this one particular line of work, and in whose nstructive ability the architect can place the fullest reliance. is will relieve the architect of a great deal of responsibility d give him more time to attend to the purely architectural e of his profession. The taking out of quantities, rates, ining of workmen for special descriptions of ancient and dern kinds of work, and a hundred other details so necessary a large architectural design, can be attended to by the itectural builder.

Indian workmen are a marvel when properly handled. ey have got all the natural artistic gifts of the Italian, with re of his patience and less of his temper. But this mine of ural wealth has been but little touched on—perhaps more in outh than in the north of India. The appointment of ultiing and provincial architects is but one step in the right ection. To produce the best results, a great deal more is uired. Trained workmen in all the ancient building arts of lia, and in all the modern arts of Europe, are necessary e material is available, and merely requires some sympa- tic hand to call it into life. Let us hope that the monstrosity mporting French and Italian mosaics, gildings and aldings, will for ever cease. It is an easy way by which e architects and architectural engineers obtain a false atation.

I am informed that the collapse of St. Mark's tower has ed the transepts and part of the body of that old church, at that the place in which the English worshipped from the s when Bangalore first became a British possession now ents a most gruesome sight. For political and many other ons this military church, in the midst of an independent ve State, should be speedily restored.

WORCESTER MASTER BUILDERS' ASSOCIATION.

Annual dinner in connection with the above Association held at the Hop Market Hotel on the 17th inst. Mr. J. Mage presided in the absence of the president (Mr. J. S. Wood) through indisposition.

The Vice-chairman having proposed the loyal toast,

Mr. J. Stokes (the hon. treasurer) gave "The Mayor and Corporation of Worcester." The city, he said, was extraordinarily well served by the Mayor and the Corporation. The Mayor, despite his business interests, was doing his duty nobly. The building trade was well represented on the Corporation, but all would agree that it was a loss to the city when their president, Mr. J. S. Wood, resigned his seat. The city of Worcester was growing and prospering, and they had only to look at the magnificent buildings which were being erected in its streets to see how much the Council was doing for them. The Corporation having provided every facility for the electric current, it was a great pity the company had not provided them with the more efficient service they needed, and had not put the portions of the roads belonging to them in repair. He hoped all that work would be done before their next dinner.

Councillor Parker, in reply, endorsed Mr. Stokes's compliments to the Mayor. Speaking of the Corporation as a whole, he said they were accused of extravagance, but they had to spend money if they were to keep the city abreast of the times. In the electricity undertaking some people were shocked that so much as 120,000l. had been spent. They had always hoped to make the undertaking a success, and he was pleased to be able to announce that the electricity committee, at their meeting on Monday, received the report of their engineer and the statement of accounts, and the latter showed a credit balance on the accounts for the year of 1,150l. That was after paying interest on sinking fund and other expenses. A great deal of the success of the undertaking was due to the work done by the engineer, and the committee recognised the value of his work and intended at the next Council meeting to recommend that a considerable increase be made in his salary, and that he be given a bonus. The committee would be accused of extravagance in doing this, but he believed it was an economical course to pay an officer well and retain the services of a gentleman who had done so much for the electricity undertaking.

The Chairman proposed "Success to the Midland and Local Federation of Master Builders." He said that the Federation, having been commenced after a hard struggle, hibernated for about twenty years, but for about five years it had been doing active work. It had gained a great many privileges and benefits for builders throughout the country. Having referred to the advantages they had derived from the "prentice rule," which the Federation had introduced, he said that in Worcester they were handicapped more than in any other city, perhaps, in the early days of the Association, but

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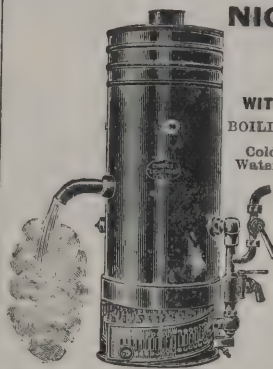
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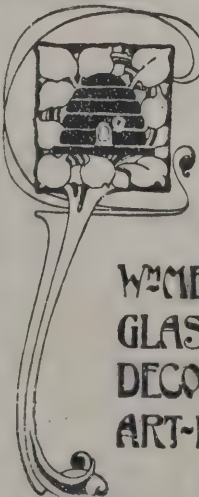
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now they were working hand in hand, and he was glad to see the men were working with them and they were working with the men. He spoke of the advantages which they derived through the workmen of the various trades all working during the same hours instead, as formerly, each during its own particular hours, and in the abolition of the restriction imposed by trade unions on imported worked stone. They did not wish to encroach on the interests of trade unions, but they intended to manage their own businesses in the way it seemed best.

Mr. A. Smith responded on behalf of the Midland Federation, and said he addressed them with special pleasure because his grandfather 70 or 80 years ago was a builder in the city, and his father was born under the shadow of the cathedral. He regretted that he was not able to meet Mr. Sharman Wood, for he recalled that the name of Messrs. Wood & Sons was well known years ago in his boyhood. Referring to the Association, he said it existed not as an aggressive body, but for the purpose of resisting unreasonable demands.

Mr. W. Phelps, replying on behalf of the local Association, said the membership of the Association had increased during the year by seven, making the total membership thirty-eight. The wages paid by the various employers during the year was 53,400%. They had had no disputes, and had just concluded by arbitration the rules with the plumbers. Notice had been given to the various employers in the Malvern portion of the Association to bring their rules into conformity with those of the Worcester part. A reply had been received indicating that the men could see the wisdom of adopting the same rules. He pointed out that the employers had been doing their best to regulate the work so that during the winter time there should be work for as many men as possible, having shortened the hours a little. He claimed that the Association had done a very good work in getting the rules adopted, and thought it would be for the welfare of the employers and employes. He concluded by thanking the visitors for being present.

Mr. J. Jones, in submitting "The Trade and Commerce of the City," said they were glad to think that Worcester had a fair share of the prosperity of trade generally. There was a variety of trade in Worcester, and if one trade was bad another was good, and so they never had such depression in Worcester as they did in other places. Worcester was a progressive city, and their object was to make their town attractive, so that people would come there to reside, and so anything that tended to make it beautiful they would welcome. They were

glad that during the past year there had been no great trouble between capital and labour, and he trusted they would be able to prevent any rupture of their present happy relations in the future.

Ald. Caldicott, in reply, spoke of the kindly feeling that existed between the trade and the streets committee. The commodities produced in Worcester were of the very best, and would compare favourably with any made throughout the kingdom. He was sorry he could not congratulate the building trade on being in a prosperous condition; especially as there was no doubt the building trade, more than any other, reflected the state of the other industries in the city. A new league had been formed in Worcester, but whether it was a social league or a teetotal league he was not in a position to say. It had been stated that the league was a body which was to make the city an ideal one. If that were so, they wished it every success. There was a wave of trade depression passing over the kingdom, and this was felt a little in Worcester, for there was shortness of work. He mentioned what had been done by the streets committee to meet the wants of the unemployed, saying that they had been put to the levelling of the Jew's Patch; the stoneyard had been opened, and thirty men had been at work there. If they could get that number of men willing to break stone at 2s. a load it showed that they were men who wanted work and were not loafers.

Mr. H. Stokes gave "The Architects of Worcester District," and said there was a much better understanding between the employers in the building trade and the architects. The latter were always ready to meet them in every way. The only thing he had to complain of was their zeal on behalf of their clients—and he also wished sometimes that they would give the builders better prices. He coupled with the toast the name of the representative of the oldest firm of architects in the city, Mr. A. B. Rowe.

Mr. Rowe, in response, said the architects were in sympathy with the Association, and congratulated the builders on their success. He did not think they were so down on the builders as Mr. Stokes would have them believe, and they always tried to meet them in every way. He concluded by congratulating them on the admirable work carried out at the theatre by Vice-chairman, Mr. Stokes, and the sub-contractors, Messrs. Santonna, Ward and Heath.

The Vice-chairman proposed the health of the chair to which Mr. Bromage briefly responded, and this concluded the toast-list.

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The Architect.

THE WEEK.

AT the present time, when the subscriptions for the proposed Liverpool Cathedral are only slowly coming in, it must have been most encouraging to the committee when they received a letter from Mrs. ISMAY, the widow of the late T. H. ISMAY, offering a gift of 10,000*l.* to the building fund, together with a promise to provide the east window in the new building as a memorial to her husband. The following resolution has been adopted:—"That the offer of Mrs. MARGARET ISMAY to provide the principal window at the chancel end of the cathedral as a memorial of her husband, the late Mr. THOMAS HENRY ISMAY, one of Liverpool's most distinguished citizens, be accepted, and that there be reserved to Mrs. ISMAY or her representatives the right to provide such window according to a design to be furnished by her or them in due course and approved by this committee." By reserving to themselves the right of approval of the design of the window the committee have recognised their responsibility. Although money is desirable, it would be an unworthy means to obtain donations if they allowed people to imagine that the new cathedral would be let out in sections for memorials of wealthy people. An east window, assuming the style of the cathedral to be Gothic, is no insignificant gift, but only on condition of its not becoming too obtrusive a glorification of the virtues and riches of the defunct shipowner.

WHEN the committee were appointed for inquiring into the affairs of St. Bartholomew's Hospital we recommended promptitude in arriving at results. We pointed out as a warning the deplorable example of the Manchester Infirmary, where, after years of reporting, the investigation cannot be said to have come to an end. The Lord Mayor's committee of inquiry have displayed their capacity as men of business by arriving already at the following resolution:—"That, in the opinion of this committee, it is desirable in the public interest to retain St. Bartholomew's Hospital on its present site." There were fourteen votes in favour of the resolution and only one against it. The discrepancy is enough to demonstrate how easily discussions may be continued and the unwisdom of waiting for a lengthened period in the expectation of unanimity. The problem has now cost much of its indefiniteness, and the task before the committee, though still extremely onerous, can be mastered with patience and resolution. Two sub-committees have been formed, we are told, the first to deal with buildings and the second with administration and finance, in order to thoroughly investigate the best means of providing a hospital, perfect in every detail, and brought up to the latest requirements of modern scientific knowledge, on the present site of the hospital in Smithfield. These sub-committees will meet—the former on Mondays and the latter on Fridays—until their investigations are complete.

RELIGIOUS and political differences in Ireland are so unlimited in their operations, they can affect an architect's claim for fees. A few days ago an application was made to the King's Bench Division in Dublin to have the venue of the trial of an action brought by Mr. DONNELLY, an architect, against the District Council of Omagh, changed from Omagh to Dublin. He claimed 149*l.*, and the council lodged in Court 70*l.* Mr. DONNELLY had filed an affidavit in which he objected to Omagh because he said he could not obtain a fair trial there, for the members of the District Council were all Protestants, and it was alleged they were one-sided in dealing with Catholics. It was admitted, however, there were other grievances against the council in the town, and it might be supposed there was a chance of their obtaining a verdict in their favour as the plaintiff. Eventually, and in spite of plaintiff's objection, it was decided to change the venue to Londonderry. The case may not at first sight seem important, but it reveals one of the causes which prevent the arts from flourishing in Ireland. A Catholic artist cannot expect to find patrons among Protestants, and *vice versa*; indeed, it

has been known that even sewage schemes have been set aside because of the religion of the designers. This is an unfortunate state of affairs, for what is the use of acquiring technical skill if such remote causes as politics or theology become more influential than any competence to carry out commissions? The mere application for a change of venue is enough to excite a prejudice against the architect who is seeking his fees, and that must have been known by the Council when offering only half the amount due to him. The spirit is fortunately incomprehensible in England, but it is supreme in Ireland.

FRIENDLY relations between foreign cities or states are not likely to be promoted by making them rivals for the possession of works of art. Owing to her dissatisfaction at the expulsion of the princes, the Duchess of GALLIERA left a collection of pictures to the municipality of Genoa on the condition that if they were not properly preserved they should become the property of the city of Paris, in order that they might be exhibited in the Musée Galliera. It is needless to say that the state of the paintings is from time to time jealously scrutinised by French eyes. It was lately stated that the provisions of the will were not complied with, as some of the pictures had been restored in a careless manner. A commission was therefore formed consisting of directors of various public galleries in Italy. As was to be expected they have taken a different view of the operations. They declare that through the restorations the paintings are now more beautiful than ever. It remains to be seen what course will be adopted by the Paris municipality. Under such circumstances an appeal should be allowed to independent experts, for it is not to be presumed that Frenchmen or Italians could be entirely impartial.

WHEN his *Hypatia* appeared in the most prominent position in the large room of the Grosvenor Gallery, Mr. CHARLES W. MITCHELL by that single work became prominent, and was looked on as one of the most able among the young painters of the time. The nearly nude figure of the hapless teacher of philosophy standing at bay on the altar steps, with her arm uplifted towards the Cross behind her, was unquestionably tragically dramatic. Since that time many visitors to public galleries wondered what had become of so promising a painter. It was not generally known that Mr. MITCHELL only considered himself to be an amateur. A son of a partner of the late Lord ARMSTRONG, he was busily engaged in Newcastle-on-Tyne as a director of the great firm of ARMSTRONG'S, as well as of various other companies. He was also useful in several ways, for he was chairman of the committee of the art department at Durham University College of Science, president of the Pen and Palette Club, and was largely instrumental in establishing the Arts and Handicrafts Guild, Newcastle. We regret to say that Mr. MITCHELL died on Saturday last at Jesmond Towers. His loss is not easily to be estimated, for there was no man more fitted to aid by his counsels the general movement in favour of technical education, and, indeed, he had already bestowed both personal services as well as large sums of money to the support of the cause. Mr. MITCHELL was in his forty-eighth year.

It is satisfactory to have it ascertained that there is no connection between the geological formation of London and the fogs of London. To be assured on that point is cheap at 250*l.*, the sum granted by the London County Council to the Meteorological Society towards the expenses of an inquiry into one of the plagues of the Metropolis. Many people had come to the conclusion that with the Thames and the abundance of clay it was vain to hope for a clear atmosphere. Now that the Meteorological Council say that atmospheric rather than geologic conditions originate fogs a step is gained, and all that is required is to reform the atmospheric conditions. It is supposed that with regular observations, especially in the early hours of the morning, it may be possible to forecast fogs. As they are not to be avoided or repelled, and as the greater part of the inhabitants of London cannot run away from them, the advantages of foreknowledge are not clear. The County Council have, we conclude, taken that view, for they decline to advance any further grants.



SLAB FROM THE PARTHENON NOW IN THE LOUVRE.

G. A. CHOISEUL-GOUFFIER.

A STORY is told concerning one of the large English towns, all of which was owned by a peer with the exception of one small house. Efforts were made repeatedly to obtain this property, which was from its meanness an absurdity as well as an anomaly. At length an extravagant sum was offered, but the owner remained obstinate. He told the noble lord to be content, for his lordship could go about the world and boast that the whole town was their joint possession. In the same way England and France can claim to be the possessors of the sculpture of the Parthenon. It is true the French share, if compared with what is to be seen in Bloomsbury, is exceedingly limited, for it consists of no more than the fragment from the Panathenaic Procession that is figured above and one of the metopes. For both, Frenchmen are indebted to the Count CHOISEUL-GOUFFIER. But there is no doubt the two countries may be said to have divided the sculpture of the Parthenon between them that existed in the beginning of the nineteenth century. The fragments still attached to the ruin are of minor importance.

The French examples are principally valuable in supplying voids, although it should not be forgotten that much else is required before the whole character of the sculpture originally adorning the exterior of the temple can be realised. But the French pieces have also a peculiar interest for Englishmen, for they are supposed to justify our wholesale ravage of the noblest works of art. When Lord ELGIN contrived to remove the figures from the pediments, metopes and frieze of the Parthenon and to bring them to this country, it could not be asserted that all Englishmen were satisfied. Many lovers of art were indignant. BYRON expressed their feelings in immortal verse. He not only wrote the stanzas in "Childe Harold's Pilgrimage," and epigrams on the transaction, but he devoted a special philippic, entitled "The Curse of Minerva," to condemn an act which was considered by him one of the worst deeds of vandalism ever committed. ELGIN and ERATOSTRATUS, who fired the Temple of Ephesus, were united, and the Scotchman was declared to be the blacker of the two. In addition numerous ills were prophesied as awaiting Great Britain for approving of the spoliation. In Parliament there were also many members in opposition to the voting of money for the purchase of the marbles, on the ground that the treasures were stolen property, and it was unworthy of England to retain them.

In the course of the Parliamentary inquiry on the subject, efforts were made to demonstrate that there was an attempt on the part of the Count CHOISEUL-GOUFFIER to anticipate Lord ELGIN. The following extract from the latter's evidence will suggest the endeavour to prove that his Lordship was not the only culprit; or rather that he simply checkmated a subtle adversary:—

Did Monsieur Choiseul take down any of the metopes and the frieze?—One piece of the metope and some of the frieze; the

metope I bought at a public sale, at the custom-house. It was at the time I returned from France; my things were dispersed all over the country, and my agent told me of some packages in the custom-house without direction; and I gave four or five-and-twenty pounds for them at a lumber-sale.

Thinking those packages to be your Lordship's?—Yes.

When your Lordship heard of those cases being to be sold at a rummage-sale, did your Lordship make any application to the Government, stating that they had any interest in it, and that therefore you ought not to be obliged to purchase?—No; certainly not.

It was a matter of private purchase?—Yes; these things had been left at Athens during the whole of the French Revolution. Bonaparte allowed a corvette to call and bring these things for Monsieur Choiseul, who was an intimate acquaintance of Monsieur Talleyrand's; from the delay which occurred they did not get away in time to escape our cruisers. Monsieur Choiseul applied to me to make interest with Lord Nelson, and I wrote to him and he directed them to be sent home, and applied to Lord Sidmouth and Sir Joseph Banks, wishing Government to make such a purchase as to secure the captors, but at the same time to restore the articles to Monsieur Choiseul. When I left Paris Monsieur Choiseul remained in the belief that they were still at Malta, consequently I had no clue to guess these were his at the time of the purchase in the year 1806, but I immediately wrote to him to state what these things were, as I had no doubt they were his by the metope, and in the year 1810 he wrote to me, stating that his were still at Malta. When I went over to Paris last year I took a memorandum with me for him, and satisfied him they were his, but he has never yet sent about them, and I do not know what he means to do at all; but there they are, marked among my things as belonging to him.

The authority given to Lord ELGIN by the Turkish Government was to enable the artists employed by him "to view, draw and model the ancient Temple of the Idols and the sculptures upon it, and to make excavations, and to take away any stones that might appear interesting." According to one witness the Greeks were not dissatisfied at the removal of the sculpture, as the work allowed of the expenditure of money. The Turks were indifferent, and they despised the idols to such an extent that visitors used to tempt the soldiers on guard at the Acropolis to fire at the sculpture, in order that they might knock down with their bullets heads, legs or arms which could be carried away. The select committee of the House of Commons in their report called attention to the attempt by CHOISEUL-GOUFFIER, as if it were an indication of a plan to carry off the whole of the sculptures:—

It may not be unworthy of remark that the only other piece of sculpture that was ever removed from its place for the purpose of export was taken by Monsieur Choiseul-Gouffier when he was ambassador from France to the Porte; but whether he did it by express permission, or in some less ostensible way, no means of ascertaining are within the reach of your committee. It was undoubtedly at various times a subject with the French Government to obtain possession of some of these valuable remains, and it is probable, according to the testimony of Lord Aberdeen and others, that at no great distance of time they might have been removed by the

Government from their original site, if they had not been taken away and secured for this country by Lord Elgin.

There can be no doubt that CHOISEUL-GOUFFIER'S conduct weighed with the committee when recommending the purchase of the collection at a cost of 35,000*l*. The French ambassador's plan, it was said, corresponded with Lord ELGIN'S, *i.e.* he first employed artists to make drawings, then had casts undertaken, and finally removed pieces of sculpture. He had, moreover, one advantage over Lord ELGIN in having a longer acquaintance with the Turkish authorities. The English ambassador in 1799 succeeded Sir ROBERT AINSLIE, who also had made use of his position to gain possession of works of sculpture. CHOISEUL-GOUFFIER was ambassador from 1784 until the time of the Revolution. He engaged artists not only in Athens to make drawings, but at Sicyon, Eleusis, Delphi and Delos. He was the friend of the Abbé BARTHÉLEMY, the author of the "Travels of Anacharsis," and it was his intention to obtain materials that would serve for the complete exemplification of that book, and would, moreover, enable his countrymen to realise as far as possible the life of the ancient Greeks. The first volume of his own "Voyage Pittoresque en Grèce" appeared, in fact, two years before his appointment as ambassador. His admiration of Greek art, unlike Lord ELGIN'S, was no sudden notion. In 1793 CHOISEUL-GOUFFIER was compelled to depart rather precipitately from Constantinople, and a large part of his collection consequently fell into the hands of strangers. The Revolutionary Government confiscated all his property. Twenty-five cases of sculpture which he claimed as his own were destroyed by fire in Smyrna in 1796. He lived for some years in Russia, and when he was able to return to Paris in 1802, he endeavoured to collect all his belongings which had survived. The twenty-six cases referred to in the evidence and sent to him from Athens were captured with the vessel carrying them by an English frigate belonging to NELSON'S squadron. Although at the time there was war between England and France, NELSON on learning the nature of the cargo arranged with the officers to abandon their claims for prize money, and the cases were left at Malta to await the orders of M. CHOISEUL-GOUFFIER. Another commander, not being aware of the arrangement, despatched them to England, where they were made the subject of a claim by the owners and his representatives. It must be admitted that the cases did not entirely consist of ancient works in marble. CHOISEUL-GOUFFIER, as we have said, had ordered casts of the sculpture of the Parthenon to be taken *in situ*. He had also obtained a large number of inscriptions, the most important being one recording the expenses of the Republic of Athens for the year ending July, 409 B.C. The metope which was taken by the Count was broken in the course of its removal from the Parthenon. According to the French account it had fallen as far back as 1687, when there was the explosion in the building, and was found near one of the columns. It represents a centaur seizing one of the Athenian women. DODWELL says that part of it projects 12½ inches, while in the rest of the metope there is no projection exceeding 7½ inches. The French Government paid 1,000*l*. for its possession.

The part of the eastern frieze in treatment, as will be seen from the headpiece, is in keeping with the other portions of the procession which are now in the British Museum. As it had the advantage of being scrutinised in the clearer light of Paris, the indications of colour were more apparent than in the parts examined in London. It was concluded that originally the ground was blue, the hair of the maidens was gilded, and the holes suggested there were metal ornaments introduced. VISCONTI interpreted the relief as a representation of some young Athenian woman who had deposited in the hands of two male personages the instruments for the sacrifices which they had carried in the procession. Although only one patera is visible, there are traces and marks of the fastenings of other instruments which it is supposed were of gilt bronze.

A wrong is not to be justified by another of less consequence, and casuists might find a difficulty in determining what warrant was to be found for the extensive appropriation of sculpture by Lord ELGIN in the removal of a slab by CHOISEUL-GOUFFIER? Both were ambassadors, and as representatives of civilised countries were bound to show

respect for Greek work. If Frenchmen desired they could have dismantled the temples at an early date. As far back as 1632 LOUIS DESHAYES, Baron de Courmenin, who was ambassador to Constantinople, in his account of his voyage describes the Parthenon as being uninjured by time as if it were newly made. Forty years afterwards another ambassador, DE NOINTEL, not only described, but had drawings made of the temple. The Jesuits, with their customary enterprise, established a French mission in Athens, but the present rather than the past attracts them, and in a few years they removed to Negropont, which seemed destined to become a flourishing Venetian colony. The Capuchins took their place in Athens, and it may not be generally known that the Monument of Lysicrates was purchased by the Order at a time when it was about to succumb to neglect. It was a narrative by a Jesuit which incited Dr. SPON, of Lyons, to make the voyage to Athens with WHELER, of which the record is invaluable. The city in the seventeenth century possessed so much interest for Frenchmen that an imaginary book of travels was prepared by one GUILLET, who never left Paris, and on the strength of the fabrication he was appointed historiographer to the Académie de Peinture et Sculpture. The French could easily have transported the figures from the Parthenon and other buildings in Athens if they cared, and against such a record of forbearance the acquisition of the single section of the eastern frieze seems a venial offence.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER VI. (*continued*).

THE fashion of introducing medallioned busts or niched statues of individuals on the façades of buildings may be recommended, as long as their use is the outcome of cautious discrimination. In the metropolis the National Portrait Gallery and the Burlington Gardens façade of Burlington House are two notable examples, though the statues on the latter building have an acquired inappropriateness, the London University having removed to other premises. The general restraint exhibited in the external design of the former building is very pleasing, and only tends to increase the feeling of disappointment induced as soon as the portals are passed.

Moulded brick, terra-cotta and stonework are more in the nature of projective ornament, but attention may in this place be directed to their artistic value. Red gauged brickwork, suitably moulded and carved, gives very pleasing effects: an example of excellent treatment in brickwork may be seen as an exhibit in the Victoria and Albert Museum, London, viz. the façade of the former railway station at Enfield. Some of Mr. NORMAN SHAW'S buildings also serve admirably to show with what effect brickwork can be used.

The Constitutional Club, London, is an important example of the use of plain, moulded, and ornamental terra-cotta; but a practical objection often urged against the use of this material is its frequent tendency to warp in the process of burning, and this renders its successful production an expensive and dilatory proceeding.

Carved and moulded stonework has everything in its favour, except economy. It is well worth while, before deciding absolutely on the use of some ornament, to have a temporary cartoon placed *in situ*, and to judge of the effect; but for proper estimation the cartoon should be a modelled one, so as to gain the correct play of light and shade.

Carved and moulded wood, from an artistic standpoint, is not to be surpassed, but the assistance it lends to the ravages of fire woefully restricts its employment.

Tile hanging is a form of external decoration very much in vogue, and one that may be highly commended. Not only does it impart pleasing variety to a façade, but it possesses also the great advantage that the rooms so bedecked *externally* obtain a more equable temperature than the ordinary brick-walling allows. Good red tiles weather to most effective tones, and when (interspersed amongst them) the renewed tiles are set, a charming effect of colour greets the eye. Bedford Park, Chiswick, is an



FIG. 46.

assemblage of these red brick and tile-hung villas, the original architect being Mr. NORMAN SHAW.

Tiles may be set square or lozenge-ways, and ornamental designs are frequently employed by means of the combined use of square and of shaped moulded tiles, also by colour combinations.

Flint tracery is a form of decoration lending itself to pretty effects, and might be often and advantageously employed where flint is the staple material. Knightbridge, in London, has a church façade so treated, with a very happy result (see fig. 46). This is an example of surface (not relief) decoration. Brick and flint, and brick and boulder combinations are also to be noted frequently, and further variety is possible according as these stones are knapped or undressed; of course, the undressed treatment is more natural, and it is certainly less stiff and more pleasing. In Brighton, these façades are of frequent occurrence in the streets leading back from the Esplanade, and are a vast improvement on the monotonous brick walling so noticeable in London and the neighbourhood.

Plaster is also used in many country districts as the sole means of external decoration, except perhaps for the use of ornamental barge-boards. Modelled plaster ("pargetting"), and cast, or modelled stucco may also prove very effective, but the plaster would be likely to suffer in the atmosphere of a large town. Ipswich and Tewkesbury (amongst other places), have some fine examples of "pargetted" façades. In fig. 47, an illustration of this method of decoration is given.



FIG. 47.

Weather-boarded façades are only noticed here as possibilities realised in former years, but scarcely to be reckoned within the scope of modern practical design, except in the backwoods. Any picturesqueness attaching to these buildings is more the outcome of archæological interest than of any other sentiment.

Steel façades have not, as yet, received general recognition, but quite recently an attempt has been made in Germany to utilise this material in a decorative spirit, instead of merely constructively. It is now very many years

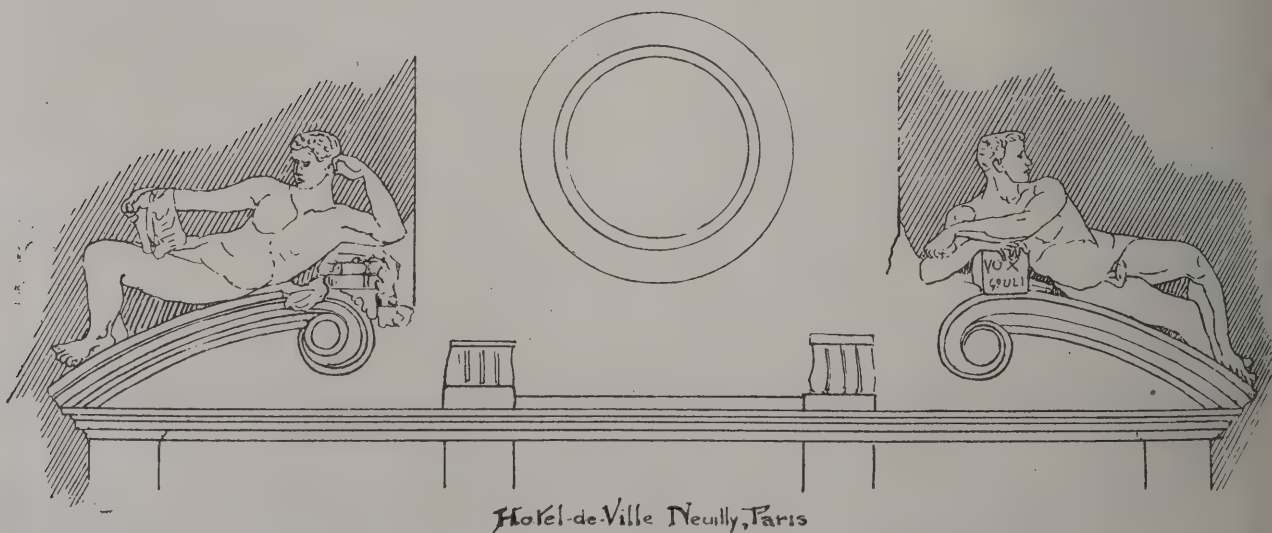


FIG. 48.

since M. VIOLLET-LE-DUC advocated the honest expression of iron in architecture. It will be naturally understood that buildings of the nature of the Crystal Palace are purposely excluded from consideration, but attention may well be called in passing to the pleasing effect of such structures as the Temperate House and the Palm Stove, both situated in Kew Gardens.

In passing, attention should also be called to the treatment that *is* accorded, and the treatment that *should be* accorded to spandrel spaces and to the extrados of segmental pediments. It is very general to introduce carved full-length figures reclining more or less uncomfortably on a constantly retreating base. This is altogether wrong, as it is bound to create a sympathetic feeling of unrest on the part of the spectator (see fig. 48).

If geometrical or floriated filling is not always deemed desirable, suitable figure treatment is possible without recourse to the *miserere* method noted above. A winged head (an accepted type for angels) will fill in the space admirably (see A, fig. 49), or treatment such as that shown at B in the same figure. These are merely two methods of treatment taken at random, or (more accurately) are those that came first from the writer's pen as illustrations.



FIG. 49.

The tympana of pediments may be advantageously decorated with statuary groups, as distinguished from mere relief decoration; the more remote from the point of view, the bolder should be the treatment.

Some further mention of ornament or decoration arises later in this treatise under the heading of individuality and conceits.

(To be continued.)

AUGSBURG.

IN September last a congress was held in Augsburg of the Union of German Architects and Engineers. There were no less than fifteen meetings. The Germans are accustomed to be thorough in all things, and as a memorial of the event three volumes have been brought out containing many hundreds of illustrations of the ancient and modern buildings of the city.

Augsburg has had a history which goes back to the time of the Romans, when it was known as *Augusta Vindelicorum*. In the Maximilian Museum there are many objects belonging to that period. It has also been ascertained that on the site of the present Ulric Kirche a temple to JUPITER was erected. There were other temples bearing the names of the gods honoured by Romans, such as MARS, VENUS, CERES, &c. Memorials also exist of different Roman legions. But what is most interesting is the evidence that art was appreciated in the city. A Corinthian capital would by itself be enough to demonstrate the perfection attained by the architectural carvers. Examples have also survived which display the skill of the metal-workers, mosaicists, potters and other crafts.

The Roman colony appears to have come to an end during the fifth century. In A.D. 558 Augsburg and the surrounding district became a part of the Frankish kingdom. Some two hundred years afterwards it was almost entirely destroyed in the war between CHARLEMAGNE and TASSILO. Then it fell into the hands of Swabian dukes. The relics of that period are not important. There is no doubt that ULRIC and other bishops were zealous for the erection of churches; but the position of Augsburg, which was exposed to invasions, was unfavourable to the duration of buildings, and the remains are little more than indications of former greatness. The crypt of the cathedral may date from the tenth century. As the Romanesque period in Augsburg is supposed to have been exemplified by as fine structures as were to be found in any place in Germany, the dearth of examples is to be regretted. Augsburg was able to purchase independence in the

thirteenth century, and it ranked as a free, imperial city for five hundred years. It was to be expected that during so long an era of liberty architecture would be recognised. The greater portion of the cathedral, the church of Saints Ulric and Afra, suggest the importance attached to religion in the earlier part of the period. BURCKHAIR'S paintings and etchings are sufficient to show the excellence of the Renaissance work. For a time there was a contest between plebeians and patricians, but it does not appear that the vast trade of Augsburg suffered through the dissensions of the citizens. The city was the residence of the FUGGERS, the bankers, who solved the everlasting "housing problem" by founding one district of the city which still remains, and in which rents are very low.

The collection of views commences with the Rathhaus, which was built by ELIAS HOLL, Augsburg's most famous architect, between 1615 and 1620. Near it is the Augustus-brunnen, one of the three fountains in the imperial Maximilianstrasse, and which is surmounted by a figure of the Roman emperor. The exterior of the Rathhaus is unusually severe, but some of the rooms within are richly decorated, and the ceiling in the "Goldener Saal" is one of the sights of Augsburg. The ornamental stoves in some of the rooms reaching from floor to ceiling are remarkable specimens of ceramic architecture. What must strike everyone in looking through the illustrations is the marvellous variety exhibited. Munich, which is not 40 miles distant, being a capital, has been transformed from time to time at the desire of the rulers, and is now a city of reproductions, but Augsburg has been left alone as if it were still the Freistadt. In the reign of CHARLES V. the people disobeyed the command to address the emperor in a Latin speech, and the same independent spirit is seen in the avoidance of anything that could be considered as an official type of architecture. Occasionally a long building may be seen like that adjoining the world-renowned Hotel Drei Mohren, which is somewhat monotonous in treatment, but as a rule the houses have not much wider frontages than is common in London, and every owner endeavoured to construct something different to his neighbours' houses on both sides. The streets are sometimes broad and sometimes narrow, occasionally, as if by chance, widening out into a Platz. Then there are old towers and gateways, and a visitor must be exacting who is unable to find subjects for his sketch-book at every turn. No doubt baroque examples abound which must be attributed to the influence of Frenchmen, who were long regarded as the arbiters of taste.

It was not in the Late Renaissance period alone that French influence was injurious in Augsburg. Lord LEIGHTON maintained that German Gothic was defective, because the builders imitated French examples instead of developing their own admirable Romanesque. He cited as a remarkable instance the cathedral of Augsburg, especially as it was erected in a famous centre of artistic activity, from which many fine works went forth. He said he shuddered whenever he thought of the exterior of the building, while within, "a choir at least half as high again as the nave, and of the usual cubic shape, is stuck on to, or against, that nave, *ex abrupto*, without a trace of an attempt at articulation and transition, and with an effect I leave you to imagine. But what you hardly can imagine is the aspect presented here by a circular east end and ambulatory crushed round a square choir. In this wonderful structure the workmanship vies with the design; one shaft at the north-east end of the choir—and, by the way, all the shafts rise without bases from the floor—stands truncated and vacant at the top, because apparently it did not work out so as to meet the adjacent vaulting-rib which it was destined to carry." It may be mentioned, as suggesting the difficulty of satisfying severe critics, that the only buildings in Augsburg referred to by KUGLER are the cathedral, the Rathhaus, or hôtel de ville, and the Zeughaus, or arsenal, the last having over the entrance a vigorous group of sculpture, St. MICHAEL and the Demon, by JOHANN RICHEL.

In modern times Augsburg has distinguished itself by its marvellous advance in industry. The population is now nearly 100,000, or at least 50 per cent. beyond that of the city twenty years ago. The increase is mainly owing to the

call for workmen. Augsburg, according to FROMMEL, needs no other development than that arising from industry, and there was a time when its manufacturers were proud as princes. A great many immense factories, in extent almost equal to villages, have been erected. Among the productions are machinery of all kinds, metalwork, cloth, cottons, chemicals, paper, gas, cement, tobacco, &c. The industrial districts of Augsburg consequently have a very different aspect from the older parts of the city, and strangers who knew the place a dozen years ago will be amazed at the change, while glad that so many of the streets remain in their former condition. It is no wonder the local architects and engineers are proud of a city which is making such bold efforts to surpass its former history.

CULROSS ABBEY.

AT a time when it is proposed to restore the ancient Abbey of Culross, it may be well, writes a correspondent of the *Glasgow Herald*, to call to the remembrance of our readers some features connected with the ecclesiastical history of the ancient burgh. According to tradition the sainted Princess Thenew, without the aid of either oars or rudder, drifted from Aberlady to Culross in a frail boat. Weary and exhausted she stepped on shore, and at the first dawn of the morning gave birth to St. Kentigern, or Mungo. From time immemorial the spot on which the interesting event took place has been pointed out by the people of Culross, and so sure was Archbishop Blackadder, in 1503, that tradition was right that he had a commemorative chapel erected upon the site of the birth of Mungo.

Mungo had a wonderful training at the feet of St. Serf, on the sunny slopes which overhang the shore between Dunimarle and Torryburn. Some of St. Serf's pupils took to stone-throwing one day, and in the shower of pebbles a favourite robin was killed. Mungo restored the bird to life, and he followed this miracle up by causing a flame, when light was needed, to burst from a hazel twig. The tree from which the twig was plucked grew into a grove, and the traditions of the miracle were long perpetuated by twigs bursting into a flame when breathed on. The time came, however, when St. Mungo hid himself from the slopes of his birthplace to Glasgow, and for a long number of years Culross dropped out of the world's gaze. From the far-off days on which St. Mungo shook the dust off his feet until the eleventh century, when the "Gracious Duncan" met the King of Norway in battle, Culross does not find a place in history.

The Danes and the Norwegians had a hot time of it, but the people of Culross do not care to linger over the eleventh century events connected with Bordie Farm, where the Scottish Standard was hoisted. They prefer the miracles of St. Mungo to the details of battle, and they leap from the early days of the sixth century to 1217, at which time Malcolm, seventh Earl of Fife, founded the monastery. Alexander II. did a great deal for the enriching of Dunfermline Abbey, and doubtless he looked on the work of Earl Malcolm at Culross with a kindly eye. The first abbot died in 1232, and an idea of the magnitude of the building will be obtained when it is stated that at that time as many as 100 monks and 135 probationers or novices are stated to have been located at Culross. The monks of Culross seem to have taken fright at the first blast of the Reformation trumpets, and when the terrible work of "dingin the abbey doon" began it was found that there were only nine monks in the building, and that the novices had to a man taken flight.

All that remains of the massive structure is the choir and the central tower and some fragments of aisles and chapels. The choir is occupied as the parish church, and entrance is obtained through the tower. The old cloister court in which the monks were put to flight by the Reformers is occupied as a garden, but visitors find much that is interesting in the ruined walls. The groined roof and arches of the great hall always command attention, and in the vaulted passage which leads through a Norman doorway are fine examples of the architecture of the flourishing days of Scottish monasteries. The old choir of the abbey has, as Mr. David Beveridge, the author of "Culross and Tilliallan," rightly puts it, been so "much metamorphosed in the course of the alterations which at different times it has undergone" since it became the parish church, that it is difficult to understand the original construction of the building. A magnificent specimen of an Early English window is obscured by a gallery and a staircase.

It is proposed to remove the south and the east galleries, and to provide sittings for the accommodation which would be lost by the opening up of the arches and the re-erection of the aisles on the south and the north sides. Repairs involving a cost of 2,000*l.* are absolutely necessary if the building is to be

kept in a half decent state of repair, and the heritors have pluckily come forward and guaranteed this amount. Sir Rowand Anderson estimates that the carrying out of his entire scheme would involve an expenditure of 5,000*l.*, so that 3,000*l.* will fall to be made up by subscription. The sum of 3,000*l.* is too big an expenditure for the people of Culross, who are no heritors, and this accounts for an appeal being made to the people of Scotland, and especially to the city of Glasgow. Like Portia, the ancient burgh has many suitors during the course of a year, and there is nothing which troubles visitors who have an eye for the fitness of things more than the modern fittings of the parish church, by which many of the beauties of the choir of the historic building have been obscured. Sir Rowand Anderson proposes to purge the building of its internal architectural vagaries. The work can only be done if help comes from without.

While writing of the ancient burgh, it may be interesting to point out that there is a greater chance to-day of history repeating itself industrially than has been the case during the past two centuries. In the days when James VI. was a frequent visitor at the "Palace" of the Sandhaven, Sir George Bruce's coal-works were the wonders of Scotland. The works were wrecked in the "Borrowing Days" of March 1625 by a terrific storm, and from then the record of Culross industries was a record of decay. The exploring bores which have been driven into the metals in those days of demands for coalfields prove that the deeper and finer seams of coal are lying intact. A lease has been obtained of the minerals of Low Valleyfield—a village to the east of Culross, where many a squabble took place over the monopoly which Culross claimed in connection with girdle-making—by the West of Fife Coal Company, Ltd., and such a guarantee of early development has been given the North British Railway Company that it is announced that the Dunfermline-Culross Railway will be commenced at no distant date.

LEEDS AND YORKSHIRE ARCHÆOLOGICAL SOCIETY.

A MEETING was held on the 26th ult. of the members of the above-named Society, presided over by Mr. Butler Wilson, at which an interesting paper was read on street improvements in Leeds by Mr. Fredk. Musto, A.R.I.B.A.

Mr. Musto claimed that as citizens, and still more as architects, they were concerned in whatever made for the improvement of the city with which they were connected. Leeds had much improved, but it still missed the mark, for whilst streets had been made wider they still remained throttled at their necks through lack of a scheme. The fact was that the laying-out of the lines for the main streets and public buildings of the city should not be left to chance and spare moments.

Leeds did not make a very favourable impression upon those who entered it. He did not think of comparing the town with Oxford or Warwick, or a city like Bristol or York, which made up for the absence of dignity by the presence of old-world charm. But he fearlessly declared that in the aspects of its streets and most of its buildings Leeds was far behind Manchester, Liverpool and especially Glasgow.

There was an air of something almost amounting to squalor about the town that even the City Square and Boar Lane could not destroy, and that Briggate would certainly not reduce.

City Square served to provide a good first impression, and he hoped it would be long ere its dignity was spoiled by the ceaseless careering of trams round it as a general changing station. It was far better than Forster Square at Bradford, though the vista from the latter up Market Street was very fascinating. But City Square badly needed the statue, which would help to mitigate the bad effect of the Post Office buildings; and he thought the circular balustrade, enclosing nothing and cutting off the sight of the base of the new buildings, was an absolute waste of money. The widening of Infirmary Street to 75 feet was not a crying need. Though it was too narrow, Park Row was a street of which they might well be proud, happy in the diversity of its buildings and the way they were caught "end on" together with the appearance of the Exchange, which he considered the second best building in the town. The cathedral was to be moved, and the vista, he was afraid, closed by a gradually diminishing line affording a flank view of shops.

Great George Street had now arisen from its desolation and was becoming an important street, with at least one building in it which would be an object of pride to architects. In time he considered it would form part of an important "through line" east to west, relieving Upperhead Row and connecting with Quarry Hill.

The widening of the lower part of Woodhouse Lane was commendable; but what, said Mr. Musto, were the authorities aiming at? Was there any scheme or definite line, and if so, how far did it reach?

Guildford Street had been getting widened for years past.

Of course, the wretched shanties at Albion Street corner were doomed; but what lines were to be pursued? If some of the money which had been spent on making some of that back street, Lands Lane, rather less of a back street, had been spent in improving Guildford Street, the gain in appearance would have been as great as in point of convenience.

Briggate possessed all the materials for an effective appearance some day. There was the promise of a building on a good scale in the Grand Central Hotel; but when they thought of Corporation Street, Birmingham, or Lord Street, Liverpool, what a contrast. Boar Lane, though presenting no single building of which the design was a pleasure to contemplate, was in the sum total far more worthy and dignified.

The Vicar Lane scheme was good; but had they noticed, asked Mr. Musto, its rise and fall and snake-like windings, and how, when approaching from North Street, the new market buildings hid their face? A straight line would have left the Dispensary intact, and run beyond Kirkgate and the Corn Exchange to Swinegate.

He did not see how the new street from Briggate to Albion Place could relieve Commercial Street or be a success. It began badly, and was not quite in line with Albion Place.

With regard to what might be done, Mr. Musto suggested a line of access from the end of Roundhay Road to Woodhouse Lane, near Carlton Hill. Most of the line existed already, but there was no leading thoroughfare. He would like, too, to see a street cut in prolongation of Oxford Place by Park Square to Park Place; and a better access to the Yorkshire College and Grammar School than was provided by the present College Road, with its plentiful supply of back areas and middens. As for Victoria Square, he would leave that in their hands.

Concluding, Mr. Musto declared it rested with the authorities to say if Leeds was always to be left behind by other and smaller cities, or whether, by doing things in a bold way and going straight forward, and having an ample and properly worked scheme, they would attain the position due to the size, population and prosperity of the city.

At the close a vote of thanks was accorded to the lecturer, on the motion of Mr. G. F. Bowman, seconded by Mr. W. H. Thorp.

EDINBURGH ARCHITECTURAL ASSOCIATION.

AT a meeting of the Association held in the Rooms, 117 George Street, on the 25th ult.—Mr. A. Hunter Crawford, F.R.I.B.A., the president, in the chair—Mr. Daniel Macfie read a paper on "Artificial Lighting in the Nineteenth Century," which was illustrated by limelight views. Alluding to the street lighting of Edinburgh, Mr. Macfie said it was little short of a scandal that in twentieth-century Edinburgh a unique installation of an antiquated and effete style of gas lamp existed side by side with the electric arc lamp. It was true that in some six thoroughfares throughout the city there were specimen installations of incandescent gas lighting, but these and the 38 miles of electrically-lit streets served only to bring into stronger relief the 150 miles of streets within the city boundaries which were still lit with an effete style of gas lamp. The juxtaposition of electric arc lamps and an effete type of gas lamp consuming only 2 cubic feet of gas per hour doing eight-candle duty was not matched in the United Kingdom, and it was not creditable to the powers that be that, while they had widely and generously adopted the electric arc lamp for street lighting, no sustained effort had been made to improve a system of gas lighting already existing. There need be nothing but praise for what had been done in electric lighting, but as it appeared to be generally conceded that on account of the cost a halt must be called in that direction, it might not be unprofitable to inquire what steps might be taken, and at what cost, to improve the 150 miles of gas-lit streets in Edinburgh to-day. As a first step towards that end, the present globe lamp with its blow-hole should be abolished, and with all convenient speed. To replace these square-tapered lanterns might be substituted at a slightly increased cost, and these could be of a type that would suit equally well with an enlarged flat flame burner or a Welsbach incandescent burner. The only method worthy of serious consideration for use for important streets was the adoption of the incandescent burner—preferably in a square-tapered lantern, as suggested. Already incandescent gas lamps were installed in several quarters of the city, lighting about $1\frac{1}{2}$ miles of streets, but "the man in the street" might be excused if he came to the conclusion that no serious or well-organised attempt was made to keep these lamps and their burners in the best condition. Edinburgh was at present spending about 2,630*l.* more for the gas lighting of 151 $\frac{1}{2}$ miles than it was spending on the electric lighting of 38 $\frac{1}{2}$ miles. No one would suggest that what had been done in electric lighting was not well done; but it was most reasonable to suggest that the time had come to improve some portion of the remaining three-fourths of their streets, which had been denied the luxury

of electric lighting. A modest beginning might be made with, say, fifty miles of the more important thoroughfares with 3 feet incandescent gas lights at a cost of, say, 34*s.* 7*d.* per lamp, an extra of 15*s.* each, or an additional charge of 46*l.* 15*s.* per mile per annum, with lighting power five times increased. To this would have to be added the cost of mantle and renewals and the initial cost of new lanterns; but those globe lamps displaced could be used for the outlying districts until such time as the globe lamps were finally superseded. The one hundred miles of streets still remaining might at once have burner tips consuming 3 cubic feet per hour substituted at a merely nominal cost, while the increased charge for gas would only amount to 10*s.* per lamp per annum, giving a light 75 per cent. better. Such globe lamps as remained in use might have a metal lifting flap for the covering of the present blow-hole. Those suggestions might be worth much or little, but the question was clamant and would not brook delay in the public interest. One could not help feeling indeed that if the lighting of the streets of Edinburgh and Leith were entrusted to the Gas Commissioners this would be to the public advantage. On the motion of Mr. Thomas Ross, Mr. Macfie was awarded a vote of thanks.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A GENERAL meeting of members was held in the Institute Rooms, Dublin, on the 26th ult. The president, Mr. G. C. Ashlin, R.H.A., occupied the chair.

The President made a statement as to the various matters which had come before, and had been dealt with by, the Council since the last general meeting of members. He asked the members present to enter into a discussion as to how far the existing conditions of contract in their individual experience met the general needs of the profession. As the proposed revision of the conditions of contract generally in use in this country is a matter which the Council is very carefully considering, and which is occupying very largely the attention of the profession generally, the invitation of the President was cordially accepted, and a very interesting discussion took place. Mr. J. Rawson Carroll stated his views at some length, and was followed by Mr. Gilliland, Mr. Murray, Mr. Shaw, Mr. Orpen, Mr. Sheridan and others.

Mr. Albergy moved a resolution in reference to the proposed initiative of a qualifying examination as a condition precedent to election to membership of the Institute.

ARCHITECTURE AND THE AGE.

A PAPER was read at a meeting of the Northern Architectural Association, Newcastle-on-Tyne, on February 25, by Mr. G. S. Aitken, architect, Edinburgh, on "Architecture and the Age." The plans of the present-day houses and those of the eighteenth century were contrasted, and the excellent work pointed out which modern desire for municipal buildings had elicited. An opinion was expressed that the type of Pointed work shown in the London Law Courts would be revived in practice. Reasons were sought for the preference which Nonconformists as well as Episcopalians have for the use of Pointed architecture in churches. Classic architecture, it was assumed, had intellectual beauty, and Pointed both intellectual and moral beauty. In the course of the argument reference was made to one of the public buildings in Edinburgh in the following terms. It is remarkable what an effort Greek architecture makes before it realises itself in a successful work of art. One of the finest buildings in the country is the Royal Institution, Edinburgh. It is in the Greek Doric style, designed by its architect, W. H. Playfair, from a modern point of view. If we imagine all detail removed that is not necessary to construction, how bald an affair it would be; its porticoes, wings and lateral rows of columns would have to go. We could not apply this process of "thorough" to a Pointed building. Every part is there as a constructive necessity, which can furnish an ethical reason for its presence. Regrettable failures in the acoustics of some buildings were referred to, and the subject of expression in architecture considered. The paper closed with references to the Garden City scheme, Bournville and Port Sunlight, which, it was indicated, were pioneered by the village of Saltaire.

An Oak Screen and clergy and choir stalls have just been presented to All Saints Church, Bubwith, Yorks, by Mrs. Wilkinson, The Hall, Howden, in memory of her late husband. The work has been carried out from the designs and under the superintendence of Mr. G. Malam Wilson, architect, of Sheffield.

NOTES AND COMMENTS.

AGAINST the opposition in the City of London to the Building Acts Amendment Bill the London County Council could not hope to prevail in Parliament. The parliamentary committee of the Council, who were able to gauge the dangers which were ahead, acted wisely in advising the abandonment of the Bill, which was agreed to on Tuesday. It was suggested that another Bill embodying the results of further investigation should be introduced hereafter. All that can now be done is to endeavour after a more strict administration of existing Acts. If those who own or occupy premises in the City for business purposes will not have them altered in order that outbreaks of fire should bring no danger, they should at least avoid an evasion of the Factories Acts. It is not right to have a larger number of people employed in offices than was contemplated when the buildings were planned. It is now known by sad experience how easily a panic can arise, and when a crowd of assistants are required to carry out a business a part of them should be drafted to buildings where there can be ample space in stairways and places of exit. In that way the amendment of the Building Act can be postponed without danger until there are additional deliberations. But it is a terrible consideration that many lives must be endangered on account of the rivalry between the Common Council and the County Council, and the desire of property owners to avoid expense in providing means of safety for the people in their employment.

THE equestrian statue of MARCUS AURELIUS in Rome has received more attention, especially from artists, than any other work of its class in the world. PETER of Cortona is said to have ordered it to march, believing, for the moment, it was alive. MICHEL ANGELO said it would appear a living creature if the raised hoop were placed on the ground. When FALCONET, the sculptor, received the commission for the colossal equestrian statue of PETER THE GREAT, he had castings made of the different parts of the animal, and he wrote a very long essay pointing out all the defects he could discover. The horse is more admired than the rider, and it has even been said that the figure of the emperor is the work of a later time. It was once supposed that the subject was CONSTANTINE, but the majority of archaeologists are disposed to believe that it represents the merciful emperor MARCUS AURELIUS. It has been often observed that the mane assumes an unusual form in the part between the ears, and it has been recently suggested by the Director of the French School of Archaeology in Rome that the arrangement is a record of a Roman legend, although the connection of the emperor with it is not apparent. During one of the wars in which Rome was engaged a common soldier imagined that he could easily obtain possession of the person of the king against whom they were fighting. He had observed that the monarch used every evening to retire beyond his camp in order to seek repose or to weigh his position. The king generally stretched himself under a tree, to the annoyance of a screech owl who had a residence in the branch. The soldier was permitted to take a strong horse with him, and he succeeded in his enterprise. In remembrance of the event the sculptors used sometimes to model the horse's mane in a way that would suggest the bird. There is no ancient equestrian statue having the importance of that of MARCUS AURELIUS, and it is therefore impossible to say to what extent the practice was general. But every student of ancient art is aware of the existence of peculiarities possibly possessing an acquaintance with long-forgotten legends.

M. REDON, the architect in charge of the Louvre, has an excellent opportunity to display his skill in overcoming a difficulty that is now general. He is entrusted not only with the disposition of the electric lighting in the garden of the Tuileries, but what is no less important, with the form of the lamps also. The task is not easy, for when LE NÔTRE laid out the gardens there could only be an imperfect illumination, and accordingly he disregarded it. He arranged his trees in great masses as if repose for the eye by day was what he principally sought. There is no doubt of his success, for the gardens are still the delight of

the citizens of Paris, as well as of all visitors. The work has been a long time delayed owing to the difficulty of settling the question of expense. The Municipality at first regarded the work as national, and therefore should be paid for by the Government. On the other hand, the Ministry declared the lighting was essentially a municipal undertaking. The impatience of the public has at length compelled a solution to be arrived at, which is that the expenses will be shared equally by the State and by the city.

THE appointment of head master of the Birmingham Municipal School of Art will become vacant in September next, on the retirement of Mr. EDWARD R. TAYLOR under the provisions of the Corporation superannuation scheme. The committee of the school would be prepared to apply to the Board of Education to exceptionally recognise a head master a specially qualified candidate. Inquiries should be addressed to the secretary, and applications for the appointment should be addressed to the chairman of the management sub-committee, Municipal School of Art, Birmingham. The latest date for the receipt of applications is Saturday, March 21.

ILLUSTRATIONS.

NEW CHURCH, ALL STRETTON, SHROPSHIRE.

THIS mission church, in the parish of Church Stretton, Shropshire, has been built of shaly local stone from the hills, in random work, with dressings of Gimshill, red tile roofs, and some half-timber work in gables, a feature in several old Shropshire churches. As the site is on the side of a hill, considerable excavation in the shaly rock was necessary to form a platform for the building. The plan consists of nave for 150, chancel, and large vestry for use as a Sunday-school and as transept for extra accommodation in the church when required. The approach from the road below is through an oak lych gate up a steep pathway. The church forms a pleasing feature in the landscape, with its mountainous surroundings. The cost, including strong retaining walls back and front of the site, was under 2,000. The church was erected by Messrs. W. BOWDLER & CO. from designs by Mr. A. E. LLOYD OSWELL, A.R.I.B.A. of Shrewsbury.

HOUSE, NEAR BIRMINGHAM.

BAILRIGG, LANCASTER: ENTRANCE FRONT. FROM SOUTH-WEST.

ELTHAM PALACE, THE HALL.

CORDWAINERS' HALL, CANNON STREET, E.C.: THE SMALL HALL.

THE word "cordwainer" is commonly believed to have been derived from the French *cordonan*, which in turn, came from the Spanish *cordoban*, suggesting the leather of Cordova; but Dr. JOHNSON was uncertain whether the word was not more related to *cord*, of which shoes were formerly made, and continued to be in the Spanish West Indies in his time. The French had several words to describe shoemakers, and one reason for the use of *cordonnier* was said to be that shoes had to be attached with cords. The guild was important. GEOFFROI PLANTAGENET, son of HENRY II., granted a charter to the *cordonniers* of Rouen. The cordwainers of London were formed into a brotherhood or fraternity in the eleventh year of the reign of HENRY IV. STOW says:—"Of these cordwainers I read that, since the fifth of RICHARD II. (when he took to wife ANNE, daughter of VESALAUS, king of Boheme), by her example the English people had used piked shoes, tied to their knees with silken laces or chains of silver or gilt, wherefore in the fourth of EDWARD IV. it was ordained and proclaimed that beaks of shoone and boots should not pass the length of 2 inches, upon pain of cursing by the clergy, and by Parliament to pay twenty shillings for every pair. And every cordwainer that shod any man or woman on the Sunday, to pay thirty shillings." In STOW's time the hall stood in Destar Lane off Friday Street.

ELTHAM PALACE.*

By P. ION ELTON.

THE remains of the Royal Palace of Eltham, of which the great hall, portion of the buttery and the moat with the north bridge spanning it now alone exist above ground, are situated in the south-east suburb of London.

The manor of Eltham has been connected with the Crown since Saxon times, and is mentioned in the Domesday Book as having been held by one Haimo as the sheriff of Odo of Bayeux, to whom it had been granted by his half brother William I., when he created him Earl of Kent. Upon Odo's banishment the estate reverted to the Crown, and in the reign of Henry III. the first royal palace appears to have been built. It was greatly enlarged in the next reign by the noted Anthony Bec, Prince Palatine and Bishop of Durham, who held it as trustee, though he afterwards managed to acquire it for himself.

Upon the death of this prelate the palace again reverted to the Crown and formed a favourite residence of Edward II. and III. This latter monarch entertained the captive King John II. of France here in 1364, and it was at Eltham thirteen years later that the Parliament was held by which the king's grandson (afterwards Richard II.) was created Prince of Wales.

Though the palace at this time must have been of considerable magnificence it did not satisfy the taste of Henry IV., in whose reign it was largely rebuilt. Most of the work now standing dates from this rebuilding. The body of the hall is ornamented (in the spandrels of its north door) with the crest of this king, and the oriels, even if they are not contemporaneous, must have been built soon after. The buttery was undoubtedly built at the same time, for the stonework of the fragment remaining courses with that of the hall. The date of the bridge is, however, harder to ascertain, but its general character and what moulded work it possesses appear to be of about the same period, though possibly a little earlier in date. Messrs. Dunnage and Lever, in their monograph on the great hall, state, however, that the bridge was probably the work of Bishop Bec—a statement for which no confirmation is offered.

Henry VI. made Eltham Palace his chief residence, and Edward IV. spent large sums in repairing it, while Henry VII. completed the work by building a "fair front" facing the moat.

From this time the story of Eltham Palace has been one of decline. In the next reign the greatly preferable situation of Greenwich Palace caused Henry VIII. to make the latter his chief abode in Kent, the waterway of the Thames then being by far the best means of his removing to his other palaces, Windsor, Richmond and Hampton Court. The palace, however, was honoured by visits from Elizabeth and James I.

Upon the institution of the Commonwealth the manor and palace were sold, and an interesting survey made at this time testifies to their then extent and condition. It records that the demesne was over 1,200 acres in extent, and the palace, though then in a bad state of repair, consisted of a fair chapel and great hall (which alone were furnished), thirty-six rooms and offices below stairs, and above stairs seventeen lodging-rooms on the king's side, twelve on the queen's and nine on the princes' sides, with various other rooms and closets; also thirty-five "bays" of buildings containing seventy-eight rooms used as offices, and placed round the courtyard, which was an acre in extent. The materials were valued at 2,753*l.* exclusive of the cost of demolition. The hall was then stripped of its lead and the chapel and many of the other buildings razed, and the remaining portions of the palace allowed to decay, so that when the modern house, Eltham Court (to which the great hall is attached), was built about sixty years ago there only remained to be incorporated with it some fragments of the buttery, though no doubt the foundations of at least the buildings that surrounded the other sides of the courtyard are still extant beneath the surface of the lawn and garden of the present house.

After the hall was stripped of its lead it was covered with a tiled roof and used as a barn, the windows being blocked up,

and it remained in this capacity till modern times. Unfortunately, in order apparently to admit vehicles, the middle pier of the southern face of the south oriel was demolished, and the gutterings appear to have been allowed to become defective, so that the ends of the rafters became decayed, and in 1828 it was found necessary to shore up the hammerbeams as the roof was thrusting out the walls. In order to fix the shores the bases of the wooden columns above the hammerbeams were sawn off, and in the accompanying drawings recourse had to be made to those published by Pugin and Dunnage and Lever (which were made from measurements taken during these repairs) in order to complete the design of the roof.

The drawings published by Pugin in his well-known book on "Gothic Architecture" show also an elaborate lantern-like tracery framed around the pendants of the hammerbeam, giving them the appearance of enlarged editions of the pendants of the stone vaulting over the lady chapel of Christ Church Priory Church, Hampshire. What authority there is for this is unknown, and unfortunately the drawings are inaccurate in several particulars, notably the shape of the drops of the pendants and the vaulting of the oriels. It should, however, be remarked that the pendants show traces that seem to indicate that there was some such enrichment, and that it has been removed and its connections with the pendent chiselled off.

Another feature to be noted is the small purlins tying in the lowermost tier of windbraces. They only occur in the three eastern bays on the south side, and there is no evidence of their having been extended further. They were probably an afterthought, made necessary by the braces starting, owing to some slight settlement in the roof, as they are awkwardly placed and hide from view the lower cusps of the braces they tie in. They are obviously a copy of the face mould of the collar-beam.

It is said that the hall was wainscotted from the sills of the windows to the floor, though there are now no traces on the walls that this was ever the case. Indeed, the manner in which the stonework is bonded into the brick lining at the oriels and the doors certainly seems to negative this idea. Probably the hall was hung with tapestry or plastered and frescoed.

Originally the western end was reserved for the royal table, which was elevated on a dais, and connected by the oriels with the royal apartments, and the eastern bay was partitioned off by a screen, the oak frame of which is still *in situ*, forming a passage connecting the north and south doors, and screening the hall from the door leading to the servery. Over this screen was probably placed the minstrels' gallery.

The main portion of the roof is in splendid condition, and the workmanship both of it and the stonework is remarkably precise and clean. There is hardly half an inch variation in the dimensions and spacing of the buttresses. The stonework is said to have been quarried near Reigate, but that of the oriels is different to that of the body of the building. The smoke and air of modern London is unfortunately having a disastrous effect upon it, and in exposed places, especially on the south exterior, it is in places eaten away five inches from its original surface, and the jambs of many of the windows are similarly decayed.

The hall is being restored by Messrs. Shillitoe, of Bury St. Edmunds, under the direction of Mr. T. G. Jackson, R.A., who, amongst other repairs, is having the shores of 1828, which greatly disfigured the interior, removed, their place being taken by an unobtrusive iron truss placed within each of the timber trusses, so obviating any necessity for renewing the original woodwork, while the purlins have been strengthened with L-iron bolted to their upper sides.

It may be of interest to add that the bridge spanning the moat on the south side was still standing in 1808, and that in 1834 Messrs. King and Clayton, when examining some of the apartments of the palace under the ground floor then extant, and forming portion of the farmhouse that stood on the site of the present Eltham Court, discovered an underground passage of considerable extent and interest. In their report to the *Gentleman's Magazine* they stated that under a then recently made arch they found a trap door leading to an underground room about 10 feet by 5 feet, and proceeding from which

* See Illustration.

a narrow passage about 10 feet in length conducted to a series of passages with decoys, stairs and shafts, some of which were vertical and others at an inclined plane, which were once used for admitting air and for hurling down missiles or pitch-balls upon enemies, according to the mode of defence in Mediæval times, and that it was worthy of note that at points where weapons from above could assail the enemy with greatest effect there these shafts verged and concentrated. About 500 feet of passage was passed through in a direction westward towards the old Middle Park, and under the moat for 200 feet. The arching was broken in under a field leading from Eltham to Mottingham, but the brickwork of the arch could still be traced further, leading in the same direction.

The remains of two iron gates completely carbonised were found in that part of the passage under the moat, and large stalactites of supercarbonate of lime that hung down from the roof of the archway showed the lapse of time since the passage had last previously been used.

The above discovery recalls the incident that, in 1405, the Duke of York was accused of intending to break into the palace and murder Henry IV. Such an access would have formed an excellent means of effecting such a design to anyone acquainted with it.

THE STAINED GLASS OF THE FUTURE.*

(Concluded from last week.)

WE have now reached a most important section of the work—the selection of the glass. This I hold to be the artist's most individual task, which he cannot delegate to anyone. The usual way in firms is to have the different colours in numbered racks; then the master numbers the outline, and the cutter goes to the corresponding rack, and chooses any sheet and part of a sheet he likes. What idea can the cutter have of the relation of each piece to the whole, or how one colour will affect another—a matter of the utmost difficulty in stained glass? Colours and tones affect each other enormously, and demand the greatest care and experience. In selecting, every lead must be taken advantage of to vary the adjoining pieces. Of course, the master makes alterations when the glass is on the easel being painted, or even after it is leaded up. One hears of quite heroic attempts in that direction—of one master who had a figure cut over three or four times before he was satisfied. It was very good of him to take so much trouble, but what bungling not to know what he wanted at first. How can that warmed-up colouring give one the exquisite thrill of the tingling grip of the artist's hand, where every piece, however varied or unexpected, seems inevitable? We will urge this reform in the interests of the masters themselves. We will tell them that in denying themselves the pleasure of selecting every piece of glass they miss the highest rapture in the production of a stained-glass window, even at the cost of a smaller output and consequent diminution of profits. We must save them from themselves.

That pernicious method also favours a great fallacy—that the light and dark of a sheet of coloured glass should be utilised to give the light and shade of a drapery. This is to make a window pictorial and leads to general flabbiness of colour. Now the principle of colour in stained glass is contrast, one piece throwing up another. Only by this means can one display the jewel-like character of the material. This principle of contrast applies not only to the light and dark of a colour, but to a mixture of contrasting colours or tints, enhancing the beauty of one. Take a yellow drapery, for instance; there should be a dominant note of rich, pure yellow; then the colour branches out on each side, as it were, on the one side to the greens and on the other to the reds. These are not to be gradual changes, but sudden contrasts, a greenish yellow against a reddish yellow, for instance, and there must be contrast in values as well. There is no end to the variety that may be imported into a colour, so long as the impression of the one colour that has given the keynote remains. This method, besides preserving the essential glassiness of the material, gives a grip and subtlety to the colour which can never be attained by the light and dark of one colour. For the necessary breadth of effect, large masses of colour with the utmost variety within each are essential. White draperies should be treated in the same way, a mixture of warm and cold tints, the warm or cold predominating as is found necessary. For flesh I use various tints, in accordance with the character represented or the colour or tone required. There is absolutely no restriction with regard to the colour of flesh (which, of course, must be in the glass and not painted on), so long as it harmonises with the scheme of colour. I generally cut angels' flesh out of green tint, of various depths as they approach or

recede from the spectator, which all helps the necessary removedness of supernatural beings; the flesh of Christ generally out of warm tint, and other living beings out of tawny or red tints, as the character demands. In early work a deep brownish pink was used throughout for flesh; the nimbus were cut off the heads and in different colours. The objection to this is that all the flesh comes at you at once; besides, it is quite mechanical. I think of a modern imitation of the period, where, in one of the little subjects, the figures are under water, and the flesh is as red as that in other subjects. Right or wrongly, it would be impossible for me to do a thing like that. In Perpendicular work, and, of course, its imitations, the flesh, the white draperies and the canopies and bases are cut out of the same white, which all rushes together, and leaves the little bits of coloured drapery stranded. With regard to the heads, they are cut out of the same piece of glass as the nimbus and painted on, and the hands and feet are frequently painted on a piece of white drapery, and not cut out. An impossible style, if strength, tone and character are considered essential. It may be thought that my treatment of flesh is pictorial, but it is not so. It is just as much a convention to cut the flesh of angels out of cold or cool tones, as that of living beings out of warm tones, as to cut them indiscriminately out of one tint; but it is one which lends itself to greater harmony. I know a church filled with figure subjects where all the flesh is cut out of ruby. This is a convention you like, but a very hideous one.

Another very important point to be considered when selecting, and which has never hitherto been thought of, is that of *timbre*. That is to say, brilliant objects should be cut out of brilliant glass, dull and solid objects out of duller, more opaque glass, that would suggest solidity without having recourse to paint, so that even the deepest tones of a window may preserve their translucency. The various materials must be regarded as the instruments of the orchestra, each of which has its individual tone-colour or *timbre*. Thus there is the brilliant sharp colour that would bring out a melody like the oboe; then the more mellow but still rich colour that would suggest the violins; then material of such tone and texture suitable for background purposes, that would suggest the low strings and drums; again, a rich "Early English" gold ruby that would suggest the thrilling tones of the trumpet. All these should be welded together in like manner to produce the effect of a rich, mellow and powerful symphony.

The glass is cut with a diamond or a hard steel revolving wheel, assisted with pliers to groze or trim the glass to shape. Glass varies considerably with regard to the ease or difficulty with which it may be cut; but it is a rule that the better the glass the more difficult it is to cut. Think of cutting glass half an inch or more thick to a shape. In such cases even pincers have to be brought into use. I believe one reason why Powell's glass is not more used is that it is not so much annealed as other makes of "Antique." It is consequently more brittle, and can be cut with less certainty. Thus, to the greater cost of the best material must be added the greater cost of cutting and the waste in broken pieces, to which add the cutting of the sheet and the extra pieces of colour for painting.

We have now reached the painting stage. The first step is to trace the outlines of flesh and drapery, of course, in vitreous colour, viz. oxide of iron, ground in water, and fatter or made workable with treacle. Lay the cartoon on the bench and you will be able to see the lines of it through the flesh tints. Lay the light colours and the sheet-glass which you are going to paint on. When traced the glass is given a comparative light or tacking fire. We now require a large piece of plain glass, to be used as an easel glass, to which the glass that is to be painted is affixed with a mixture of beeswax and resin made hot. The coloured glass may also be added, and as this is the first time we have seen all the colour together, alterations can be made in it at this stage if necessary. The colours used for painting are of an amber or earthen sort, though oxide of iron can be added to give body. It must be remembered that the colours of the window are in the glass, and that the colours for painting are simply different degrees of warm and cold shade tints. A window is usually painted in one colour throughout, but that need not necessarily be so. The tone of colour can be adapted to different objects. For instance, a cold white can be painted in a cooler tone, and in some cases a pure black can be used. The colour, which is again prepared in water, but with gum as the medium, is laid all over the glass in a flat matt, which, while moist, is stippled with a tool called a badger. This stippling gives a granulated surface which helps the texture wonderfully. When dry, the colour is gently loosened with the finger where the lights should come, and dusted off with a soft brush. As much as possible should be done with the finger; it gives more character and better texture. This process of modelling the lights is continued with hog-hair brushes, and a quill to take out the high lights; the flat tone should be left for the half-tones and shadows. When fired and stuck up again, the shadows are strengthened with oil colour; the same colour prepared with turpentine and

* A paper read before the Architectural Association by Mr. S. Sparrow on Friday evening, February 20.

il of turps as the medium. Especially is this necessary in the
esh, to give character and expression. The dry surface of
e glass is first washed over with oil of tar, to let the colour
ow freely. It is not essential that every piece of glass should
e painted. On the contrary, if there is sufficient tone in the
lass, it is better not to paint, but to let the varied markings
nd tone of the glass speak for themselves. The shadows will
en possess more translucency than if painted. Light glass
eavily painted is much more obstructive to light than richly
coloured glass but slightly painted.

I cannot leave the subject of painting without alluding to a
ind of painting that is no painting. I mean "backing," as it
called. This is to lay a matt of colour on the back of the
lass, and then partially remove it, for no other purpose than
o make the glass look dirty and old; to give it, in fact, that
one which the glass itself lacks. From the assiduous way in
hich some firms plaster the back of their windows with colour,
nyone would think that the chief attraction of the old glass
as derived from the accumulated dust of ages. The parts
hat require it are now stained. Although this is called
stained glass, and we used to be called glass-stainers (we are
ll artists in stained glass now), there is only one stain—a pre-
paration of pure silver, which stains the whites yellow. It is
ixed with yellow lake to reduce its strength; and this, being
vegetable colour, burns away when fired again. The glass
s now ready to be put together by the glazier.

As already remarked, it has been usual to regard the lead
s simply a means of holding the glass together, consequently,
o employ an insignificant lead throughout. But if we regard
he lead as an important factor in the design, we must use
eads of various widths and of a bolder character. The pro-
ortions of the lead must be adapted to the size of the window
nd its distance from the spectator. That must be a very
mall window where $\frac{1}{2}$ inch is too large for the principal lead.
n large windows a $\frac{3}{4}$ inch may be the principal lead; and if
he window is going a great height, 1 inch or more will not be
o much. There must be no idea of shuffling the lead out of
sight. To hide the lead, and use as little of it as possible, is a
characteristic of the pictorial window. A wi dow can hardly
be described as pictorial, where the lead is a prominent
feature. Where leads of different widths are used it is
necessary to mark the outline with different coloured chalks—
ay a blue for the $\frac{3}{4}$ -inch lead, a red for the $\frac{1}{2}$ -inch, while the
black ink remains for the $\frac{3}{8}$ -inch lead. The leading recalls a dan-
ger to be avoided in designing—not to make every piece of
glass of so near a size that at the proper distance one seems
o see the glass through a wire trellising. This is a
langer the mosaic dispensers are apt to fall into. The
eading of the double glass, and of the thick and varied
ieces, offers difficulties. Leading becomes an art. One has
o use a very broad-hearted lead, but sometimes that is not
ufficient; in such cases one has to make a still broader heart
oy cutting the leaf off two calms of lead and soldering the two
earts together; or by paring the leaf away to let the glass
nto the heart and then soldering a fresh leaf over it. Thus
o see another process that is considerably extended by our
determination to use the best material. The lead is then
soldered at the joints and the panel is handed over to the
cementer. It would be more correct to say the puttier.
Whereas in ordinary work of single glass the leads are filled
with cement (a thick paint which ought to be composed of
whitening, linseed oil, white or red lead, dryers and lampblack
to make it a lead colour), in this sort of work every piece of
glass must be puttied on both sides. Copper ties are now
soldered to the lead to twist round the bars, and the window
is ready for fixing. Although I am explaining my methods
thus frankly, I have not much fear that they will be copied.
Not one of them is in the direction of time or material saving,
and any one who copies them will do so at the peril of decreased
profits. In stained glass, as in the other arts, if one would do
good work one must never count the cost.

Now that I have reached the last stage of my discourse,
that section which is to deal with the stained glass of the
future, I am confronted by the hateful task of having to say
something about my own work. It is unfortunately necessary,
because I have to show that the ideas I am about to put before
you are not mere impracticable theories, but the result of
working in the best material. Just as Wagner, when writing
his theoretic works, deduced examples from his earlier operas
(the spontaneous outcome of his artistic need, thus proving
that they were not the result of any preconceived theories), so
I must describe to you my first excursion into the unknown
land, the land of mystery, of light and tone. The window
I am about to speak of was executed some few years ago for
a lady who suggested the subject, "Wotan calling up Erda,"
from the Third Act of Wagner's "Siegfried." I must confess
that at that time the subject seemed an impossible one for
stained glass, and perhaps you will agree with me when I quote
the stage directions:—"A wild region at the foot of a rocky
mountain which rises steeply. Night. A storm rages.
Lightning and thunder, which last, then ceases, while for some

time lightning continues to flash through the clouds. Here the
Wanderer enters. He strides with resolution to the mouth of a
vault-like cavern in the rocks at front, and there stands, leaning
on his spear, while he directs his invocation towards the cave.
A bluish light glows in the rocky chasm. Illumined by this
Erda very gradually rises from the depth. She appears
covered with hoar-frost; her hair and swathings emit a
glittering light." Now the crux of the whole thing was the
supernatural light in which Erda appears, and I must say that
I was very fortunate in finding at that time some "Early
English," which I tempered with Powell's blue on Venetian
opal, that realised the effect perfectly. To my surprise, there-
fore, instead of this subject being impossible in stained glass it
became clear to me that this was precisely the medium in
which effects of light were possible and could best be realised.
I found there were possibilities in the best material which had
never been dreamt of. Besides the supernatural light and the
hoar-frost on the hair and swathings of Erda it was possible to
suggest the tone of night with glass alone; the vigorous action
of Wotan, with his cloak and "beard blown by the night wind,"
contrasted with the mystical stillness of Erda, also the flash of
red in the sky suggesting the subsiding storm.

Pictorial, you will say. Not at all. A pictorial window
would have been a representation of the scene as it takes place
on the stage. But this is an independent conception, con-
ceived in the terms of the material, and producing a result
which could not be attained by any other medium. Let us be
quite clear on this point. A stained-glass window becomes
pictorial when it does such things, or in such a manner, as can
be done as well or better in another medium, *e.g.* in a picture
or wall-painting. It follows from this that there is a class of
subject which is peculiarly the province of stained glass, that is,
the supernatural, in which mystery is the most vital element,
and in producing which effects of light—with which in stained
glass we are dealing directly—are the chief factors.

I will just summarise the ideas I have gained by carrying
out that "impossible" subject. That the subject of a window
should be supernatural and symbolical. That mystery is the
highest and indispensable quality. That to produce that
effects of light and tone are the chief elements. That there
must be a definite tone colour and keynote of colour.
The tracing and painting must be bold and expressive,
wherever it is needed; but as far as possible the glass must be
left to speak for itself, and the leading must emphasise the
important lines of the design. There are some who believe
that the subjects of a stained-glass window are a matter of
perfect indifference; that any trivial thing will do for stained
glass, and who are quite content to fill a window with a
number of single figures. What a colossal waste is that big
twelve-light window I have in view. Four tiers of single
figures. Eheu! Hinc illæ lacrymæ! What an almost
matchless opportunity for a "Last Judgment." But no. That
would be too pictorial (and difficult). Let us go on with our
kaleidoscopic inanities; let us produce a window that is so dull
and uninspiring that one never wants to see it again, even if
the material itself were worth looking at. No wonder that
stained glass is considered such a supernumerary art while
such things are being done. Yet, why should stained-glass
alone stand still and stagnate? Change is the law of
progress no less in art than in human society. If we
are to have progress, it is essential that children should differ
from their parents, although parents, who think themselves
perfect (and even those who clamour most for progress), try to
defeat that law by trying to make their children after their own
image and likeness. But the fact is that no parents are so
good that their children may not be better. Where, again,
would the art of music be to-day if it had been considered
imperative to imitate the first attempts at opera with the
undeveloped orchestra of that day? We should not have had
the crowning glory of the music-dramas of Richard Wagner.
It is just as absurd to imitate old glass as it would have been
for Wagner, when dealing with a colossal and complex subject
like "The Ring," to have confined himself to the orchestra of
Monteverde. Or imagine Tristan and Isolde conversing in
Gregorian tones, accompanied by the sackbut and psaltery.
Away then with these monstrous delusions which have paral-
ysed stained glass so long: "that there is no glass like the
old glass, and there will never be any windows like the old
windows." Away with the imitation that paralyses the
imagination and let us bring whole hearts to the study of the
best material and the natural development of Early work, when, as
I imagine, there was only one kind of glass—the best the people
could make. What then is this natural development of Early
work which I venture to call "the stained glass of the future"?
And why is our development to spring from Early work and not
from fifteenth century and later work? Because the latter was
no intrinsic development of the former, but simply a repetition
in a more elaborate and ornate form. It is still a window of
single figures or small subjects connected with canopies,
consequently it leads to an *impasse*, a *cul de sac*; there is no
development possible on those lines, so it must be ignored.

Let me draw a parallel to the development of the music-drama. First, we have the simple heartfelt strains of songs, loosely connected, answering to Early work. Then there is the period of Italian opera; still the aria form, loosely connected, only more elaborate and artificial, consequently no vital development. This corresponds with work of the fifteenth and subsequent centuries. Then we have the music-drama, a development of the simple song through continuous orchestral melody until it fills the work as an organic whole, giving also to each work its special tone colour. For this latter quality, varied and distinct, yet in keeping with the subjects, I need only refer to "Die Meistersinger," "Tristan," "The Ring" and "Parsifal," and over all the individual style of Richard Wagner. I suppose no apology is needed for my allusions to Wagner and his works, as every man of culture must know something of them; but I have found them of the utmost value, as in them the great principle of unity in variety is so remarkable a feature.

And now, to return from my parallel to the development ahead of stained glass. In the first place, I should regard it as a development that, in an age of commercial production, we consciously choose the best material. Another very important development would be that of regarding a window as a whole—one window, one subject—and not a series of small windows, as the single figures connected by canopies suggest. Owing to the kindness of your executive I am permitted to bring some designs and cartoons, which gives me an opportunity of dealing more effectively with the subject of composition in a window of one subject, and without canopy and base. In the first place, it must be distinctly understood that my desire to treat a window as a whole is not due to any impatience of the shafts dividing the window into lights, but to focus the attention on one subject, instead of frittering it away on a number of single figures or small subjects. The shafts therefore must not be ignored, but clung to, as the ivy clings to the oak. Broadly speaking, the linear design, if a window is to have its due monumental character, should be more or less perpendicular, following the lines of the shafts. Impersonal objects, such as angels' wings, trees, clouds, drapery, the lines of the landscape, may run through two or more lights to help in binding the window together; but the human figure should very rarely extend beyond its own light. The colour design, however, should be horizontal—in strata, as it were. That is to say, the strong colours should be consecrated on the base of the window, as in a musical composition the base is the most important thing; in the middle more neutral tones can be used, and in the upper part lighter and more ethereal tones, thus carrying the subject away into boundless space. The canopy must go, since it is no longer required to divide a window into sections, and as its lightness interferes with the tone of the window. You will see from the set of designs the difficulties one has to contend with in fitting a subject that demands a centre light into a window of an even number of lights. This suggests the idea that the architect, when he has a church to design, might do worse than confer with the glass-stainer as to the scheme of windows, with the view, in some cases, of adapting the shape of the window and the number of lights to the exigencies of the subject. Perhaps this is a counsel of perfection, but, at any rate, you cannot go far wrong in providing us with a centre light. Most subjects from the life of Christ demand a centre light, so instead of four and six-light windows, give us three, five and seven lights.

If, that is, as your President very happily expressed it at your last meeting, you are resolved to think out your work to the uttermost detail; and yet stained glass can hardly be called a detail, it is so important in itself and also in its effect in modifying the whole aspect of the interior. I feel very strongly that the architect should get out a scheme of subjects for all the windows in his church, whether there is any idea of them being carried out at once or not. The subjects would not then be such a hideous and incoherent jumble as they generally are now.

Another development would be a firmer grasp of the colour scheme, based on each window having a definite tone colour in harmony with the subject, and a keynote focussing the colour. Its symbolism must be reconsidered and developed, so that it shall appeal to the Spirit of Reverence (if any such exists) of to-day. Its drawing must be simple, dignified and natural, without affectation of Mediævalism. It will be a development to use paint with discretion, and only where it is necessary to give tone and contour. And finally, by a bolder system of leading show that we regard it as the main factor in the design. Do not think, therefore, that I wish to ignore all tradition, and expect stained glass to begin *de novo* from this moment. On the contrary, it is necessary to study good examples, and see what is the natural form of expression in this art, and what effects have been obtained with limited means. But surely one may study without falling into the rut of imitation; and let it not be forgotten also, that our knowledge is increased by learning to avoid many things that have gone before. On the

other hand, do not run away with the idea that stained glass to be learnt by simply looking at old windows. Before one can make a cartoon for stained glass, before any one can know what style of drawing the painter requires, he or she must have had practice and experience in tracing and painting glass. And yet, within these last few years, a horde of so-called styled artists in stained glass has risen up, and like a plague of locusts, covered the land with works which almost sink in the ground for very feebleness. Stained glass has become a happy hunting-ground for all sorts and conditions of men—black men, black-and-white men, wall-paper men, window-painting men, art students, particularly from those centres of light and leading where there is no technical teacher; any one in fact, who with hand or foot can wield a pencil, and without ever having handled a piece of glass, can presume colour designs and cartoons for this most rich and subtle mediums. And yet these people float. A state of affairs which amply justifies my opening words, "that there is scarcely a subject about which there is greater ignorance than stained glass." I admit that it would have been more satisfactory myself, and, perhaps, to others, if someone else could have written this address; but as I said at the beginning, "only those who have worked in the best material are qualified to speak of the possibilities lying dormant in it."

Let us, then, throw ourselves with enthusiasm into the task of making the best use of the best material, so that by developing it as we develop every other phase of the art, we may produce, by our works of imagination and mystery, the feelings of exaltation, of rapture and devotion it has hitherto been the province of divine music alone to impart.

Mr. LEWIS F. DAY, who proposed a vote of thanks to the author, said the paper contained a great deal that was true and at the present time there was need for the truth in relation to stained glass to be made known. The speaker agreed generally with all that had been said, and especially in emphasising of the facts that glass was the main thing and not the painting, that the glass must be good, and that good glass can be had, as good as ever was made, and that the glory of glass was its colour, and that that was value in the leading of a window. He also agreed with the censure of "backing" windows; in his, the speaker said, in earlier days the process was called antiquation. Good glass could not be procured without paying for it; the costliest, however, was not always the best, for in the making of cheap glass there was often found at the bottom of the pot some good stuff, which the manufacturers did not mean to make. As to colouring, gold ruby was not half so beautiful as copper ruby, and Mr. Day entirely disagreed with the statement in the paper that copper ruby was vulgar. He could not follow Mr. Sparrow when he said he failed to feel the beauty of white windows. He, the speaker, could not visit Salisbury or York Minster or any church where there were Perpendicular windows, masses of silver lights, and think small of white glass. That was reason for the use of white in modern windows. We were accustomed to light nowadays, and it was not only cheap, but which urged people to ask for crystal windows, but the love of light. It was not safe to prophecy, but he felt that the glass of the future would not be brighter and richer, but lighter in tone. The old ideal in glass was to glorify the light that shone through the windows, and that, he believed, was the ideal of to-day, and he hoped it would be the ideal of the future.

Mr. J. D. CRACE, who seconded the motion, said Mr. Sparrow's general principles of the treatment of stained glass were unexceptional. The processes described in the paper were after all those of the thirteenth century with very little variation. The lecturer had stated that canopies must go. He seemed to have overlooked the object of canopies. The great value of a canopy work was not in its ornamental treatment of the window, but the allying of the art to the stone that connected the subject of the windows. The great fresco painters in the past connected them with the architecture of the church in which they were placed, and the architecture more or less assisted the idea that they were connected with the building, and the canopy in windows had this value.

Mr. A. H. WESTLAKE, who was unable to be present at the meeting, in a letter to the President made the following comment:—I have read the paper carefully, but find little light shown upon the future; some I naturally expected from the title of the lecture. Possibly the lecturer thinks as I do, that the best future will come by doing our best, day by day, with straining, although striving. This straining for novelty is painfully shown in modern exhibitions of glass and window-painting cartoons; it destroys the repose so valuable in good art. I must also criticise some few points of the lecture, such as the prominence given to the names of certain glassmakers. I am sure it is not done in the manner of an advertisement, but it necessitates the omission of the names of other glassmakers whose productions are not distinguishable from those mentioned. The practice of "plating" is also advocated evidently as practised by American makers. It is a very

ious form of work, and ought with proper material to be necessary. It is especially pernicious on the point of durability, as the lead of a window is the first part to decay, and then there is the probability of the falling out of one of the panes. Moreover, it adds to the weightiness of a window. A window of good stout glass and lead has always a tendency to cockle irregularly and to tear itself from its copper bands. This irregularity of weight should be obviated and not exaggerated. Addressing myself to the general principle of the lecturer, it appears to me that his first thought is the effect of an individual window, irrespective of the general "coup" of a number of windows, say, in the aisle of a church. Here, less there is some rhythmic bond, the whole of the side of the church loses the proportion of the windows to the wall and each other. This rhythm was found from traditional practice best produced by the repetition of a dominant feature such as is effected by what is called canopywork, and regardless of whether the lecturer says of Perpendicular work or even of Early Renaissance work, the result is most perfect in some churches of these styles. Witness the old glass in the ante-chapel of New College, Oxford, and in the work of Jean Cousin (a great artist) at Sens and Paris. It must also be remembered that "Early glass," such as that at Canterbury, Bruges, Chartres and Florence, is heavily coloured. It was introduced here from France, where the light is better; but even in France on a dull day such glass as that at Chartres prevents anything else from itself being seen. Remember also that much of it was removed from our own churches in the fourteenth century for that reason. As to the relative cost of good work, the question of style has nothing to do with it. Good Perpendicular or Renaissance glass is the most expensive, as white glass, if of any value, requires the best painting (although much that is done now is badly manipulated), and where there is one first-class glass-painter there are fifty moderate cartoonists and thousands of good glaziers employed. Early glass has the least technical painting value. I cannot quite enter into the same or any other musical parallels quoted, such as the likening of golden ruby to trumpet tones, nor can I admit that mystery is the most valuable ingredient in a painted window; neither do I see why angels being supernatural—a word that has no art meaning—should be green-white and Our Lord's flesh warm white. I am unable to consider the questions of the whites of different tones running together in a window are not a defect, but give the effect of breadth, whereas when everything is cut out and juxtaposed with its opposite, spottiness, such as one sees in all second and lower class works, results. I entirely agree with the lecturer, who laments the immigration into painted-glass ateliers of those who know nothing about its requirements. They are of both sexes, and their name is legion.

The PRESIDENT, in conclusion, said he thought there would be a diversity of opinion on the points raised in the paper. The subject encouraged discussion, but it was so much a matter of opinion and taste that it seemed wrong to dogmatise. He agreed with Mr. Sparrow in most points, but it was reasonable and proper for others to hold different opinions.

HERALDRY IN DECORATION.*

THE choice of heraldry in decoration as a subject on which to offer suggestions to the Applied Art Section of the Society of Arts is influenced (apart from the necessity of limiting in some measure the scope of heraldic art in general) by the consideration that, as it was in decoration that heraldry found admirable expression from a very early period, its decorative use in the past is now worth study with a view to the satisfactory execution of modern work.

Primarily heraldry, no doubt, consisted of the devices which distinguished leaders in the field, but its close connection with the personality of its bearer, whom it represented in a very intimate way, also led to its use in every conceivable form of decoration. In costume, ornament and furniture, as well as in the hangings of tapestry and in other mural adornments, it became a striking and universal feature of the artwork of its time. Owing to this strong personal and allusive quality, the employment of heraldic motives in the decoration of buildings has continued, even down to our own time, to show a more marked degree of excellence than was for a long period present in other forms of heraldic expression.

Decorative work was also the direction in which the revival of heraldry, which accompanied the Gothic revival, first showed itself. Perhaps the inherent difficulties of the materials may have suggested the sincerity of the effort to properly employ them.

It will not be necessary (even if time allowed) to go very far into the origin of heraldry. For our purpose it began

about the eleventh century—that is to say, it began to be used and systematised, more or less, as we know it, but in its essence it must always have existed.

The desire to distinguish himself by some visible means seems to have characterised man ever since we know anything about him. Badges are mentioned as the ornaments of kings and chiefs from the earliest historic times, from that of the Chaldean king, 4000 B.C., onwards. Some of these early personal devices were strangely similar to those with which we are familiar in later times. The figures on the sculptures at Persepolis, for example, have veritable crests on their heads, and these also occur on the heads of the king and his heir apparent in contemporary coins. There may even have been some sort of regulations controlling the use of various devices, but we may at least be sure that the powers that were took good care that others did not use their badges if they could help it.

Artistically, our heraldry from its rise in the eleventh century quickly developed a high standard of decorative excellence, flourishing exceedingly, with certain changes of style and method, for 300 years until the middle of the sixteenth century, when its period of greatest strength and beauty ended and its decadence began. As a system it seems to have developed in a natural way on the lines of its own necessities, as did its artistic expression in a great measure, but the latter owed much to previous design, and mainly through the influence of the textiles and other importations (sometimes brought by returning crusaders) helped to perpetuate in the Western world the lions, eagles and strange and characteristic composite animals of the East. These ancient prototypes of heraldic forms are singularly interesting, and concern us here because they sometimes possess in a marked degree qualities which teach valuable lessons that are applicable to present use. This will be discussed presently.

Although at first the Mediæval draughtsman followed the drawing of his imported or traditional motives with considerable closeness (as in the lions of one of the thirteenth-century MSS. in the British Museum), he soon began to treat them in the way that came to be considered peculiarly heraldic. In thus handling his motives he was entirely himself, and the outcome was the natural result of that splendid sense of design which distinguished him. The style is, rightly considered, purely heraldic, because it arose from its own heraldic conditions, and was the result of the very sane intention that the thing done should be suited to the use to which it was to be put, viz. to serve as a distinctive badge which could be seen and easily read at a distance, and in many cases when in motion. To this end the object was drawn as large as the containing space would fairly admit, and its form was attenuated so as to allow the ground colour to show through in due proportion, and so effect clearness of definition. Vigorous draughtsmanship also contributed to the splendidly decorative effect that was due to good distribution, and the fine balance of colour that results from it. Thus the treatment which was suggested by reasons of practical convenience resulted in an effect of great decorative value which also afforded opportunity for the use of expressive line. It is interesting to contrast this treatment with that of the later Renaissance, such as the naturalistic lion by Della Robbia, which would have become an undistinguishable blob at a distance at which the attenuated form would have been quite effective. In a similar way an eagle drawn in the ancient way, with the wing-feathers strongly divided, was at once more distinct and more decorative than its Renaissance successor.

Another practical consideration, the need of readily repairing the damage caused in action to the actual shield, dictated the flat and simple treatment of much of the painted decoration. A similar simplicity occurs in some of the MSS., especially in such as are of large extent or of frequent repetition when economy of time and labour was desired. When, however, circumstances allowed, time and skill were not spared in the elaboration of the work. It is, of course, for this reason that the heraldry in architectural decoration is generally found to be among the best work of its period.

In the ceremonial shields this elaboration is very great. They were made of layers of various materials, such as canvas stretched on wooden frames, and the changes were then modelled in gesso, and afterwards gilt and painted, or were fashioned in stamped leather and pinned down to the surface. The spaces were diversified with the beautiful tracery known as diapering, and the whole result was rich and beautiful in the extreme. Large numbers of these shields were made in Italy down to a late period. A most admirable English example is the shield at Canterbury Cathedral, said to be that of the Black Prince. Here the lions are admirably distributed, full of power and life, and less extravagantly drawn than those of John of Eltham at Westminster Abbey, but they lack something of leonine character. The *fleurs de lis* of France are beautifully free and graceful, and though so dissimilar in shape to the lions are equally well designed to occupy their spaces and equally well proportioned to them. The whole

* A paper read before the Applied Art Section of the Society of Arts by Mr. George W. Eve.

work, which is so excellent an example now of some of the best qualities of heraldic design, has suffered from the wear of the centuries, but when it was uninjured must have been superb. The lack of leonine character in the lions might naturally be expected when it is remembered that they were the descendants of generations of copies, and therefore were not consciously generalised from objects seen by the artist. Even when he did see a lion his acquired ideas were too strong for him, so that one in a thirteenth-century book of sketches, though noted in the margin as "drawn from the quick," is very like its patternlike fellows.

Whether the treatment was simple or elaborate, however, its breadth of effect and decorative quality were nearly always conspicuous. These various methods, both satisfactory in their way, are of special interest to those who require historic sanction to a choice of treatment, in opposition to the opinion that, as certain methods of work or works of a certain period are good, they are, in addition, perfect and everything else is wrong. So when a flat treatment in harmony or contrast with surrounding decoration seems desirable, the armorials may be done flatly, and when on the other hand a more elaborate treatment seems fit, modelling in relief, or any other suitable means of decorative effect may be employed. The old work itself, full of variety and freedom, teaches us how to look at the subject without pedantry, but not without knowledge. It teaches the right of individual treatment combined with selection, and illustrates in a measure the essentially artistic principles taught to Kipling's primæval ballad-maker by his totem—

There are nine-and-sixty ways of composing tribal lays,
And every single one of them is right.

It is not meant, however, that ignorant and reckless scribbling is right. Order as well as freedom is necessary, and this can only be secured by a study of the subject from all points of view.

The early treatment of the crest, helm and mantling will also amply repay study. Being made of light material, and having its weight, which was still considerable, supported by the shoulders on which the helm rested, the crest was of conspicuous size and is so represented. In early times it is said to have been one of the privileges of knighthood, and this would additionally explain its emphasis. The helm was usually that known as the great helm, to distinguish it from the helmet, basinet or other form of head armour. The latter, having a visor or front which opened, and a movable neck, came into use in the fifteenth century to meet the desire for lightness and mobility in actual battle, and thenceforward crests and the great helms that bore them were reserved for the tournament and other military solemnities. There was another especially practical reason for this disuse. It had been found that a crest was a dangerous ornament in actual battle, for at close quarters it served as an excellent handle by which to pull down the wearer's head. King Stephen is said to have been taken prisoner in this manner. The mantling, which was at first quite simple, soon became of the greatest value as an element of composition, and the importance of its free possibilities of line was quickly recognised. From a mere representation of the helm drapery, it thenceforth developed through various forms until it became in many instances similar to the contemporary architectural tracery, when, as in the fifteenth-century carvings, it surrounded the shield and ornamented the surface of the panel in a very complete and beautiful way.

By the Tudor time heraldry had ceased to be used in war in the old way, with such exceptions as banners and the decorative and emblematic shields on ships of war, and it, of course, remained an essential part of the tournaments while they continued to exist, but heraldry in the main became merely decorative thenceforward, retaining, of course, its allusive and symbolic qualities. In this way it greatly increased, thus sharing in the impetus given to the arts by the end of the Wars of the Roses. At this time a remarkable number of simple flowers came into heraldic use, columbine, gilly flowers, marigolds, honeysuckle and many more appearing not only as arms but in garlands as decorative accessories.

By this time also the shield shapes had become less simple, following in their cusplings the fluted armour of which they formed part, and others of which large numbers were designed by the little masters were frank applications of the decorative scrolls of the time. The concave shield whose raised edges took the light and helped to define the form, while assisting, together with the shadow within it, the distribution of light and shade, became much in use.

Some of the early Renaissance heraldry retained much of the excellence of the preceding Gothic as regards the pose of the figures and the general composition, and it attempted, in addition, the characterisation that was wanting in the earlier work. In many respects it was very admirable, and seems, in its individual thought working on some of the suggestions or traditions of the older style, to suggest the lines on which

modern heraldry might develop. At the same time there, a more naturalistic school, of which the heraldry in Robbia's work may be taken as the expression, and this also interesting, but as a warning. It most unfortunately empowered the more decorative style, and ultimately developed into the feebleness which characterised the heraldry that preceded the revival in the last century.

A well-known example of the better Renaissance is a plate by Albert Dürer, of a shield bearing a rampant lion; this plate there is also evident a desire to render the more cloth-like, though still complicated. Mantling afterwards followed the influence of the conventional leaf forms of the Renaissance.

I have ventured to give you this slight sketch of the development of the artistic side of heraldry, not as a historic retrospect, but because it is in the study of old work that guidance is to be found for present requirements. By this connection, a word of warning may perhaps be permitted against making a fetish of the work of any period, however good. Another is against mere copying of old examples, ever excellent, except, of course, for purposes of study. Merely to copy bits of heraldic precedent and to piece them together is not the way to make an artistic thing at all. A copy has no vitality of its own, and cannot even reproduce that of the original, for it is more than doubtful if it is possible to reproduce the spirit of work done under other conditions and modes of thought. Even Pugin, to whom the revival of decorative heraldry owes so much, with all his sympathy, and with all his powers of draughtsmanship, cannot be said to have altogether caught the intense vigour of his originals.

Again, hardly anything possesses at the same time all the good qualities that it might have, and we sometimes excuse the absence of one because of the supreme way in which another is expressed. In doing new work a broader view is necessary if it is to result in anything but a shadow of a former style. Heraldry should be expressive, interesting and decorative in original treatment, and exhibiting the qualities that the best of the old work teaches us to desire, rather than being a copy of it. The term "original" here does not mean extension by means of wild arrangements of weird lines, which perhaps original in the sense that there is nothing like them on earth, but rather the originality, or perhaps I should say individuality, which comes from serious attempts to express qualities rather than to copy styles.

The artistic expression of heraldry may be regarded in two ways—as a representation of an actual shield, crest, helm, so forth, as they would be represented in a picture, of a tournament, for instance, or as a presentation of the essential hereditary facts, in the way that is thought most expressive, but with too much regard to preceding styles. The former seems more suitable to ancient and historic arms, and the latter to be likely to harmonise with modern decorative surroundings as well as to possess more vitality and variety in itself.

This harmony with surrounding decoration is one of the essentials of design that should be continually kept in mind. Another condition, equally important, is suitability to materials and methods by which the design is expressed. Two very obvious points cannot be too often insisted on, however wearisome the reiteration, for they are even frequently ignored. One hears of shields painted on velvet (with all the detail and finish to which that beautiful material lends itself), sent as a substitute for a working drawing, large embroidery or carving, and accompanied by instructions that they must be strictly followed. Or of friezes and panels of which the different parts, heraldic and ornamental, have been done by different designers working in ignorance of other's design. The general design is made perhaps of drawn and graceful lines, with spaces where it is thought probably correctly, that the shields would tell. Then a sketch, perhaps a mere diagrammatic note of the arms, is produced enlarged to the right size and blindly copied. Of course the result is patchwork. Careless treatment of heraldry soon pervades applied art, and so to spoil what is otherwise meritorious work. Much incongruity arises from fear of improving the drawing or composition may violate heraldic rules, and this brings us to the necessity for acquiring sufficient knowledge of the subject as will enable the designer to know what points are really essential, and therefore to be carefully retained and accentuated where accent is proper, and what, on the other hand, may be modified or ignored. A knowledge of the system of heraldic description, called blazon, is absolutely necessary to this end. Pedantry in non-essential matters is of course absurd, and artistic freedom is always to be desired, but there must first of all be a basis of knowledge on which to work.

It will be necessary to study the subject sufficiently to distinguish between the essential principles (such as underlie the old good work) and the later amplifications of rules for pedantic insistence on regulating every detail, however unimportant, which were made when the legal mode of thought had displaced the artistic one. The rules that are necessary

vent confusion will be found sufficiently elastic to allow of variety of treatment.

Among the qualities that it will be desired to express are proportion, distinct definition, good distribution in filling spaces, strongly characterised and well accented forms and a vigorous pose.

The proportion of the parts of a usual form of heraldic shield, crest, helm and mantling to each other remained fairly constant from the end of the thirteenth century to Tudor times, and may be taken roughly to be two-fifths of the whole height for the shield and three-fifths for the helmet and crest. This merely as a practical guide. I need hardly say that it is not to be taken as an actual measurement, but only as suggesting the relative heights in the design. The character of the crest, whether broad and solid or tall and slight, would affect this. The result of these proportions is to bring the helm a little above the actual centre of the design, where it forms a satisfactory point on which the other objects group themselves.

With regard to the proportions of ordinaries to their fields, any rules to be found in treatises may be safely ignored. In good work the ordinaries vary in size with the requirements of distinctness in respect to the other charges, and their variation in this way has no other significance. I do not, of course, deny the usefulness of points of proportion; they may be useful so long as it is recognised that they are approximate and variable guides instead of dogmatic inflexible rules. With regard to charges it is equally impossible to say what exact proportion they should bear to the field, nor in most cases could we measure it if we did. It must be a matter of artistic perception which decides whether a space is properly filled. In any case the proportion would be an apparent rather than a scientific one, and would be greatly modified by circumstances, colour, for instance. I need hardly point out that the actual measurements would not be the same for a white object on black as for a black one on white. It is curious how prevalent the desire has always been to reduce to exact rules matters that are insusceptible of that kind of control. The sixteenth century efforts at a geometric way of drawing letters and the attempt to regulate minutely heraldic drawing are instances of a peculiarly wrongheaded way of approaching matters essentially æsthetic.

As to the animal forms, vigour is of the utmost importance, together with strong characterisation. In this connection the lions of the Assyrian reliefs are very suggestive. The expression of strong, leonine character by means of the accentuation of the muscular masses is a method that lends itself well to heraldic design. The composite figures are also well worthy of study in relation to the griffins and other monsters of later times. Gerard Leigh, writing in the middle of the sixteenth century, has something to say about griffins; they are, as you know, half eagle and half lion, which students of natural history may like to know, thus:—"Griffins bear great enmity to man and horse; though the man be armed and on horseback, yet they take the one with the other quite from the ground and carry them clean away. I think they are of great hugeness," he goes on, "for I have a claw of one of their paws which should show them to be as big as two lions." In another place Leigh refuses to believe something because "he had not seen the proof thereof."

It will be well to consider animal pose in relation to the anatomical possibilities, and the qualities of dignity, strength or grace which are associated with certain charges should also find due expression.

The schemes of arrangement that suggest themselves as suitable to decorative purposes, are very various. Complete series of family arms and those of alliances, together with the honours conferred on individuals; arms of successive owners; shields marking the visits of distinguished guests and so forth.

Unity of plan, such as when the arms are arranged in relation to some central object, as the altar in a church or the fireplace in a room, for example, is, of course, desirable. In the latter case the central position would be appropriately occupied by the entire armorials.

The employment of badges in decoration opens up a large and interesting field of design from their value as decoration in places where shields of arms are not so suitable. Though not subject to the same rules as the regular arms, they were still regarded as of great though secondary importance, and became practically hereditary in many cases. Time, however, will not permit of their adequate treatment here. A kind of badge, more ephemeral in character, called an impress, was a fashion that came to us from Italy, as many other heraldic fashions did. They were devised from mere fancy, and consisted of a device with an explanatory motto. Henry VIII. and his knights at the Field of the Cloth of Gold bore a series of devices, of which they wore part each day until the whole was complete. Cosmo de Medici had a tortoise with a sail attached and the motto, "Festina lente," and there were others innumerable. Like other heraldic matters they sometimes led to quarrels. A knight who strutted up and down at the court

of King James had a falcon embroidered on his sleeve, and the motto, "I bear a raven, fearless in flight, who checks at him his death is nigh." Then a Scottish knight saw the device, and after a while appeared with another. His was a raven with a piece of meat, and its motto said, "I bear a raven picking at a piece, who pecks at him, I'll peck at his nose." The story goes on that in the arrangements for the consequent fight, the Scottish knight, who had but one eye, demanded that his opponent should lose one of his in order to be on an equality.

There will not be time to do more than briefly allude to colour treatment. It will suffice to say that it is not at all desirable that heraldry should scream in mural decoration, however necessary it may have been to do so in the field. So long as the tinctures are distinguishable with sufficient clearness any modification of tint may be used, and the colour may be broken by means of diaper or other surface treatment that may be desirable in order to make the heraldry take its appointed place, always avoiding, however, any interference with the clear statement of the heraldic facts. The decoration may be modelled in gesso and treated with monochrome, so as to emphasise the modelling, or in many another way that practice will suggest.

The revival of the art of enamel also offers a splendid material for heraldic work. The series of works in enamel on the monuments, and, above all, the early stall plates of the Knights of the Garter at Windsor, are too well known to need more than an allusion to the magnificent field of study they afford; but it may perhaps be permitted to hope that the beautiful art of enamelling, which (though its revival is less than twenty years old) is fully capable of worthily following its long-ago predecessors, may have some day an opportunity of doing so.

The value of heraldry in domestic decoration is also obvious. One can hardly imagine anything to excel the gem-like effect of armorial enamels on the dark panels of a library, for example.

Whatever be the material in which heraldry finds its means of expression, it is permitted confidently to hope that the wide and increasing interest that is being extended to the subject may result in the production of work that is not unworthy to follow the best of its predecessors.

TESSERÆ.

Sculpture and Painting.

THE principles of excellence in painting are so distinct from those of sculpture that the highly elevated character of general or ideal nature, so appropriate to the perfection of the latter, is perhaps scarcely compatible with that of the former, which, being a more complete imitation of its objects, requires a stricter adherence to their individual peculiarities. In sculpture we have only the forms and lines of expression, so that a statue is, in itself, but an abstract imitation, and consequently is employed to the greatest advantage in exhibiting abstract nature; but in painting we have also the glow of animation, and the hues, as well as lines, of passion and affection; wherefore, as less is left to the imagination, the tone of imitation must be brought down nearer to a level with the individual objects with which it will be compared and by which it will consequently be judged. In this respect the difference between sculpture and painting is similar to that between epic and dramatic poetry. In the picture and upon the stage the imitation, being immediately addressed to the organ of sense, and entirely dependent on its evidence, requires in many cases, and admits in all, a stricter and more detailed adherence to the peculiarities of common individual nature than either of the sister arts will ever allow. Many of our most affecting tragedies are taken from the events of common life, but no beauty of verse nor felicity of description could make us endure such things in epic narration. In the same manner some of the most interesting and affecting pictures that the art has ever produced are taken from similar events and treated in a similar style; in all of which the pathos is much improved, without the picturesque effect being at all injured by the characters and dresses being taken from common familiar life. But in sculpture this could not be borne, that art never having made any impression or excited any sympathy by exhibiting common individual nature. Even in their portraits the sculptors of the fine ages of Greece always took the liberty of enlarging the features and invigorating the expression, of whatever kind it happened to be, and if they employed drapery it was always of that particular sort which is peculiarly appropriated to the art and which may therefore be properly called sculptural drapery.

Gothic String-Courses.

String-courses may be regarded as the successors of the horizontal lines by which Classical is principally distinguished from Gothic architecture, and the importance of them will be

felt when it is remembered that all masonry is made up of successive layers, so that they form a most genuine piece of decorative construction, and are almost essential to the feeling of repose. They consist of projecting ledges of stone carried below windows, both within and without, round buttresses and other angular projections, and in cornices, parapets, tower-stages and other parts of edifices, used as dividing lines to set-off one particular portion as distinct from another. Though subordinate, and seemingly insignificant, details, they are of the greatest possible importance in imparting a character to a building. Sometimes, breaking playfully from the horizontal, they rise in graduated and rectangular heights. Sometimes carried over a doorway or round an arch; now dying into the wall; now, as it were, passing into some interrupting projection, and, nothing baffled by it, reappearing on the other side; now starting aloof into a window label, and playing the most fantastic tricks before again descending. A string-course at once relieves naked masonry, and blends into a whole the seemingly detached portions of a rambling and irregular construction. In most cases, especially in windows, it forms a real drip or weathering, and of course adapts its upper surface to this end. Hood mouldings, when used internally, cannot be said to have any real use; but they form a decorative finish of too important a kind to be neglected with impunity.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting was held on Monday last, Mr Aston Webb, A.R.A., presiding. It was resolved that, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be awarded this year to Mr. Charles F. McKim, of New York, for his work as an architect.

At the ninth general meeting of the session 1902-3, following the special meeting above referred to and similarly constituted, the minutes of the meeting held on February 16 were taken as read and signed as correct.

The PRESIDENT referred to a circular recently issued to architects and others, headed "A Government Diploma for Architects," and said that the Council were still opposed to any such scheme of registration as that set forth in a previous Bill dealing with the same subject, but when the details of the proposed Bill were before them and had been duly considered the Council would be prepared to give their definite views as to the course to be taken.

Mr. John Robert Moore-Smith attended for the first time as Fellow.

The following were elected as Fellows:—Wilfrid Ainslie, Sir Robert Rowand Anderson, LL.D., F.R.S.E. (Edinburgh), Thomas Edwin Cooper, Herbert Davis (Scarborough), James Macintyre Henry (Edinburgh), Walter Stirrup (Blackburn), William Angelo Waddington [A.] (Manchester), John Henry Townsend Woodd, M.A. Cantab., Arthur William Yeomans (Chard, Somerset); as well as the following Associates—Robert Bennett (Buxton), William Edward Brooks, Frederick Billingham Chester, Walter St. Leger Crowley (Cardiff), William Greenwood (Blackburn, Lancs), John Hindle Higson (Blackburn), Joseph Holt (Wilmslow, Cheshire), Charles Henry Hopson [Colonial examination] (Canada), Henry Joseph Bissaker Hoskins (Birmingham), John Ivor Price Jones (Cardiff), James Morton Lethbridge, Thomas Forbes MacLennan (Edinburgh), Thomas McLaren (Montreal), Charles Ernest Monro (Glasgow), George Salway Nicol (Birmingham), Charles Edmund Lancaster Parkinson, Frank George Richardson, Nathan Thomas Salmon (Reading), Stanley Towse, William Henry Watkins (Bristol), Horace White, Francis Carr Wrigley. As Hon. Corresponding Member:—Constant Moyaux, Member of the Institute of France, President of the Société Centrale d'Architectes Français, Paris.



Chepping Wycombe Town Hall Competition.

SIR,—I am desired by the President of the Royal Institute of British Architects to ask you kindly to give publicity to the fact that the Corporation of Chepping Wycombe, having altered their conditions to meet his views by adding to clause 3 after the words "themselves prefer" the words, "but it is the intention and wish of the Corporation to accept the assessor's award unless there should appear any valid reason to the contrary," and having extended the time for the delivery of designs to April 4, he has consented now to nominate an assessor.—I am, yours faithfully,

W. J. LOCKE, Secretary.

Royal Institute of British Architects: March 3, 1903.

GENERAL.

The Duc Loubet has given 10,000 francs to the directors of the French School at Athens, in order that the excavations in Greece, and especially those at Delos, may be continued.

A New electric railway, about eight miles in length, connecting Portsmouth with Horndean and Waterloo, opened on Monday. The cars—of the tramway pattern—worked by the overhead trolley system.

The Memorial of the late Archbishop Temple in Canterbury Cathedral is to take the form of a figure, recumbent otherwise, of the archbishop in bronze, the architectural superintendence of the work being entrusted to Mr. W. D. Carr-Saunders, architect to the dean and chapter, and the execution of the sculpture to Mr. F. W. Pomeroy.

Mr. James Mansergh, C.E., ex-president of the Institution of Civil Engineers, and consulting engineer of Birmingham waterworks, will receive the honorary freedom of Lancaster March 24. An address by Mr. Mansergh dealing with the water supply of Birmingham will follow the formal ceremony.

The Restoration of Allhallows Church, near Rochdale, which dates from Norman times, is now completed. The whole cost has been defrayed by public subscription with the exception of the chancel, the renovation of which was undertaken by the Ecclesiastical Commissioners.

Motor Fans are to be introduced as early as possible, to carry the new financial year into the sick bays of all His Majesty's ships.

The Site of the King's Sanatorium is not definitely settled for negotiations are in progress between the advisory committee and Lord Egmont for the acquisition of a site, known as Lord's Common, almost midway between Midhurst and Fernhurst. The land, 120 acres in extent, lies at an elevation of 600 feet above sea level, is sheltered on the east, west, and north, has a splendid south aspect, and stands about half a mile from the main road from Haslemere to Midhurst. There are no dwellings nearer than a mile.

A Sum of 7,500*l.* was voted by the House of Commons for expenditure at Marlborough House. The money is devoted to the repair of the drains at Marlborough House. The delay in the commencement of the work was due in the first place to the presence of guests for the Coronation, and in the second place to the illness of Professor Corfield, the sanitary inspector for the Board of Works. The whole undertaking is now almost completed. The total expenditure has been 12,000*l.*

Mr. Davis, an American who has already spent much money on explorations near Thebes, on the Upper Nile, has recently covered a splendid chariot in the tomb of Thothmes IV. (XVIII. Theban Dynasty, B.C. 1533). The fittings are of bronze and the rest is gilded wood. The chariot is full-size, and has been valued at 5,000*l.*

Princess Christian will lay the foundation-stone of a new parish church at Summerstown, Tooting, on April 1. The original church, built in 1835, was condemned by the London County Council in 1893 as a dangerous structure, and it was taken down. The new church, to seat 800, will cost 8,400*l.*, and the fittings 800*l.* Mr. Godfrey Pinkerton is architect.

The Supreme Court of Washington has decided that there is a limit in law to the height of buildings, and that it is 90 feet. If it should be necessary to attain a greater height, the builders should be compelled to purchase the rights of the community to all the space above. This is a new interpretation of the maxim in English law, "Cujus est solum est usque ad cælum."

Messrs. Kidston & Co., of Glasgow, have been awarded the contract for the supply of 25,000 tons of steel rails for the Government railroad, in competition with American, German, and Canadian firms.

Sir A. Binnie has prepared a report on the drainage of the Aldington district, which is closely connected with Brixton and Hove. He recommends a separate outfall to the sea in the vicinity of Shoreham Harbour. The works will probably cost 200,000*l.*

The Belfast Harbour Commissioners have agreed on the construction of a graving dock, at an estimated cost of 299,000*l.* It will be 750 feet long, 96 feet wide at the entrance and 100 feet wide at the bottom. The depth will be 12 feet from the blocks to ordinary high-water level, and some 16 inches will be allowed for the blocks. There will also be a fitting-out jetty 600 feet long.

Sir Wm. B. Richmond, K.C.B., R.A., will give a lecture on the decorations of St. Paul's Cathedral to the Incorporated Institute of British Decorators on Monday evening next at the Painters' Hall, E.C.







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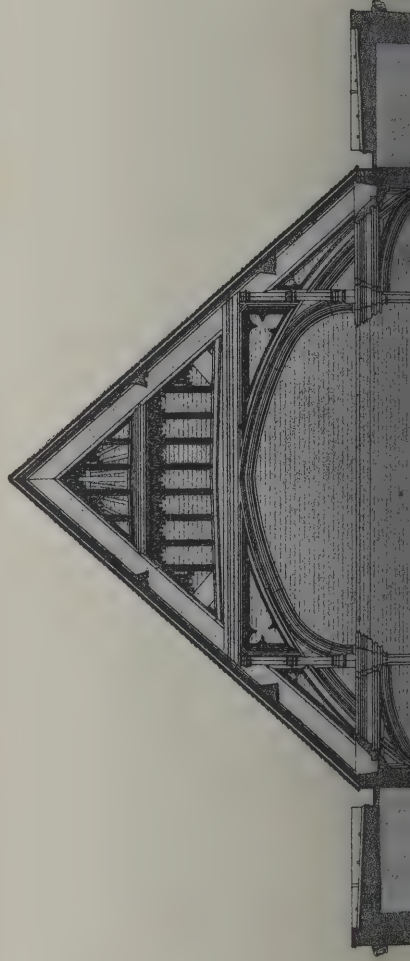
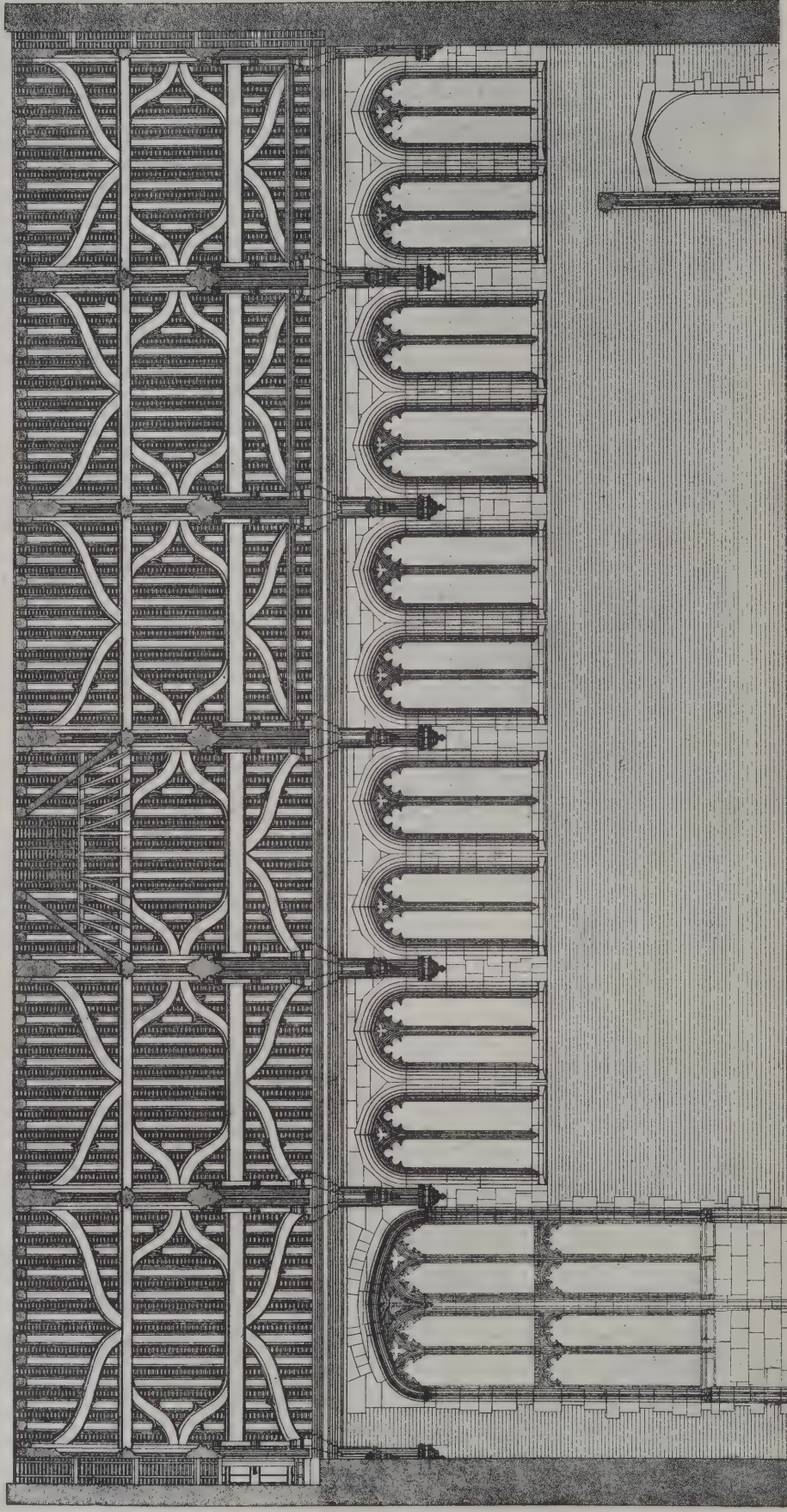
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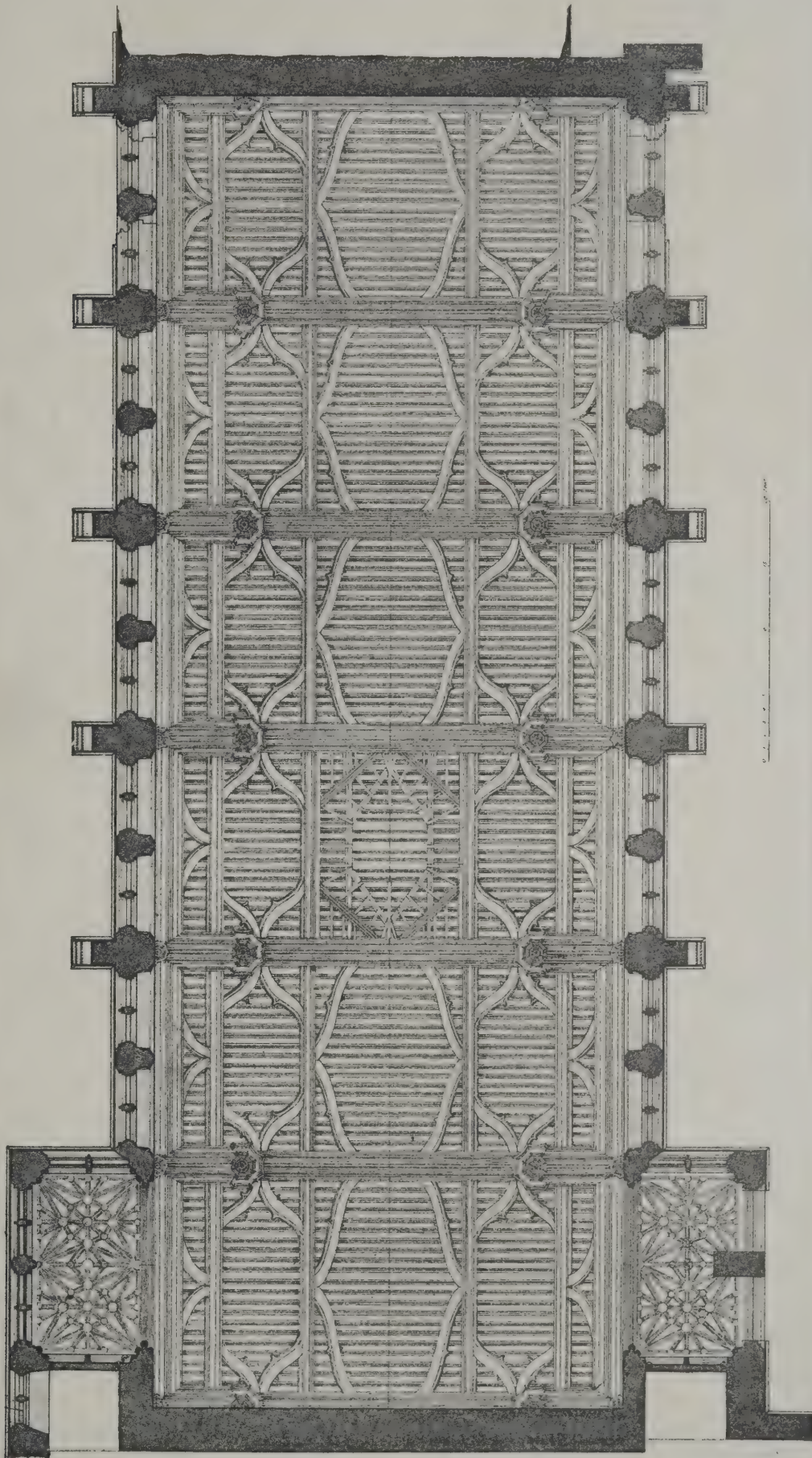
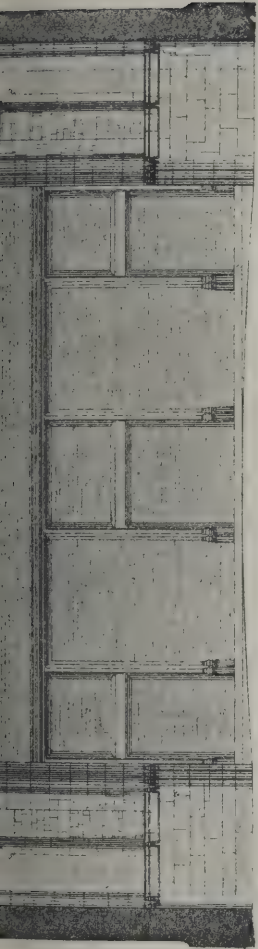


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THE

Architect and Contract Reporter

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 5,000l. Premiums of 60l., 25l. and 15l. will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

CASTLEFORD, YORKS.—March 31.—Designs are invited for a free library. Premiums 15l. and 10l. respectively. Mr. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—April 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public library. Premiums of 60l. and 30l. are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—March 15.—Designs in competition are invited for a memorial of the Hull soldiers who fell in the South African war. Mr. E. Laverack, town clerk, Town Hall, Hull.

HULL.—March 31.—Designs in competition are invited for extension of the town hall. Premiums of 300l., 200l. and 100l. are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000l. Premiums of 75l., 50l. and 25l. respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100l., 50l. and 25l. will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

TASMANIAN SOLDIERS' NATIONAL MEMORIAL.—A premium of twenty guineas is offered for the best design for a national memorial to be erected to Tasmanian soldiers who lost their lives during the recent war in South Africa. The cost of the memorial must not exceed 1,000l., and full particulars can be had on application to the Agent-General for Tasmania, 5 Victoria Street, S.W.

YEOVIL.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ALNWICK.—March 14.—For erection of two semi-detached villas in Lisburn Street. Mr. M. Temple Wilson, architect, Alnwick.

ASHFORD.—March 12.—For erection of schoolrooms, comprising a central hall and surrounding classrooms at the schools at Ashford, Middlesex. Mr. F. W. Roper, architect, 9 Adam Street, Adelphi, W.C.

ASHFORD.—March 16.—For erection of a small scullery in connection with the infirmary of the workhouse, Willesborough, Ashford, Kent. Mr. T. H. Wilde, architect, Albemarle Road, Willesborough.

BARNSELY.—March 13.—For enlargement of the post office at Barnsley, for the Commissioners of H.M. Works and Public Buildings. Particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

BATH.—March 13.—For erection of a sanatorium at Winsley, near Bath. Messrs. Silcock & Reay, architects, 47 Milsom Street, Bath.

BOCKING.—March 11.—For alterations and additions to the Bocking Board schools. Mr. Chas. W. Clark, architect, Coggeshall, Essex.

BOURNEMOUTH.—March 11.—For erection of a cricket and football pavilion at King's Park. Mr. F. W. Lacey, borough surveyor, Municipal Offices, Bournemouth.

BRADFORD.—March 11.—For alterations and additions at the Barkerend Board schools, Undercliffe Street. Mr. Tho. Garbutt, clerk, School Board Office, Manor Row, Bradford.

BRIGHTON.—March 10.—For alterations, &c., to the ceiling and roof of the laundry at the workhouse, Elm Grove. Mr. H. S. Reed, Parochial Offices, Brighton.

BRIDLINGTON.—March 14.—For erection of a furnace and shed at the Corporation's Portland Place dépôt. Mr. A. E. Matthewman, town clerk, Town Hall, Bridlington.

BRIDLINGTON.—March 10.—For alterations to house and premises, 2 Clough Bridge Road. Mr. J. Earnshaw, architect, Wellington Road, Bridlington.

BRISTOL.—March 9.—For construction at Canon's Marsh, Bristol, of a new deep-water wharf wall, having a total length

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of about 340 yards, together with railway sidings and hauling roads. Mr. W. W. Squire, engineer, Underfall Yard, Cumberland Road, Bristol.

BROMPTON.—For erection of three dwelling-houses to be erected at Brompton, near Northallerton. Mr. John S. Walton, architect, Northallerton.

BUDLEIGH SALTERTON.—March 12.—For erection of Wesleyan church, &c., Budleigh Salterton, Devon. Mr. W. H. Boney, architect, 124 Chancery Lane, W.C.

BURNLEY.—For erection of the proposed car dépôt at Queensgate. Mr. G. H. Pickles, borough surveyor, Town Hall, Burnley.

COALVILLE.—March 17.—For erection of a pumping station and engineer's cottage at Coalville, Leicester. Mr. Thomas Jesson, clerk, Urban District Council, Coalville, Leicester.

CORK.—March 22.—For erection of dwelling-house at Ballinlough Road. Mr. D. J. Coakley, architect, 1 Charlotte Quay, Cork.

CROYDON.—March 9.—For erection of a condenser-house at the Corporation electricity works, Factory Lane, Croydon. Mr. Saml. Jacobs, acting town clerk, Town Hall, Croydon.

DURHAM.—March 10.—For erecting twenty-five houses at Washington Colliery, for the Washington Coal Company, Ltd. Particulars may be had at the Offices, Quayside, Newcastle.

EAST HAM.—March 16.—For erection of a technical school adjacent to the town hall, and a building for refuse destructor at the sewage works. The Chairman of the Council, Town Hall, East Ham.

ECCLES.—March 16.—For supply of the following goods for the year ending March 31, 1904:—Setts (lonkey, paving, crossing, grit, no granite), flags (natural and concrete), flags (manhole, lamp-eye and gully), kerbs (straight and circular), channel stones (straight and circular), pitch, creosote oil, tar, prepared tar, limestone (broken to various gauges), limestone cubes and chippings (various sizes), granite macadam and chippings (broken to various gauges), castings, pit or river gravel. Mr. Wm. Henry Hickson, town clerk, Town Hall, Eccles.

FULHAM.—March 11.—For the construction of a girder and concrete floor for the Fulham Board of Guardians. Mr. F. Hastings Medhurst, consulting engineer, 13 Victoria Street, S.W.

FULNECK.—March 11.—For erection of new wing and alteration of premises for ladies' school at Fulneck, Yorks. Mr. C. S. Nelson, architect, Sun Buildings, 15 Park Row Leeds.

GRAVESEND.—March 25.—For erection of an infectious diseases hospital at Whitehall Road, Cobham, near Gravesend. Mr. E. Godfrey Page, architect, 4 and 5 Warwick Court Gray's Inn, W.C.

HALIFAX.—March 13.—For erection of a house at Ha Carr, Luddenden Foot. Mr. Thomas Hy. Tyson, architect, Fountain Street, Halifax.

HALIFAX.—March 19.—For erection of a residence at Clover Hill, Halifax. Mr. Raymond Berry, architect, Commercial Street, Halifax.

HANLEY.—March 12.—For erection of one 20-bed pavilion in corrugated iron and wood, for the North Staffordshire Joint Smallpox Hospital Board. Mr. Elijah Jones, architect, 10 Albion Street, Hanley.

HARROW-ON-THE-HILL.—March 14.—For erection of a cottage at the Greenhill sewage farm, Harrow-on-the-Hill. Mr. J. Percy Bennetts, surveyor to the Urban District Council, Harrow.

HEDGELEY.—March 7.—For extensions of premises in corrugated iron at Hedgeley, Northumberland. The Chairman of the Committee, Hedgeley Co-operative Society, Hedgeley, Glanton, R.S.O.

HIGHER BEBINGTON.—March 11.—For extension of Victoria Hall, Higher Bebington, Cheshire. Messrs. Deacon & Horsburgh, architects, Central Buildings, North John Street, Liverpool.

HOVE.—March 25.—For constructing a dwarf wall and gate piers and providing and fixing a cast-iron fence and gate on the south side of the pleasure-ground fronting Old Shoreham Road. Mr. H. Endacott, town clerk, Town Hall, Hove.

HUDDERSFIELD.—March 9.—For erection of an engine and boiler-house and other works at Clayton West, near Huddersfield. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

HUNTINGDON.—March 18.—For erection of post office at Huntingdon. All particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

HUNWICK.—March 12.—For erection of a Wesleyan school and alterations to chapel at Hunwick. Mr. George Wright, Hunwick.

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ILFORD.—March 24.—For erection of a crematorium at the City of London cemetery, Little Ilford, Essex. Clerk of the City of London Burial Board, Guildhall, E.C.

IRELAND.—March 10.—For erection of male block and extension of female wing at the asylum, Letterkenny, co. Donegal. Mr. J. P. McGrath, architect, Commercial Buildings, Foyle Street, Londonderry.

IRELAND.—March 10.—For alterations and improvements to Granard Church. Messrs. William H. Byrne & Son, architects, 20 Suffolk Street, Dublin.

IRELAND.—March 12.—For erection of a fire brigade station at Ballymacarrett. Sir Samuel Black, town clerk, Belfast.

ISLEWORTH.—March 18.—For demolition of old workhouse premises off the Twickenham Road, Isleworth. Mr. William Stephens, clerk, Union Offices, Isleworth, W.

IXWORTH.—For reflooring boys and girls' schools, Ixworth, Suffolk, with 1½-inch tongued and grooved boards, and to find closets where necessary. Apply to Vicar, Ixworth.

KENSINGTON.—March 10.—For the repair, strengthening and making watertight of the first-class swimming-bath at the Lancaster Road Baths, North Kensington. The Town Clerk, Town Hall, Kensington.

KENSINGTON.—March 12.—For alteration and enlargement of boiler and engine-houses and the erection of a chimney-shaft at the workhouse in the Marloes Road. Mr. Ernest Flint, architect, 85 Coleman Street, E.C.

KETTERING.—March 9.—For erection of an electric light and power station and refuse-destructor, and a chimney-shaft for the same, near the Rockingham Road. Mr. John Bond, clerk, U.D.C., Market Street, Kettering.

KILHAM.—March 11.—For pulling-down and rebuilding the Bay House inn and stabling at Kilham, Yorks. Mr. David Petch, architect, Victoria Chambers, Huntriss Row, Scarborough.

KINSON.—For additions and alterations to Heatherlands Schools, Kinson, Dorset. Mr. Walter Andrew, architect, Parkstone.

KIRKBY IRELETH.—March 9.—For taking-down and rebuilding Bank End (Hundred) bridge on the district road from Bank End to Grizebeck, over the Grize Beck, in the township of Kirkby Ireleth. Plans may be seen at the County Bridge-master's Office, Preston.

KIRBYMOORSIDE.—March 13.—For widening Catter bridge (stone), near Kirbymoorside, Yorks. Mr. W. G. Bryning, county surveyor, Northallerton.

LAMPETER.—March 21.—For erection of assembly rooms at Lampeter. Mr. L. L. Bankes-Price, architect, 28 High Street, Lampeter.

LEEDS.—For erection of a boiler shop, &c., for the Hunslet Engine Co., Ltd, Jack Lane, Leeds. Messrs. Archibald Neill & Son, architects, 38 Park Row, Leeds.

LEVENSULME.—March 16.—For erection of a greenhouse and potting-shed at the recreation grounds, Chapel Street, Levensulme, Lancs. Mr. James Jepson, surveyor, Guardian Chambers, Tiviot Dale, Stockport.

LONDON.—March 10.—For erection of offices at Euston Road, N.W., for the Hearts of Oak Benefit Society. Mr. M. C. Meaby, Jessel Chambers, 88-90 Chancery Lane, W.C.

LONDON, W.—March 17.—For alteration to arches in the goods yard, &c., at Paddington Station, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

LUMB.—March 16.—For additions to National school, Lumb. Mr. A. Brocklehurst, architect, Waterfoot.

LYNDHURST.—March 16.—For additions and re-drainage at Lyndhurst police station, Hants. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

MAIDENHEAD.—March 9.—For erection of a public convenience in the Fir Walk, Castle Hill. Mr. Percy Johns, borough surveyor, Maidenhead.

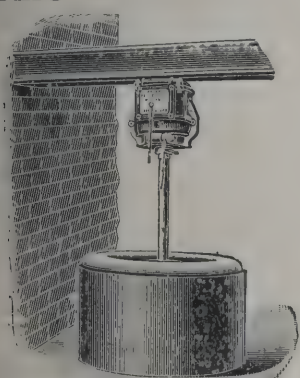
MANCHESTER.—March 13.—For erection of a straw store and wood-cutting shed at the workhouse premises in Tame Street, Ancoats. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MANCHESTER.—March 16.—For erection of the Victoria Baths, High Street, Chorlton-on-Medlock. Particulars may be obtained at the office of the City Architect, Town Hall, Manchester.

MANCHESTER.—March 21.—For construction of an underground lavatory for males at the junction of Corporation Street and Miller Street, Manchester. Particulars may be obtained at the offices of the City Surveyor, Town Hall.

MARSDEN.—March 9.—For erection of weaving sheds, &c., containing over 2,000 square yards of floor area, at New Mills, Marsden, Yorks. Mr. John E. Lunn, architect, Milnsbridge.

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MIRFIELD.—March 9.—For alterations and additions to the Lower Hopton Working Men's Club. Mr. F. H. Hare, architect, Town Hall, Mirfield, Yorks.

NANTWICH.—March 16.—For erection of Congregational schools, Monks Lane, Nantwich. Mr. R. Matthews, architect, Nantwich.

OTLEY.—March 9.—For additions to shed in Burras Lane, Otley, Yorks. Messrs. Fairbank & Wall, architects, 3 Manor Square, Otley.

OUNDLIE.—March 11.—For erection of an administrative block of an isolation hospital, fencing, drainage, &c. Messrs. Goch & Saunders, architects, Bank Chambers, Kettering.

PRUDHOE.—March 13.—For erection of ten two-roomed cottages at Prudhoe, Northumberland. Mr. Thomas Tulip, Whinney Hill, Choppington.

PURTON.—March 14.—For erection of cattle sheds, cart-house, &c., and repairs to house and buildings at Restrop Farm, near Purton, Wilts. Mr. Robert J. Beswick, architect, 35 Regent Street, Swindon.

RADCLIFFE.—March 17.—For construction of basement, foundations to buildings, open space and other works in connection therewith on the south side of Market Place, Radcliffe, Lancs. Mr. J. Sharples, clerk, Urban District Council Offices, Radcliffe.

SALFORD.—For repairing and improving two engines and double-acting ram pumps, and for providing one or three centrifugal pumps and engines, each capable of raising 14,000,000 gals., 30 feet lift, per 24 hours. Mr. J. Corbett, borough engineer, Town Hall, Salford.

SCOTLAND.—March 9.—For restoration of the single-storey shed at Stobcross Quay, Glasgow, in two divisions, the one about 477 feet in length and the other about 381 feet in length by 60 feet in width. Mr. T. R. Mackenzie, general manager and secretary, Clyde Navigation Trustees, 16 Robertson Street, Glasgow.

SCOTLAND.—March 9.—For erection of parish church at Forres. Mr. John Robertson, architect, 39 Union Street, Inverness.

SCOTLAND.—March 10.—For alterations and additions to Greenhill public school. Mr. James Strang, architect, Vicar Street, Falkirk.

SCOTLAND.—March 11.—For erection of a dwelling-house, North Bodiechell, a dwelling-house, Midtown, and for altera-

tions on steading, Macterry. Messrs. James Duncan & Son, architects, Turriff.

SCOTLAND.—March 14.—For erection of Carnegie public library. Mr. William Lyle, surveyor, 16 St. John Street, Coatbridge.

SCOTLAND.—March 16.—For alterations to the Dennistoun and Dalmarnock tramways depôts, Glasgow. Mr. John Young, general manager, 88 Renfield Street, Glasgow.

SCOTLAND.—March 16.—For erection of sanitation works consisting of forty-one brick water-closet shafts, with closets and accessories, cast-iron and lead water pipes, sewers, manholes, sewage purification works, &c., and other contingent works, Barleith Buildings, for the Glasgow and South-Western Railway Company. Mr. F. H. Gillies, secretary, St. Enoch Station, Glasgow.

SEDGLEY.—March 9.—For alterations at Coseley Mount Pleasant Board schools, and for the erection of a new girls' department, cookery and laundry centres, and caretaker's house. Mr. S. H. Eachus, architect, Lichfield Street, Wolverhampton.

SHOREDITCH.—March 14.—For alterations to the kitchen at the infirmary, Hoxton Street, N. Mr. F. J. Smith, architect, Parliament Mansions, Victoria Street, S.W.

STOCKTON-ON-TEES.—For erection of a Wesleyan church and schools, Yarm Lane, Stockton-on-Tees. Messrs. W. J. Morley & Son, architects, 269 Swan Arcade, Bradford.

THETFORD.—March 16.—For erection of a schoolroom, &c., at the Congregational church, Shipdham. Rev. A. J. Fitton, Everleigh, Shipdham.

UPPERMILL.—March 9.—For erection of retaining and fence walls adjoining the Oldham and Ripponden main road, between Carrcote and Denshaw bridge. Mr. J. H. Reynolds, surveyor, Council Offices, Uppermill, near Oldham.

WALES.—For erection of lime-kilns. Llandeibie Lime Works, Ltd., Llandeibie.

WALES.—For erection of two houses at Neath. Mr. Frank B. Smith, architect, Port Talbot.

WALES.—March 9.—For erection of a new cloakroom, lavatory, store-rooms, lobby, lighting, and fixed and folding partitions at Blaina school. Mr. R. L. Roberts, architect, Abercarn.

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WALES.—March 9.—For alterations and additions to Abermorlais schools, Merthyr Tydfil. Mr. J. Llewellyn Smith, architect, 50 High Street, Merthyr Tydfil.

WALES.—March 10.—For additions, alterations and improvements to the St. Helen's Board school, Swansea. Mr. G. E. T. Laurence, architect, Chandos Chambers, Buckingham Street, Adelphi, W.C.

WALES.—March 11.—For erection of an infants' school to accommodate 250 children at Hiraef, Bangor. Mr. W. G. Williams, architect, 220 High Street, Bangor.

WALES.—March 11.—For extensions and alterations of the Cymmer Workmen's Club and Institute, High Street, Cymmer, Porth. Mr. E. Williams, secretary.

WALES.—March 12.—For rebuilding the Angel inn, stables and two cottages at Castle Street, Maesteg. Mr. J. Cook Rees, architect, Neath.

WALES.—March 12.—For erection of pumping-station buildings near the North Dock, Newport. Sir John Wolfe Barry & Partners, 21 Delahay Street, Westminster.

WALES.—March 13.—For erection of fifteen dwelling-houses at New Tredegar. Mr. Geo. Kenshole, architect, Station Road, Bargoed.

WALES.—March 14.—For erection of refreshment rooms adjoining the Telegraph inn, Great Ormes Head, Llandudno. Mr. H. Milling, architect, Llandudno.

WALES.—March 14.—For erection of a new vicarage house for the parish of Cray, Breconshire, with outbuildings, drainage, water supply, &c. Rev. Ogwen Davies, Forest Cottage, Cray, Brecon.

WALES.—March 25.—For erection of twenty-five dwelling-houses at Fleur-de-Lys, Pengam. Mr. Geo. Kenshole, architect, Station Road, Bargoed.

WALES.—March 16.—For erection of boundary and retaining walls, levelling, &c., of recreation ground at Pontlottyn. Mr. John Jones, Hengoed, *via* Cardiff.

WALES.—March 18.—For erection of eleven houses, a villa residence and outbuildings, stabling, &c., in Pennant Street, Ebbw Vale. Mr. B. J. Francis, architect, Abervagenny.

WALES.—March 22.—For erection of farm buildings at Treriffith, Moylgrove. Messrs. George Morgan & Son, architects, 24 King Street, Carmarthen.

WEMBLEY.—March 12.—For ventilating the council chamber and painting and colouring the interior of the council chamber and offices, laying-on gas to premises throughout and fencing the yard and premises at the public offices, Harrow Road, Wembley. Mr. Cecil R. W. Chapman, surveyor, Public Offices, Wembley.

WEST AUCKLAND.—March 21.—For erection of Primitive Methodist church and school at West Auckland. Mr. R. Race, architect, Westgate, Weardale.

WEYMOUTH.—March 11.—For construction of an electricity generating station, chimney-shaft, &c., at Sunny Bank, Stavordale Road, Weymouth. Sir Richard Nicholas Howard, town clerk, Town Hall, Weymouth.

WHITBY.—March 20.—For sanitary alterations in the workhouse. Particulars may be had at the Workhouse.

WHITEHAVEN.—March 10.—For excavating and building a motor-chamber and for enlarging present organ-chamber in St. Nicholas Church. Mr. J. S. Moffat, architect, Whitehaven.

WISBECH.—March 9.—For alterations to existing premises, new sanitary annexes, new drainage system, improvement of ventilation, heating of wards and annexes at the workhouse. Mr. F. Burdett Ward, architect, 7 York Road, Wisbech.

WREXHAM.—March 23.—For erection of a wrought-iron shed in the clinker yard, Willow Road. Mr. Thomas Bury, town clerk, Wrexham.

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SIR HENRY TRUEMAN WOOD on behalf of the Council of the Society of Arts has intimated to the advisory committee of the International Fire Exhibition, 1903, that the Council has decided to offer gold, silver and bronze medals for certain classes of modern fire-extinguishing and life-saving appliances to be exhibited at Earl's Court. For the best chemical fire-engine for town use shown at the exhibition the Council offer one Society of Arts gold, two silver and two bronze medals, and also similar awards for the best and most easily-worked long ladder exhibited which will reach the sill of a window 80 feet above the level of the pavement, and which can be rapidly transported over roads not more than 25 feet wide.

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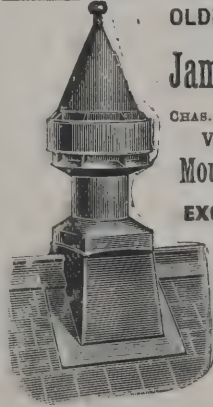
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FINCHLEY.

For new sanitary arrangements, structural alterations, decorations and renovations at Christ's College. Mr. H. T. WAKELAM, county engineer, Guildhall, Westminster.

G. W. & J. H. A. Claridge	£2,500	0	0
J. Peattie	2,129	0	0
E. Boxall	1,923	15	0
W. Howie	1,920	0	0
Hardy & Son	1,865	0	0
B. Nightingale	1,850	0	0
C. H. Bursill	1,763	14	0
Vigor & Co.	1,738	0	0
Parkinson & Son	1,728	0	0
Patman & Fotheringham	1,700	0	0
Ambrose & Co.	1,679	0	0
W. Tout	1,520	0	0
J. Stewart	1,505	0	0
P. Finch & Co., Ltd.	1,498	0	0
H. Knight & Son	1,494	0	0
Voller & Goodfellow	1,390	0	0
F. W. Harris	1,375	0	0
C. R. Price	1,368	0	0
Cooper	1,295	0	0
SPIERS & SONS, 2 Hill Road, St. John's Wood, N.W. (accepted)	1,274	0	0
Wilcocks & Son	1,195	0	0
W. Dudley	1,125	0	0
W. T. Batchelor	1,119	0	0

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HACKNEY.

For construction of a public underground convenience adjoining Kingsland High Street. Mr. NORMAN SCORGIE, borough surveyor.

J. F. Holliday	£2,297	0	0
C. Castle & Son	2,291	5	1
Spiers & Son	2,049	0	0
W. S. Sharpin	2,031	0	0
A. E. Symes	2,012	0	0
C. W. Killingback & Co.	2,004	9	8
J. T. Robey	1,940	0	0
Stapleton & Sons	1,917	6	2
Doulton & Co., Ltd.	1,910	0	0
Foster Bros.	1,873	0	0
Finch & Co., Ltd.	1,832	0	0
S. Kind	1,818	0	0
W. Shurmur & Sons, Ltd.	1,818	0	0
Davis & Bennett	1,790	0	0
J. Shelbourne & Co.	1,736	0	0
Sabey & Son	1,690	0	0
G. JENNINGS, LTD., Lambeth Palace Road, S.E. (accepted)	1,633	10	11

For execution of works and the supply and delivery of materials for one year to March 31, 1904, viz. drain pipes, &c., and plumbers' work. Mr. NORMAN SCORGIE, borough engineer.

Drain-pipes, &c.

G. Jennings, Ltd.	£297	11	7
F. H. Rosher & Co.	269	8	7
W. Whiteway & Co.	256	4	6
Sutton & Co.	248	14	0
Coles, Shadbolt & Co.	248	13	4
J. Byford & Son	242	6	9
T. Wragg & Sons, Ltd.	234	16	7
J. Knowles & Co.	233	3	6
Albion Clay Company, Ltd.	232	15	8
Whincop & Son	230	12	8
Erith, Lisney & Co., Ltd.	228	15	10
W. J. White & Co.	227	7	5
T. BLYTH, 317 Kingsland Road, N.E. (accepted)	217	17	1

HACKNEY—continued.*Plumbers' work.*

J. Russell & Sons	£246	14	6
Bate Bros.	240	10	5
James & Poulton	237	12	6
J. Pritchard & Sons	232	14	4
T. W. Kingsland	212	8	0
J. F. Holliday	207	2	4
E. S. Johnson	202	14	7
DALSTON FORGE COMPANY, 45 Dalston Lane, N.E. (accepted)	182	14	11

HEATON.

For erection of residence at Heaton, Yorks. Mr. JAS. LEDINGHAM, architect, District Bank Chambers, Bradford.

Accepted tenders.

Toothill & Balmforth, Spicer Street, Little Horton, Bradford, joiner and mason.
Simpson & Moore, 184 Manningham Lane, Bradford, plumber.
T. Thornton, Shipley, slater.
J. Throp, Stephenson Fold, Southfield Lane, Great Horton, Bradford, plasterer.
C. V. Hartley, 61 Manningham Lane, Bradford, painter.

HENLEY-IN-ARDEN.

For erection of a new gasholder and tank, about 12,000 cubic feet capacity, with 6-inch connections.

C. F. WALKER, Donnington Ironworks, Newbury, Salop (accepted).

HIGHAM FERRERS.

For erection of a small detached villa at Higham Ferrers, Northants. Mr. GEORGE HALL, architect.

Machine Joinery Works	£455	0	0
P. Ireson	399	0	0
J. Ireson	350	0	0
J. TITMUS, Finedon (accepted)	335	0	0

For water supply works, Higham Ferrers and Rushden. Mr. R. E. MIDDLETON, engineer, 17 Victoria Street.

A. E. NUNN, Tenterden (accepted) £57,072 0 0

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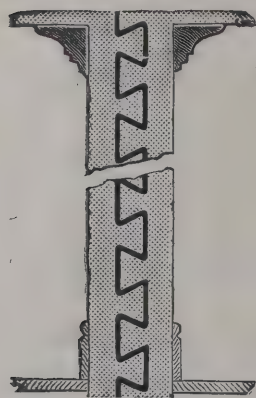
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HOYLAND.

For sewerage work from Old Jump Pit to manhole on Hoyland Silkstone Company's waggonway opposite end of St. Helen's Street, near Barnsley. Mr. W. PERCY YOUNG, surveyor.

M. Grantham	£320	0	0
I. Hague	205	11	6
J. King	198	4	8
M. O. Eyre	189	12	0
G. Hall	170	0	0
Jones Bros.	149	15	0

WRIGHT & WALLING, Middowgate Road, Bourne, Lincs (accepted).

	149	8	3
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For construction of a rubbish tip in Singleton Wood, Hoyland. Mr. W. PERCY YOUNG, surveyor.

M. O. Eyre	£490	19	0
Jones Bros.	367	0	0
I. Hague	364	14	6
G. Hall	320	0	0
M. Grantham	310	0	0

WRIGHT & WALLING, Middowgate Road, Bourne, Lincs (accepted).

	295	12	2
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HULL.

For erection of relief office in Fern Street, Hull. Mr. T. BEE-CROFT-ATKINSON, architect, 11 Trinity House Lane, Hull.

Accepted tenders.

J. Carr, Cholmley Street	£846	2	0
G. W. Berridge, Holderness Road	509	0	0
W. Lawson, Finkle Street	159	17	6
F. Sweeting, Beverley Road	138	8	0
W. Wilde, De Grey Street	93	16	0
J. V. Coonan, White Street	49	18	0
W. Drewery, Walton Street	42	10	0

For supply of 15 additional trams. BRITISH WESTINGHOUSE Co. (accepted).

IPSWICH.

For outside and inside painting and repairs at the Guardians' offices, 19 Tower Street, Ipswich.

T. Plowman	£68	10	0
F. Bennett	65	12	4
Crisp & Smith	57	10	0
A. J. Humphreys	46	17	0
J. H. Orvis	45	18	0
H. C. HARDING, St. Margaret's Green (accepted)	45	0	0

IRELAND.

For erection of priest's house at Glenville, co. Cork. Mr. SAMUEL F. HYNES, architect, 21 South Mall, Cork. J. J. COFFEY, Midleton, co. Cork (accepted).

KEIGHLEY.

For paving, &c, of four streets off Victoria Avenue. Mr. W. H. HOPKINSON, borough engineer. T. E. SUGDEN, Keighley (accepted).

	£864	11	1
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LANCASTER.

For street works in Back Bowerham Road, two positions; Back Quarry Road, three positions; Back Rosebery Avenue. Mr. J. C. MOUNT, borough surveyor. J. JOHNSON (accepted).

LEEDS.

For painting throughout the Foresters' club buildings in Enfield Road, off Roundhay Road. Messrs. BUTTERY & BIRDS, architects, 1 Basinghall Street, Leeds. A. W. RICHARDSON & Co. (accepted).

	£24	2	2
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LONDON.

For repairs and decorations at 834 Old Kent Road, and for drainage works at 844 Old Kent Road. Mr. T. H. COLE, surveyor, 858 Old Kent Road, S E.

Kind	£150	0	0
Belcher & Co.	147	10	0
Hill & Sons	139	15	0
Shelley	125	0	0
Larcham	123	0	0
Hall & Son	120	1	0
Bickerton	118	0	0
Cooper	110	0	0
Arundell	108	10	0
Reid & Co.	105	0	0
Keitch	100	0	0
Garner & Co.	99	15	0
Gale	99	0	0
Lovell	92	0	0
Quilter	86	5	0
Robson	83	0	0
Potter	75	14	0
CLARKE, 47 Grenton Road, Lee (accepted)	68	4	0

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ST. GERMANS.

For laying water-mains from Cross Park, St. Stephen's, to the St. Stephen's Board schools, St. Germans.

W. V. HARRIS, Torpoint, near Devonport
(accepted) £130 10 0

SCARBOROUGH.

For erection of a Press and scorers' pavilion, new seats, railings and alterations to present pavilion, &c., at the Scarborough Cricket Club ground. Mr. CHARLES EDESON, architect, Huntriss Row, Scarborough.

Accepted tenders.

J. Kendall & Sons, 12 Blenheim Terrace, carpenter and joiner £118 12 0
J. W. Bland, 35 Nelson Street, bricklayer 62 0 0
Appleby & Brogden, Sussex Street, smith and founder 40 15 9
W. M. Bolder, 40 Franklin Street, plumber and glazier 5 0 0
A. Briggs, 64 Castle Road, painter 6 8 2
F. W. Rudeforth, 6 St. John's Road, slater 4 16 6

SCOTLAND.

For formation of Hunter Place, Greenock.

R. Aitkenhead & Sons £353 4 0
A. C. R. LANG, Whinstone Quarries, Gourrock
(accepted) 268 0 10

For furnishing Kinross joint hospital.

BARNET & MORETON, Kirkcaldy (accepted) £194 2 3

SLEAFORD.

For laying 9,500 yards of 3-inch, 2½-inch and 2-inch cast-iron pipes, &c, for the supply of water to Great Hale Fen, Sleaford, Lincs. Mr. JESSE CLARE, engineer, Sleaford.

Brown & Sons £2,787 0 0
T. Bell 2,187 16 0
Smithdale & Son 2,053 8 6
W. Barker 1,907 11 8
Rowland 1,836 0 0
D. H. Porter 1,829 0 0
Woldridge 1,806 17 4
Shardlow 1,436 0 0
J. T. Barnes 1,375 0 0
W. DICKENSON, Heckington (accepted) 1,286 0 0

SKERTON.

For erection of a Primitive Methodist Sunday school at Skerton, Lancs. Mr. J. PARKINSON, architect, 67 Church Street, Lancaster.

T. MAWSON & SON, Lancaster (accepted) £810 0 0

SOUTHEND-ON-SEA.

For erection of new Southchurch Hall schools for 1,280 children. Messrs. BURLS & HARRIS, architects, Clarence Chambers, Southend-on-Sea.

S. Parmenter £22,961 0 0
E. West 22,686 0 0
W. E. Davey 22,300 0 0
Baker & Wiseman 22,078 0 0
R. Elvy 21,700 0 0
G. R. Whur 20,705 0 0
Davis & Leaney 20,477 0 0
Dupont & Co. 20,285 0 0
F. & E. DAVEY, Southend-on-Sea (accepted) 19,987 0 0
S. E. Moss 19,985 0 0

STOKENCHURCH.

For new residence, Stokenchurch, for Mr. R. D. Cruikshank. Mr. ARTHUR VERNON, P.S.I., architect, 29 Cockspur Street, London, S.W., and High Wycombe.

G. Syres £1,365 10 0
W. H. Siarey 1,167 0 0
H. HARRIS (accepted) 1,088 10 0

WALES.

For erection of new infants' schools and extensions to existing schools for boys and girls at Barry. Mr. GEO. THOMAS, architect, Cardiff.

Jones Bros £9,936 0 0
Lloyd & Tape 9,735 0 0
Lattery & Co., Ltd. 9,422 0 0
W. Britton 9,350 0 0
W. Thomas & Co. 9,293 0 0
D. Davies 9,034 0 0
Geo. Rutter 9,000 0 0
E. R. Evans & Bros. 8,875 0 0
Wm. Symonds 8,863 0 0
D. W. Davies 8,851 0 0
H. S. RENDELL, Barry (accepted) 8,627 0 0
E. B. Smith-Jones & Sons (withdrawn) 7,565 0 0
Architect's estimate 8,803 0 0

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NEW CATALOGUES.

AN important feature of the new catalogue just issued by Messrs. W. F. Stanley & Co., Ltd., of Great Turnstile, is the capital series of designs for stencil plates, of which a large variety is shown, including cardinal points, corners, letters of many forms, &c. Illustrated descriptions of theodolites, gradiometers, levels, and calculators in great variety are also given.

MESSRS. SHANKS & CO, LTD, Tubal Works, Barrhead, send us a copy of their new supplementary catalogue of baths and bath-room appurtenances, in which this firm is constantly introducing improvements. The illustrations, which are admirably rendered, contain suggestions for ideal bath-rooms, and the prices of all the various appliances and accessories are given in plain figures so as to enable anyone to make an exact estimate of the cost of a proposed installation.

TRADE NOTES.

THE new three-dialled illuminated turret striking clock in Eltham town hall was set in motion on Saturday last before a large gathering of the inhabitants. The clock was fixed as a memento of the coronation of Their Majesties the King and Queen, and was made and fixed by Messrs. Wm. Potts & Sons, clock manufacturers, Leeds and Newcastle.

MESSRS. GEO. G. BLACKWELL, SONS & CO, LTD., The Albany, Liverpool, advise us of the death of Mr. Isaac Roberts, their traveller, whose lead business they took over some six

months ago owing to his liquidation. They have erected at their Garston Mills, under his own supervision and on his own methods, a special grinding plant by which they grind to the particular fineness so essential to the trade, who can therefore fully rely on being well supplied with the very best article in quality and fineness. The late Mr. Roberts's position will be filled by Mr. E. S. Blackwell.

BUILDING AND BUILDERS.

THE foundation-stone has been laid of a new English Wesleyan church, which is being erected at Llangollen. The church, which will be in the Gothic style, from designs by Messrs. Morley, of London, will accommodate 400 worshippers. It is being built with Cefn stone at a cost of 4,000*l*.

THE foundation-stone of a new receiving house for children, to be erected by the St. Pancras Board of Guardians, has been laid at Leighton Road, Kentish Town. It is to be used as an intermediate school, where children will be placed while under medical observation and pending their removal to Leavesden, instead of, as at present, spending the necessary interval in the workhouse. Places will be provided for sixty children.

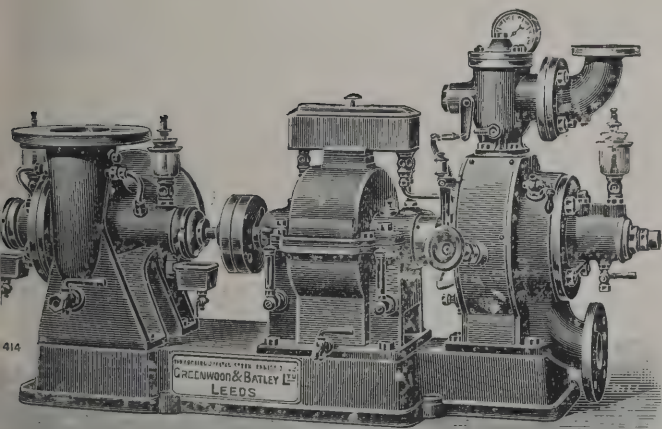
MR. EDMUND PEARSE BURD held an inquiry at Ashton-under-Lyne concerning the application for a provisional order to amend the local Act of 1893, and a subsequent order of 1900. The Corporation have borrowing powers to the extent of 35,000*l*. for the purpose of converting the town's closets to the water-carriage system, and something over 18,000*l*. of this has been already spent. It was explained by the town clerk (Mr. F. W. Bromley) that it was desired by the Corporation that the expenses incurred by them, which are heavier than was first expected, and often necessitated rebuilding outhouses, in carrying out the work of conversion should be "private improvement expenses," so that the repayment by the property-owners of the cost of the work might be extended over a number of years, instead of being recoverable in a lump sum, as at present, the owners to pay interest in the usual way. Evidence was given and the inquiry closed.

THE new offices shortly to be built for the Hearts of Oak Benefit Society will be from the designs of Mr. C. Meaby, architect, of 88-90 Chancery Lane, London.

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SILICATE-OF-LIME BUILDING STONE.

IN our issue of January 23 we gave a short notice of Mr. L. P. Ford's valuable discovery of how to produce the long-desired silicate-of-lime stone, and we have now much pleasure in giving a more detailed account.

Mr. Ford first called his stone by the fancy name of Crown Dale, but now, on forming a syndicate, he has altered the style to that given above, which is an exact description of the article, namely, a combination of silica and lime, with no other addition except oxides of metal for colouring purposes. The stone is composed of only about 95 per cent. of properly graded silica sand, and about 5 per cent. of unslaked fat lime, and depends for its strength upon the expansion of the lime when put through the process, and the beautiful mechanism of the mould boxes.

The desirability of having a true silicate-of-lime building stone is recognised by almost every text-book on building, and numerous attempts have been made to produce it during the last 75 years, both here and on the Continent, but although Ransome in England, Zernikow and many others in Germany succeeded, their processes were far too expensive, and they could not avoid cracks and flaws which caused too great a waste. The consequence is that we find the industry practically, if not entirely, abandoned here and in America, while in Germany it has taken the form and been reduced to the manufacture of sand-lime bricks, which are now produced there in very large numbers.

With regard to bricks, Mr. Ford has devised a far simpler and cheaper process, which he desires to see carried out in connection with the stone process.

As to durability, we cannot do better than quote Mr. Ford's own words:—"Most natural building stones are unable to stand chemical tests, and the consequence is they have had to gain characters respectively by use; but a silicate-of-lime stone will endure chemical tests. Secondly, a silicate-of-lime stone was made by Ransome in 1837, but by an expensive process, and the buildings constructed with it are monuments of durability. Thirdly, we must not forget that the strength of the still standing Roman structures is due to the presence of silicate-of-lime. Fourthly, on the Continent there are buildings constructed of silicate-of-lime stone made by processes which were a failure, not for quality, but on account of the great waste from cracks. And lastly, silicate-of-lime bricks are now fully accepted as durable in Germany, France and elsewhere."

The process lends itself to producing the stone in any degree of hardness, and in any colour. Some of the stone now being exhibited is certified by Messrs. Kirkaldy & Son to crush at 692.8 tons per square foot.

The stone being absolutely homogeneous, and produced without cracks, flaws, air-holes, &c., can be used and cut up in the manner dictated by the size required, and no other considerations.

Mr. Ford thinks that it is not desirable, in the interest of architects and art, to produce only set sizes and designs, but to make the stone in quantity and in large blocks, and sell at a very cheap rate.

Mr. Ford's discovery will be the means of developing many an estate and the numerous large patches of desert country in various parts of the earth, also utilising the waste tailings from gold and other mines, and affording a really lasting stone in our large cities, the impurities in which are so inimical to many of the natural stones.

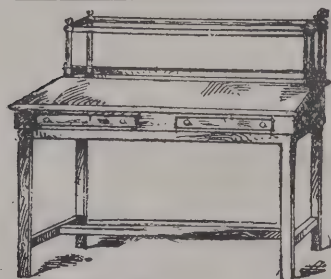
Mr. Ford's first factory is in North Wales; but the flotation of companies for London, Birmingham, Manchester, &c., besides for Johannesburg, Australia, India and elsewhere abroad are already being discussed, so that ere long the industry will be in full swing.

The cost of manufacture is calculated to be under 3d. per cubic foot of stone, and about 12s. a thousand of bricks, in factories of a fairly large capacity. And the selling prices will range from 8d. to 1s. 6d. per foot of stone (according to quality) and from 25s. to 50s. per thousand for bricks.

Mr. Ford's syndicate of 43,000l is nearly filled up, and several applications for licenses at home and abroad have already been received.

An exhibition of large and small blocks of stone and some bricks is open at 73 Coleman Street, E.C., which it is well worth our readers' while to visit, as it will convince them of the truth of the statements and claims made.

Mr. Ford is a lawyer. He held the position of Her late Majesty's Attorney-General in the Transvaal in 1877. He was the founder and owner of Fordsburg and Jeppes Town (suburbs of Johannesburg), besides several other important undertakings, and he took up the solution of the difficulties of the manufacture of silicate-of-lime stone through having to take over a mortgage on a property which consists chiefly of large deposits of silica and limestone. To turn them to account Mr. Ford had a factory put up on the German system, which he, like others, found a failure; but, having once tackled the



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STOVES
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ter, he went on, and has now mastered the problem, so g unsolved, notwithstanding the large sums spent with a w to its elucidation. We may add patents have been, of rse, taken out all over the world.

VARIETIES.

CLOCK tower is about to be erected at Surbiton from designs of Mr J. Johnson, architect, of 9 Queen Victoria eet, London, E.C

MR. F. C. WHEELER, of 4 Frederick's Place, Old Jewry, don, has been elected an Associate of the Surveyors' titution.

THE opening ceremony was performed on Monday in con- ction with the new schools just erected in Grove Lane, ndsworth, for 1,600 scholars, at a cost of upwards of 14,000l., the Handsworth School Board.

THE Brighton Guardians have decided to spend 1,000l in proving the water service at the workhouse as a precaution inst fire. They have declined, however, to act on a sugges- on from the chief constable that a resident fireman should be ointed, the idea being that the present officials are suffi- ntly trained.

THE new Waterloo school, erected by the Oldham School ard, has been formally declared open by the Rev. Canon untree, chairman. The school is situated in Greengate eet, and the total cost, including furnishing, is about 16,000l. accommodates 906 children.

OUR contemporary, *Le Mois Scientifique et Industriel*, ounces the removal of its offices from the Boulevard des ignolles to 8 Rue Nouvelle, Paris IX. It will publish, in form of quarterly supplements, four exhaustive monographs, which the first will treat of the "Fabrication des Fontes, iers et Fers par le Haut fourneau électrique." It will appear the 25th inst., and will contain a number of sketches and wings. The second supplement will appear on June 25, d its subject will be "Les Applications industrielles du id."

THE new church of St. George, Abbey Hey, Gorton, has t been consecrated by the Bishop of Manchester (Dr. orhouse). The parish of St. George, which was formed in bruary 1899, has a population of about 4,000, and there is

every prospect of rapid development. The chancel, side chapel, vestries and three bays of the nave (with accommoda- tion for 400 people) are now complete. It is expected that the cost of the church will be about 4,400l.

AN important stage in the completion of the new church of Greyfriars, Aberdeen, has been reached in the formal opening of the hall in connection with the building. This spacious suite of rooms, which is situated beneath the church, is now finished, and it is expected that another three months will see the church proper ready for occupancy. The building, in- cluding the site, has cost 20,000l, and, in addition, the con- gregation are to spend 2,300l in the erection of an organ, stained-glass windows, an oak screen and other adornments.

AT Tuesday's meeting of Chirk District Council a scheme for the systematic drainage of the parish of Chirk was adopted. Mr. Bremner Smith, the engineer, explained that the three separate schemes would necessitate an expenditure of over 2,000l. The septic tank system would be used, and one acre of land near Maesgwyn farm would be required for Chirk, half an acre for Halton, and another half acre for barracks. The engineer's slight modifications, suggested to reduce the cost by 50l, were approved

THE Bombay Port Trust has prepared a scheme, subject to the approval of the Government, for the construction of a great new dock with a water area of nearly 50 acres, the site to be between Ballard Pier and the present docks, the depth to be 33½ feet, and the entrance to be through a lock 600 feet long. The dry dock will be from 800 feet to 850 feet long. The scheme includes a deep-water dockhead pier 1,250 feet long, where mail steamers will be able to moor, the passengers stepping from the ship to the train. The cost of carrying out the scheme, exclusive of the branch railway line necessary, is roughly estimated at three crores of rupees (3,000,000l. in Indian currency).

AFTER being entirely remodelled and the plant brought up to date for steel smelting and rolling, the Britannia Works of Messrs. Dorman, Long & Co., Middlesbrough, were re- opened on the 2nd inst. About 1,000 hands used to be employed in this part of the firm's extensive concern, where girder making and bridge building work is carried on, and during the six months the alterations have been going on the workmen have been engaged in other, if less remunerative, occupations. The new plant is according to the latest American and continental practice. It is proposed only to

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ELECTRIC NOTES.

THE electric light was, on Monday evening, switched on in Hornsey, just two years from the day the work was commenced. The scheme is that of Mr. C. E. Lovegrove, the District Council's engineer, and already 81,962*l.* has been expended upon it. A further scheme, involving the outlay of 17,000*l.*, has been sanctioned.

THE Stoke Newington Council wish to promote a Bill in Parliament enabling them to purchase electricity in bulk from Hackney and Islington for the lighting of certain streets which they are legally bound to illuminate in this way. As there was opposition a poll has been taken of the ratepayers and owners, and the result has been declared as follows:—For the Bill, 2,371; against, 2,117—majority in favour, 254.

THE electricity committee of the Worcester Corporation report a profit of 1,151*l.* on the year's working, after payment of all expenses, including interest and sinking fund. The water-power at Powick station has proved more remunerative than in any previous year, 58.6 of the current having been generated by water-power, causing a reduction in the coal bill of 57.2*l.* over the previous year.

MR. HENRY F. JOEL, A.M.I.C.E., of 31 Wilson Street, Finsbury Square, notifies us that he has purchased the lease, plant and stock of that branch from the firm of Henry F. Joel & Co. and Thos. Potter & Sons United, Ltd., and that he purposes carrying on the business of electric dynamo motor and electric motor car manufacturer and contractor at that address in his own name.

LABOURERS' DWELLINGS, LIVERPOOL.

THE following report was read at the last meeting of the housing committee of the Liverpool City Council:—

Pursuant to the following resolution of the housing committee of December 5, 1902—"That the piece of land in Eldon Street shown on the plan submitted be placed at the disposal of the City engineer, and that he be requested to prepare plans and estimate of cost for the erection of concrete cottages thereon"—the engineer submits herewith Drawing No. 3,296,

showing the proposed general arrangement in plan and elevation of a block of tenements suitable for erection upon this site and also estimates which he has prepared of the cost of the buildings, &c.

The site upon which the buildings will be erected contains 413 square yards, and this space is laid out as follows:—Buildings, 234 square yards; open space, 179 square yards.

The building consists of three floors, on each of which four tenements are arranged. Each tenement comprises a living room 15 feet by 10 feet 3 inches, and two bedrooms averaging 7 feet 4 inches by 14 feet 3 inches, the height of the room from the floor to the ceiling being 10 feet; the floors will be covered with $\frac{3}{4}$ -inch boards or other suitable material laid on the concrete. The arrangement of the bedrooms relative to the passages and conveniences is such that, if though desirable, pairs of tenements can be used as two three-roomed houses, or alternatively as one four-roomed house and one two-roomed house. A fireplace and chimney is shown in each room, and through ventilation and light is provided. A cupboard for food is provided in each living-room against an outer wall, which is perforated to admit of free ventilation. Each tenement has scullery, separate water and ash-shoot accommodation, these being arranged in a projection at the back, and, together with the drainage connections, are kept outside the main building.

Each tenement is provided with a separate entrance door from the balcony facing the street. The stairs and balconies are on the front elevation and open to full view from the street with the object of avoiding the evils of common stairs and passages within the buildings.

As the roof is practically flat (the slope being that usually allowed as crossfall for flagged footwalks), a stair has been provided to the roof, which, being surrounded by parapet wall and made waterproof, can be used for washhouses and drying ground, or, if desired, as a playground.

The materials to be used in the construction of foundations, walls, floors, roofs, &c., of these tenements will be crushed clinker from the refuse destructors and Portland cement, with a small proportion of embedded steel or iron. The crushed clinker and cement will be mixed in proper proportions at the destructor depôt, and filled into moulds to form slabs, each slab representing a complete side, floor, or roof of a room. The openings for doors, windows, &c., as well as the fireplaces and flues, will be formed in the slabs, and projections in the nature of dovetails with their corresponding notches on

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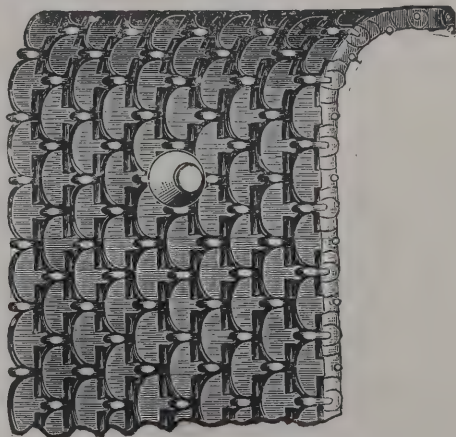
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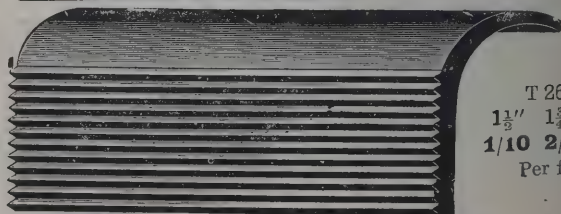


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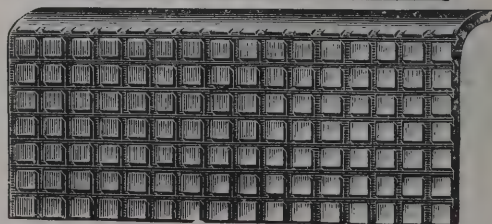
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3" including Nosing	...	2/6	2/11	3/3	3/6	3/9 each.
4 1/2"	"	3/9	4/3	4/9	5/3	5/8 "
6"	"	5/-	5/8	6/3	6/11	7/6 "
7 1/2"	"	6/3	7/-	7/10	8/8	9/5 "



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2" 2 1/2" 3"
1/5 1/8 1/11
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T 2686.
1 1/2" 1 3/4" 2"
1/10 2/1 2/
Per foot.



T 2718.
Sanded.
2 3/4" 3" 3 3/4"
1/6 2/- 2/
Per foot.

ities are provided, so that each slab may be dovetailed to ch of the slabs with which it comes in contact when erected, e permanent jointing material being cement mortar. The lconies, stairs, balustrades and the chimneys, where they rise ove the roof, are similarly moulded in blocks.

The site of the buildings will be excavated where necessary, d the foundations composed of the same materials filled in u, brought up to a level surface at the ground level, and owed to set.

The drainage, water and gas connections from the street e also put in and brought up to the ground level adjoining, under the site of each w.c. or scullery.

When the various slabs and blocks have matured they are ted, placed on waggons behind a traction engine and removed the site of the proposed building. They are here lifted from e waggons by an overhead travelling crane, and deposited in eir final position in the building.

When the building has been erected the windows, doors, ates and fittings are fixed in position and completed as usual

The engineer's estimate of the cost of the scheme is as llows:—

Land.

3 square yards at 12s. per square yard £247 16 0
ost of buildings complete, including drainage
and finishing open spaces 1,230 0 0

Capital expenditure 1,477 16 0
tenements (each consisting of three rooms) at
4s. per week, making a gross rental per annum
of 124 16 0
ess allowances for outgoings, say 40 per cent. 49 18 4

£74 17 8

r equal to a 5 per cent. return on the capital expenditure.

In submitting the above estimates for the cost of this ilding the engineer has had difficulty in settling the prices, any portions of the work being novel, but he has allowed at he considers a reasonable margin for contingencies and r possible alterations to existing plant.

The committee will understand that in the case of the first ck it will be necessary to execute most of the work by hand our, but if the experiment warrants the erection of further cks on this system the additional economies obtainable from nveying and mixing the materials in the first instance and

the subsequent handling of the slabs by mechanical arrange- ments would enable the actual cost to be materially reduced.

JOHN A. BRODIE, M.Inst.C.E.,
City Engineer.

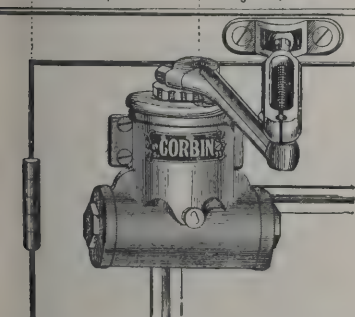
Municipal Buildings, Liverpool:
February 27, 1903.

DELTA METAL.

THE fifteenth annual general meeting of the shareholders of the Delta Metal Co., Ltd, was held at Cannon Street Hotel on Friday, February 27. Mr G. A. Dick, the chairman of the company, in moving the adoption of the report, referred to the continued growth of the demand for the company's high-class engineering alloys, especially for the Delta Metals Nos. I. and IV. These alloys have a very high and well-deserved reputation on account of their strength (exceeding 48 tons tensile per square inch for Delta Metal No. I.), and their resistance to corrosion, and new applications are continually found for which the special qualities of these alloys render them eminently suitable. The standard of the tests of engineering alloys has lately been raised considerably, not only by the Government, but also by many of the large engineering firms. This is a matter which is hailed with great satisfaction by the company, as it has largely increased the adoption of their superior manufactures. Being in close touch with the works on the Continent and in the United States, where the manufacture of Delta alloys is also carried on on a very large scale, the company has, by reciprocal agreements, the advantage of all improvements made at those works. These various factors have helped to bring about an increased output, a continuance of which may be considered as assured, the more so as the company's business, consisting chiefly of specialties, is not much subject to the usual fluctuations of trade. The somewhat unsettled condition of the metal market towards the close of the year has been duly taken into consideration, and the stock has again been valued at lower figures. The plant at both the London and Birmingham works of the company has been maintained in a thoroughly efficient condition. Although additions have been made to it, it now stands at a lower figure than last year, due to the fact that the depreciation has been written off at the usual full rate. Out of the profits for 1902 it is proposed to pay a dividend at the

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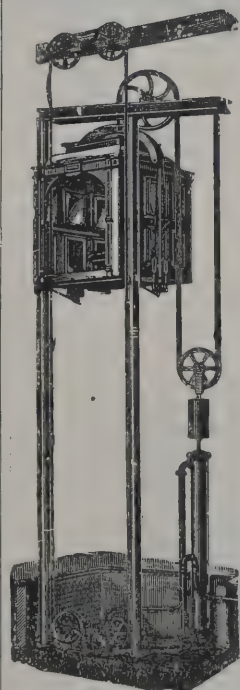
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same rate as last year, namely, 12½ per cent. per annum (less income-tax), and to make an addition to the reserve fund which brings the latter up to 10,000. In conclusion, Mr. Dick expressed his gratification at the conscientious and careful work of the officers and staff, to which he attributed to a great extent the success of the company. The report and accounts were unanimously approved and adopted, the dividend as recommended was declared, and the retiring director, Mr. J. W. Meyjes, as well as the auditors, Messrs. Geo. Williams & Co, were unanimously re-elected.

THE NEW JOHANNESBURG.

IN the *Rand Daily Mail* is an account of an interview with the municipal inspector of buildings (Mr. E. H. Waugh) in Johannesburg.

The extension of the municipal area from a three-mile to a six-mile radius has doubled the work of the building branch of the engineer's department, and the staff has been correspondingly increased, Mr. Waugh now having five assistant inspectors. The number of buildings in the new area is not great in proportion to the extent of the addition.

"Is Johannesburg overcrowded?" the inspector was asked.

"I should say it is pretty full, but not overcrowded," he replied. "There is unquestionably a great demand for dwelling-houses, but this demand is being met by the large number of houses being built.

"The building trade generally is not, builders complain, very brisk at present in Johannesburg—owing to the unsatisfactory state of the money market I suppose—but it is worth recording that no less than 95 per cent. of the plans sent in are for dwelling-houses. Very few offices, and not many warehouses, are going up. You can calculate the number of houses in course of erection when I tell you that in January we passed 167 plans."

The public will be pleased to learn that a better class of house is being built in Johannesburg.

"It is gratifying to note," said the inspector, "that a larger proportion of the new buildings are of brick—good, solid houses—instead of, as formerly, wood and iron."

"What is the cause of the change?"

"For one thing," he replied, "the municipal by-laws specify a good many streets—we call them business streets—in the centre of the town where all the buildings must be of brick or

stone. The number of these streets is to be greatly increased under the new by-laws, and no objection has been offered to the extension of this restriction. Then there is a good deal of competition in the brickmaking business, with the result that the price has come down, until now there is little difference in the cost of the two kinds of houses. Besides, difficulty and delay are often experienced in getting up supplies of wood and iron."

The Rand cannot boast many buildings of much magnificence. But this reproach—if reproach it can be counted against a town still in its 'teens—is gradually being removed. Some very big buildings are about to be erected. The inspector had something to say about these.

"This will be a very fine street," he said, pointing to plans of the new National Bank and Eckstein's Buildings. They certainly looked imposing.

"Both buildings," he went on, "are 120 feet high, and will run from Commissioner Street to Market Street, 'tween Chains. Stuttaford's new shops will also be 120 feet. Eckstein's and Stuttaford's structures are both being erected by Milliken Brothers, of New York, on the steel construction, or 'bird-cage' principle."

Asked how these piles compared with Jagger's Cape Town "skyscraper," of which so much has been heard, the inspector said that all the buildings he had named would be higher than the Cape Town block.

Johannesburg Town Council propose to fix the maximum height for buildings at 140 feet. No objection has been raised by any local body concerned. The inspector considers this rule very generous, and says it would not be safe to have higher buildings owing to the impossibility of coping with fire at such a height.

The theatre is undoubtedly a favourite resort on the Rand, but it is questionable if all the theatrical enterprises on the tapis can succeed. No fewer than three new theatres, all capable of accommodating considerably over 1,000 people, are about to be built—in Fox Street, Eloff Street and De Villiers Street. The plans have been submitted to the Council, and the new theatres will certainly be a big improvement on the existing ones, which can scarcely be said to be a credit to a town of the importance of Johannesburg.

Another huge building is the Carlton Hotel, which will be by far the largest and most sumptuous hostel in South Africa. It covers six stands, has two basements, and seven storeys and an attic, and will have a garden on the roof. A novelty is the

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struction of double corridors—one public and the other
ate, so that suites of rooms can be curtained off and made
tly private. In this building the steel "bird-cage" framing
be erected by the General Steel Construction Company of
York.

The establishment being erected by the African City
erty Trust in Eloff Street is worthy of mention. It con-
s a large number of suites of rooms, each consisting of
ng-room, bedroom and bath-room, and already, it is stated,
promoters of the scheme have many applications for
ommodation.

Referring to the fact that all the contracts for the big steel
dings had been secured by Americans, the inspector said :—
ough so far the structural work of all the big buildings to
erected on the skeleton principle has been captured by
ted States firms, 'loyal sons of the Empire' will be glad to
n that the home manufacturers are at last becoming alive
he value of this new form of construction, and Mr Dorman,
Dorman, Long & Co., the famous Middlesborough firm of
l rollers, has lately returned to England after a visit to the
ad, and has also sent his engineers to America to examine
latest developments at Carnegie's and other large works,
a result that this company intend to revise the whole of
r catalogue and enter into the structural steel market, with
pecial view to catering for South African requirements on
most modern principles. They also mean to enter into
tracts for the erection of buildings of this kind, and archi-
s and others in town consider that they will be able to
pete with their American cousins very favourably as
ards price; and as to workmanship, theirs is of such a
racter that without doubt they will capture the local market
very great extent."

"Which of the new townships are developing most in the
ended municipal area?"

"The new townships that are going forward most," said the
pector, "are Bezuidenhout Valley in the extended area, and
ville, near Auckland Park. Large numbers of houses are
ng up there. Ecksteins have a very liberal scheme for
dding houses for their employées. All the houses are brick
stone, of nice design, and comfortable. In Denver town-
p, beyond Jeppes, a few stores and houses are being built.
ere are also a few houses going up on the Heronmere estate
at Turffontein, although the extension in that direction is
great, nor likely to be for some time. Several warehouses
to be erected in the city and suburbs."

Regarding the opening up of townships, the inspector ex-
plained that as soon as the tram service was extended to the
suburbs there would be an inevitable exodus from the dusty
city, but since the Council's tramway scheme did not embrace
any of the outside places, developments of this nature would be
slow.

The adage tells us, however, that all things come to those
who know how to wait, and some of our enterprising township
companies know how to wait, and how to do it quickly, too.
So that ere the Golden City is very many months older we may
see the sparky cars sliding through the heart of the principal
suburbs, sprinkling seeds of progress all along their route.

So mote it be.

HOSPITAL SITES IN LONDON.

A MEETING of the Hospitals Association was held at Caxton
Hall, Westminster, on Tuesday, when Sir Henry Burdett
opened a discussion on "Hospital Sites and Population in
London," which dealt with the question as to whether any, and
if so which, of the large hospitals should be moved from their
present sites to new ones situate in more congested districts or
in the country. Sir Henry Burdett dealt with the various dis-
tricts of London, and, referring to St. Bartholomew's Hospital,
said that it was the only general hospital situated within the
City boundaries, and he could not conceive of the City of
London ever consenting to permit so representative an institu-
tion to be removed from its present site to any site except one
which was closely adjacent to, or only just outside, the City
boundaries. The proposal to remove large hospitals from
cities to the country seemed to him to be impracticable. He
pointed out that, with the exception of the south-west district
—Wandsworth and Battersea—where the ratio of general beds
to population was only as 1 to every 13,364 people, and the south-
east district, including Deptford, where there was not a single
hospital bed for upwards of 110,000 people, Greenwich, Lewisham
and Woolwich, a district where the ratio of general beds to popula-
tion was as 1 to 2,126 people, the population within the whole of
the postal districts of London was well supplied with general
hospital beds. Indeed, if they added to these beds the beds
in special hospitals, then every district, with the two exceptions
just mentioned, showed that the ratio of all hospital beds to
population is greater than that laid down by the accepted
authorities as a basis for calculation, namely, one hospital bed

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BUILDING ACTS AMENDMENT.

THE parliamentary committee of the London County Council prepared the following report, which was brought up at the meeting on Tuesday:—

We have given our most careful consideration to the course to be adopted with regard to this Bill, which has now been read a first time in the House of Commons. Instructions to us to promote the Bill were given by the Council on November 4 last, and time did not permit of our ascertaining the views of the various authorities and bodies concerned before submitting the Bill to the Council for approval. We have not at the present moment been furnished with the views of some of the more important technical bodies, but, from such observations as we have received, and from information which has reached us from various quarters, we regret that we are driven to conclude that the Bill will, if proceeded with in Parliament, encounter very considerable opposition. We are advised that many of the suggestions which have been received would form bases for useful amendments of the Bill in detail, and that had time permitted the Bill might with advantage have been in some particulars differently drafted. It is with great regret that we arrive at the conclusions embodied in the recommendation which we submit concerning a measure for the protection of human life and property from the perils of fire, and in doing so we are influenced by the knowledge that the Council will, with more time at its disposal, be in a position, if it adopts our recommendations, to place before Parliament in the session of 1904 a more complete and perfect measure.

It is important that any step in the direction of withdrawing the Bill should be taken without delay, in order that such authorities and bodies as may wish to take action with regard to the Bill may not be put to any unnecessary expense and trouble. We accordingly recommend:—(a) That, notwithstanding any previous resolution of the Council, a Bill to amend the London Building Acts be promoted in the next session of Parliament, instead of in the present session; and that the London Building Acts (Amendment) Bill, 1903, be not further proceeded with. (b) That the Bill, as at present drafted, be referred to the Building Act and parliamentary committees, with a view to their advising the Council, after consultation with such persons and authorities as may be desirable, as to the ultimate form the Bill should assume.

Mr. Napier moved the adoption of the recommendations. The committee took this course from no want of sympathy with the objects of the Bill. He doubted whether the committee had had due time to consider the very important matters involved in the Bill, which affected very many interests, houses and factories in the City of London, and would necessitate the expenditure of a large sum of money. The present Bill would have little chance of succeeding, but he believed with their increased experience and additional expert advice they might next session present a Bill which would avoid many of the difficulties of the present one.

Mr. Radford (the chairman of the parliamentary committee) moved that the recommendation should be referred back to the committee with instructions to proceed with the Bill in the present session. He declared that the Bill had been well considered and had been approved by the Council with practical unanimity. He could, therefore, see no reason why it should be withdrawn.

Mr. Taylor seconded the amendment, and said that there were in London hundreds, if not thousands, of buildings which would be nothing less than death-traps in case of fire.

Mr. Howell Williams said that the architectural profession and the building trade opposed the Bill, because they objected to being left entirely in the hands of the Building Act committee.

Mr. Alderman Alliston said the owners of buildings in the City were as anxious as anybody to protect life from fire, but this Bill went far beyond anything which was required and inflicted great injustice.

Mr. Allen (chairman of the fire brigade committee) said

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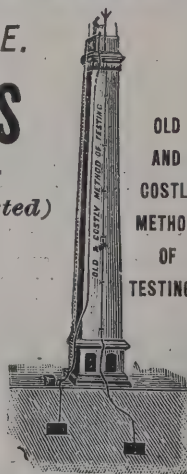
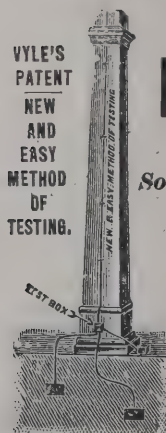
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at although his committee did not agree with all the provisions, they thought the Council would be well advised to go on with the Bill
The recommendation to withdraw the Bill was adopted.

THE INSTITUTION OF CIVIL ENGINEERS.

At the ordinary meeting on Tuesday, February 24, Mr. C. Hawkshaw, M.A., president, in the chair, the paper read was "Mechanical Handling of Material," by G. F. Zimmer, Assoc. M. Inst. C.E.

Mechanical appliances for the conveyance of material from one point to another were undoubtedly of the first importance owing to the economy which they effected; and in round figures the saving of one man's wages warranted an outlay of £1000 in machinery. The paper treated only of such methods as dealt with material continuously—that was, which received and delivered it in an uninterrupted stream, and passed over such methods as light railways, ropeways, &c. The appliances were described under three heads, viz. :—

(a) Appliances for lifting in a vertical direction or from one level to another called elevators.

(b) Appliances for moving material in a horizontal direction called conveyors.

(c) Appliances which combined the two former operations.

Elevators in a primitive form had been known and used for a considerable time, and since their introduction had undergone little alteration except in details. They consisted of endless belts or chains, to which suitably shaped buckets were attached, and which ran over two terminal pulleys, fixed at different levels. Grain-elevators were usually vertical, and were encased in wooden and iron trunks; while mineral-elevators were generally in a slanting position at an angle of 45 degrees to 60 degrees. Grain-elevators were fitted with leather or textile bands, while mineral-elevators had malleable or wrought-iron chains as support for the buckets. Grain-elevators, travelling at a speed of 250 feet to 350 feet per minute, according to the size of their terminal pulleys, could deliver satisfactorily if in a vertical position; while mineral-elevators, which travelled at the rate of only 50 feet to 160 feet per minute, required the inclined position, so as to discharge their load clear of their own buckets. Inclined elevators were more easily driven than vertical elevators, on the principle of

the inclined plane. In vertical elevators, in order to effect perfect discharge, the centrifugal force must be sufficient to overcome the gravity of the material; so for a specifically heavy material it was necessary to have a higher centrifugal force, that was, greater speed of elevator, than for a specifically lighter material. While it was usual to run coal-elevators at 90 feet to 130 feet per minute, according to the friability of the coal, coke-elevators ran at only 50 feet to 90 feet per minute. On the other hand, minerals which did not deteriorate through breakage could be elevated at the rate of 120 feet to 160 feet per minute. A very rational form of elevator was that fitted with a continuous chain of buckets. It was of much larger capacity than an ordinary elevator of the same dimensions. It received and delivered the feed more uniformly, and as the buckets need not plough intermittently through the contents of the elevator-well, slightly less driving-power was required.

The types of conveyor were numerous and some of them were of great antiquity. The oldest type was undoubtedly the Archimedeian screw, worm or spiral conveyor. It consisted of a continuous or broken blade screw described round a spindle, revolving in a suitable trough and thus propelling the material slowly from one end of the trough to the other. The ratio of the diameter to the pitch of all worms depended upon the kind of material to be conveyed. It ranged from a pitch of one-third of the diameter to a pitch equal to the whole diameter of the worm and even more. The greater the pitch the greater the driving-power required. A detail of great importance in all worm conveyors was the intermediate bearing. This, if cumbersome, obstructed the passage of the material, a result which was to be carefully avoided. Delivery of the material from a worm conveyor could be effected at a number of points; it was only necessary to provide a suitable outlet. The principal advantages of the worm conveyor were its simplicity and small first cost; it was, moreover, of great service where a mixing of the material to be conveyed was desired. The chief disadvantage was the large amount of driving-power required and the breakage of the material conveyed.

Conveyors of the drag or push-plate type consisted of a fixed open trough. The material to be conveyed was deposited in this trough, and was pushed or dragged along by a series of plates attached to an endless chain. The speed of travel ranged from 60 feet to 180 feet per minute. The cable conveyor consisted of a V or U-shaped trough through which was dragged a wire rope with disc-like attachments. The speed of travel was 100 feet to 120 feet per minute.



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Band conveyors had been introduced a little more than twenty years ago, and were now one of the best means of conveying large quantities of almost all kinds of material, especially for long distances. They consisted of a band which ran over two terminal pulleys. Early band conveyors had been almost entirely used for conveying grain. The tightening of a band conveyor was done in a similar manner to the tightening of elevators. In long conveyors the tightening-gear consisted of a pulley held in tension by weights over which the belt passed. The tight side of the band was the one which should preferably be used for conveying the material. To withdraw the feed of a band conveyor at an intermediate point, a throw-off carriage was employed. The speed at which band conveyors for grain were run varied from 450 feet to 600 feet per minute. The lower speed was for oats or other grain which contained a quantity of chaff that would be blown off the band at a speed exceeding 500 feet. Maize, beans and heavier seeds were conveyed at the highest speed of 600 feet per minute. Band conveyors for heavy materials, such as coal, coke, minerals, &c., were very similar to those previously described, with the exception that all the fittings were much more substantial. The principal advantages of band conveyors were the small amount of power required to drive them, and the fact that they did not injure the material conveyed. The disadvantages were that a great many small bearings had to be oiled and kept in repair.

The continuous-trough or travelling-trough conveyor consisted of an endless trough, the sections of which were rivetted to the links of suitable chains. The endless trough travelled over two terminal pulleys. These conveyors travelled at 75 feet to 100 feet per minute. They were in their construction very similar to the push-plate conveyor, but each section of trough took the place of a push-plate on the endless chain.

The vibrating-trough conveyor was the latest type, and consisted of troughs which received the material at one end and delivered it to the other by means of a succession of suitable backward and forward movements of the troughs. These might therefore be classed together with the two previous types, the band and the travelling-trough conveyors, as in all three the material was, so to speak, conveyed in a trough without the action of a stirring or pushing element, as was the case with worms, push-plates and cable conveyors. It was obvious that all kinds of materials which deteriorated

through rough treatment should be conveyed on appliances of the last three types. The support of the trough in its reciprocating motion had been effected by flexible legs in an oblique position. For considerable lengths and capacities the conveyors were balanced. The load could be fed into or withdrawn from any of these conveyors at any number of points without cessation of work. The material travelled at the rate of 40 feet to 70 feet per minute.

Under the heading (c) there were only two types to be mentioned—the travelling or tilting-bucket conveyor and the pneumatic conveyor. The former consisted of two endless chains or ropes held at certain distances apart by suitable bars which were fitted with small rollers at each end. Every link, and sometimes every second link, carried a bucket, so that the whole was an endless chain of buckets, which were not, however, fixed like an elevator bucket, but were movable, and suspended above their centre of gravity, so that they were always in an upright position, whether they were moving horizontally or vertically. Each bucket carried its load to the point at which delivery was required, and here it was met by an adjustable device which tilted each bucket in its turn, and thus emptied the contents. The material to be conveyed was not injured in the least. Such conveyors required little driving-power, and one main drive was sufficient for a whole installation. The second and last appliance under this head was the pneumatic elevator. Mr. F. E. Duckham, M.Inst.C.E., had designed the apparatus which had been in use at the Millwall Docks and in docks of other ports since 1895. The plant consisted of an air-tight tank from which a pipe was connected to the bulk of material to be conveyed. The air was withdrawn from this tank by means of a second pipe connected to an exhauster, and as the air passed through the first-named pipe it drew the grain with it into the tank. The arrangement for removing the grain from the tank without destroying the vacuum was described and illustrated. The Bolinder timber-conveyor was also described.

Provision was made in many modern power-stations, gas-works and mines for automatic handling of the materials, and there was no reason why labour-saving appliances should not be employed in dock works, &c., for the handling of the excavated material.

The paper was illustrated by diagrams and accompanied by numerous tables of data as to the capacity of elevators and conveyors of different sizes and speeds and the amount of power required for working them.

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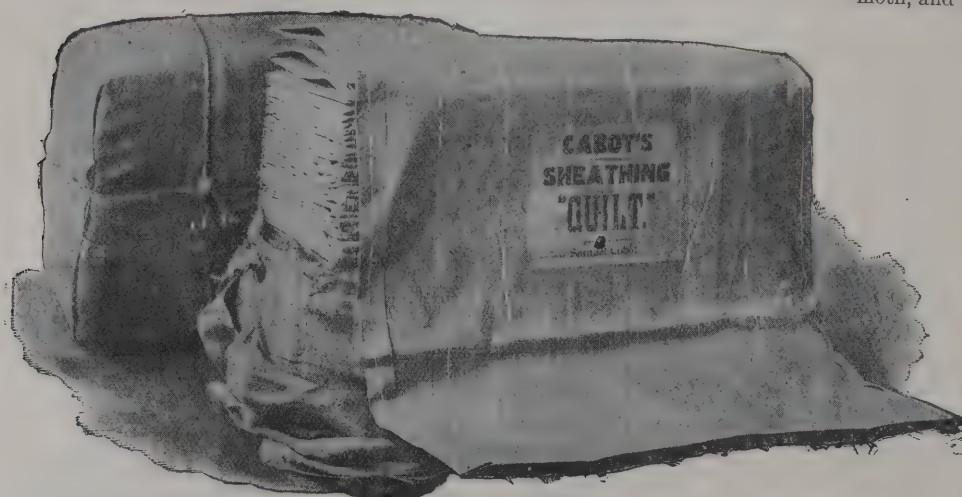
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The Architect.

THE WEEK.

It is commonly assumed that town surveyors and borough engineers have a wish to monopolise every form of construction. There is no doubt that in some cases at least that is a fallacy. With a large town like Brighton there is a probability of a breakdown of the official, as he is unable to sustain all the work placed on his shoulders. In Brighton a new fire station is desirable, and at the last meeting of the Town Council it was proposed that the surveyor should confer with the chief constable and prepare plans for the erection of a fire station, &c., with an estimate of the cost, and submit them to the committee at an early date. One of the members decried the suggestion, for he said that not only were they unfairly treating Mr. MAY, the surveyor, in asking him to do so much work, but it was utterly impossible for him to perform it. Another member recalled the fact that the Corporation had formerly suffered because the engineer had been unable to carry out all the work efficiently which had been thrust upon him. It was also considered that Brighton would be the gainer if plans were obtained by competition. Eventually the resolution was withdrawn, which means that all the labour of the committee in inquiries has been in vain. It is of course possible that an amended resolution may be shortly brought forward, but it is generally found that in similar cases when an opportunity is lost it is not quickly found again.

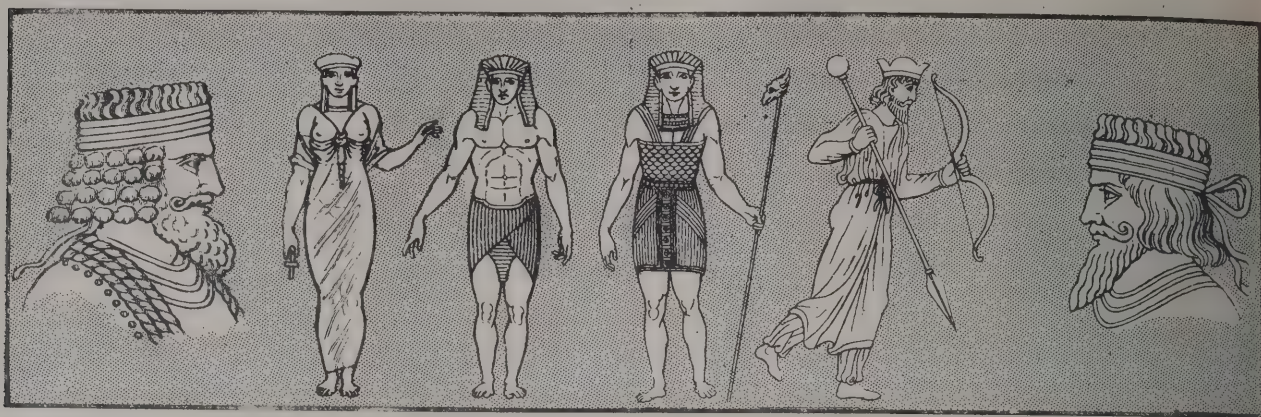
THE official *Livre foncier de Paris*, which was issued this week, supplies a large amount of statistical information about the value of the houses of Paris. In 1901 there existed in the city 80,319 properties consisting of houses or manufactories which occupied an area of 39,983,357 square metres. The capital value was 13,813,113,490 francs, and the rental value 878,678,271 francs. Recently account has been taken of unoccupied land within the boundaries of the city, which is found to have an area of 1,592,972 square metres, the valuation of which is 10,064,850 francs. The buildings have been classified in twenty-one groups, according to their value. It will be sufficient to say that 30,025 do not exceed 49,999 francs in capital value, that 304 vary from 2,000,000 to 4,999,999 francs, and that only fifty-seven properties exceed five million francs. On the other hand, there are 10,430 properties of which the capital value is less than 10,000 francs. It is also found that 28,450 buildings have five or more storeys, 18,240 have four storeys, 17,502 have three storeys. If tested by valuation, the Eighth Arrondissement is the most important in Paris. It extends from the Madeleine to the Arc de Triomphe, and from the Parc Monceaux to the Seine. Within that district are 3,158 properties of the value of 1,854,907,000 francs. The poorest is the Twentieth Arrondissement, which extends from Père la Chaise eastwards. It contains 6,175 properties of the value of 145,248,650 francs. The rural quarter of Saint Fargean is comprised in it, where the average value of the houses is only 31,408 francs; while in the Chaussée d'Antin quarter the average is 660,635 francs. The municipal tax is 10 per cent. on the capital value.

A STRANGER who could enjoy a bird's-eye view of the vast collection of houses known as Brighton and Hove would take it for granted that what he saw formed an immense town or city by the sea. He would be surprised to learn there are two distinct towns, and that there is as much emulation between them as if they were some miles apart. So long as the rivalry does not mean waste of money on useless works, or on law costs, the inhabitants have no reason to complain. The Aldrington sewage case, which was decided in the Court of Appeal on Friday last, is, however, enough to suggest the possibilities of waste over works and law. The action has been for nearly a year before the Courts, and we have already related the circumstances. In 1870 an Act was passed, known as the Brighton Intercepting and Outfall Sewers Act, by which Hove was allowed to use the sewers equally with Brighton. In 1893

the district of Aldrington was incorporated with Hove. The Brighton Corporation, while admitting, of course, the rights of Hove, considered that Aldrington was not included in the agreement, and that, indeed, the sewers were inadequate to an increased discharge. Mr. Justice KEKEWICH gave judgment in favour of Brighton. The Hove Town Council resolved to appeal, and the arguments on both sides occupied three days. The Court were unanimously of opinion that the decision of the Court below should be set aside, and the appeal allowed with costs against Brighton. The Master of the Rolls said that an enlarged district was contemplated from the first, and that Aldrington was as properly and as completely added to Hove for the purpose as if it had been expressly named in the Act of Parliament. Lord Justice ROMER held that sooner or later, and even if Aldrington were not incorporated, the intercepting sewer would have to be enlarged. Meanwhile, the Brighton Town Council were not justified in refusing to Hove and Aldrington the right to have its drainage taken by the sewer. His Lordship said there was a question about the authority to enlarge the sewers, but if necessary they could apply for it to Parliament. The cost of the sewers was obtained by raising a loan for fifty years, and repayment has been in progress for thirty years. The new district will have to pay its proportion of current expenses, including the capital and interest for the repayment of the loan.

AMONG the graves in Hampton churchyard is one of HUNTINGTON SHAW, of Nottingham, "an artist in his own way," who died in 1710. To him the fine iron screen and gates at Hampton Court were long attributed. But there seems to be no doubt they were designed by JEAN TIJOU, the Frenchman, and SHAW was only one of his assistants. As the effect of time on the ironwork was becoming too manifest, some years ago they were removed from the grounds to the interior of the palace, and subsequently parts were deposited in the South Kensington Museum and elsewhere. It is now contemplated to restore the screen, and to set it up again in its former position at Hampton Court. The whole of the work does not appear to exist, and accordingly Messrs. HART, SON & PEARD obtained a commission to make a replica of a pair of the gates. The commission has been carried out at their Birmingham works. The gates are 30 feet wide by 30 feet high. The only difference from the earlier examples is that the monogram of HIS MAJESTY THE KING has been substituted for that of WILLIAM and MARY. The execution of such elaborate ironwork justifies the trust placed in Messrs. HART, SON & PEARD. The new gates are enough to convince any lover of metalwork that English smiths under English superintendence are equal in dexterity to the Frenchman and Englishmen who produced the original gates at the close of the seventeenth century.

THE annual report of the London Master Builders' Association may be considered as satisfactory. It is admitted there was an appreciable decline in the bulk of trade during the year, but not sufficient to warrant the agitation on behalf of the "unemployed." There were no strikes on the works of any of the members. Any differences which arose were settled in almost every instance by the Conciliation Boards. The proposed amendments of the London Building Act were declared to be prejudicial to the building trade, oppressive to both owners of property and their tenants, besides arming the officials appointed by the London County Council with extensive powers for requiring structural and expensive alterations in existing premises. Regret was expressed that Parliament had not intervened to restrict building operations of municipal bodies. It was anticipated that in the near future a form of contract will be agreed upon by the Royal Institute of British Architects and the Institute of Builders, and that the objectionable practice on the part of some public bodies and individual architects who require priced bills of quantities with tenders will be abolished. The following officers were elected:—President, Mr. ERNEST J. BROWN; senior vice-president, Mr. JAMES CARMICHAEL; junior vice-president, Mr. FREDERICK HIGGS; treasurer, Mr. JOHN GREENWOOD.



TYPES OF COSTUME: EGYPTIAN AND ASIATIC.

MASTERS OF ART: SCULPTORS.*

PAINTERS, sculptors and poets have the advantage of being able to exercise their art in representing its history. That privilege is denied to architects and musicians. It would be easy for an architect to create a building which would embody variations of styles. But it would be impossible by means of a building to recall the personality of even the foremost architects. Musical composers or tone poets would labour under similar limitations if they attempted to record the history of music. Although it is the most expressive of the arts, music cannot give the least indication of those, from PAN to WAGNER, who brought it to its present state.

It must, therefore, have given more gratification to JOHN BIRNIE PHILIP when he modelled his series of figures of great sculptors than when the history of architecture was his subject. It will be observed by comparing the plate we now publish with that in *The Architect* of January 2 how much there is in common between the two works. Space and time are in metaphysics closely related, and each long slab of the podium corresponds with the course of many years. If distinction of genius conferred the right to the central position among the sculptors selected, PHIDIAS should occupy it instead of MICHEL ANGELO, and ARNOLFO was still less entitled to a similar status among architects. But if we consider that time and not genius is the ruling power, that the relief is like an historical scroll or summary, then it is fitting that PHIDIAS should be close to one end, and that MICHEL ANGELO, as the representative of Renaissance art, should come midway between antiquity and modernity.

It was possible in the architectural series to start with HIRAM. But numerous as are the records among Assyrians and Egyptians, they have not as yet yielded the names of any great artists who would serve to commence a long line of sculptors. The Egyptian and the Assyrian seen discussing in a friendly way some point of art, or it may be the influence they exerted on Greek and later sculpture, must be accepted as types of many nameless artists. It would be appropriate in such a work as the podium to introduce a large number of other figures in the arts of all countries who produced grand works, but whose names must for ever remain unknown. If the Athenians, as became a people who were hospitable to gods, raised an altar to the Unknown, a similar recognition should be bestowed on the anonymities who were in all ages the benefactors of humanity without receiving any acknowledgment of their services.

Who was the first Greek sculptor? The Greeks themselves assigned the position to DÆDALUS. If the results of the Cretan explorations could have been anticipated in 1865 he would no doubt have figured among the sculptors on the podium. But he was then considered along with the contemporary SMILIS and EPEUS, the designer of the wooden horse which appalled the Trojans, as being only a fabulous individual. RHÆCUS has therefore the honour of appearing at the head of the European sculptors. He belonged to the Isle of Samos. PAUSANIAS described him as the earliest founder, and PLINY credited him

with introducing the art of modelling. In Ephesus there was the figure of a woman by him called *Night*. He was also an architect, and HERODOTUS says that in Samos was "a temple greater than all those I ever saw, and of which the principal architect was RHÆCUS, the son of PHILEAS, a native of Samos." The name of DIBUTADES is connected with one of the most poetic romances of art. A daughter wishing to have a memorial of her absent lover outlined the shadow of his face upon a wall. DIBUTADES covered the face with clay, and in that way produced the first portrait in relief. As he was a potter the clay was easily converted into terra-cotta. It was believed that the relic was carefully preserved in the Nymphæum at Corinth until the city was captured by MUMMIUS. BUPALUS and ATHENIS were sons of an artist called ARCHEMOS or ANTERMOS, and it was supposed there was a public inscription recording that Chios was made as illustrious by their talents as by its own puissance. There was a statue of DIANA by the brothers, said to appear sad to those entering the temple and gay to those leaving it. FALCONET did not regard the feat as impossible, and endeavoured to explain how it could be repeated. The next figure is PHIDIAS, whose name now stands as significant of the utmost attainment in sculpture. His *Minerva* and *Jupiter* were from their beauty stated to have added something to religion. FLAXMAN held that the sculptor owed much to PLATO, both for the choice of subjects and the expression of qualities for the perfection of beauty. With all his genius PHIDIAS was compelled to suffer through the suspicious temperament of the Athenians, and it is not impossible that he ended his days in a prison.

According to PLINY, SCOPAS was employed on the Mausoleum as well as on thirty-six of the sculptured columns of the Temple of Diana at Ephesus. It is therefore concluded he was the contemporary of PRAXITELES, BRYAXIS and LEOCHARES, who are near him in the relief. PLINY considers the *Venus* of SCOPAS was superior to one by PRAXITELES, and mentions a large number of his works possessed by Rome. It has been supposed that the *Niobe* group was among his productions. He, too, practised as an architect, and in a Temple of Minerva he utilised the three Orders. BRYAXIS and LEOCHARES were both among the sculptors engaged on the Mausoleum. Some of the works by the former were so excellent as to be ascribed to PHIDIAS. VITRUVIUS describes LEOCHARES as one of the most distinguished artists, and mentions a colossal *Mars* at Halicarnassus as *nobili manu Leocharis factam*. We must not be surprised at seeing PRAXITELES in the second plane in the relief. It was difficult to identify any existing work as coming from his hand. WINCKELMANN asserted there was only one which had survived, the *Apollo Sauroctonus*, or lizard-killer, in the Villa Albani. The beautiful *Hermes* since found at Olympia reveals that all which was said of the sculptor by ancient writers was deserved. LYSIPPUS, the favourite sculptor of ALEXANDER THE GREAT, was, according to PLINY, the most prolific of all. The number of his works was reported to be fifteen hundred, and that each one of them was sufficient to give a reputation. They were nearly all in bronze, and although modelling in clay was more

* See Illustration.

expeditious than working in marble, probably there were not more than one hundred and fifty examples. CHARIS was the pupil of LYSIPPUS, and as the *Colossus of Rhodes* is ascribed to his hand it should have been introduced closer to him.

The dark interim between the flourishing period of Greek art and the beginning of the Renaissance is represented by the figure of GIULIANO DE RAVENNA. There were several artists employed by the emperors in Rome of whose names there are records, but for long after the establishment of Christianity the history of sculpture seems to be a blank. Not till the thirteenth century did NICCOLO PISANO appear. In the churches of France, Germany and England there was sculpture, but from its unworldly character it would now be considered as failing to uphold the Classic traditions. With NICCOLO, who in the relief seems to be looking sadly back to the past, we find a return to Classic models. Indeed, there is little doubt that both NICCOLO and his son GIOVANNI adapted examples of ancient sculpture to Christian usage. Ghiberti belongs to the fifteenth century, and is introduced as showing the trial piece of his gate to LUCA DELLA ROBBIA, whose work was not in bronze but mainly in enamelled terra-cotta. TOREL, the sculptor of the tomb of HENRY III. and Queen ELEANOR in Westminster Abbey, used to be generally regarded as an Italian artist, but he was a London goldsmith and a citizen. He is talking with WILLIAM of Ireland, one of the Mediæval artists who, like ALEXANDER of Abingdon, are mentioned in the records of English church building.

VERROCHIO was a pupil of DONATELLO, who stands before him, and laboured as a goldsmith and a painter as well as a sculptor. Either to him or LEOPARDI we owe the statue of *Colleone* at Venice. DONATELLO is seen bearing his statue *St. George*, which has been accepted as suggesting an ideal Christian warrior, but the artist himself seems to have preferred his figure of *St. Mark*. Greater than either is his *Gatamelata* in Padua. MICHEL ANGELO is sitting between his *Night* and *Day*, the figures adorning the tomb of GIULIANO DE MEDICIS, and holds one of his anatomical studies. Enmities are we may hope at an end in Elysium, and it is therefore allowable to suppose that TORREGIANO, to whom he owed the disfigurement of his face, could touch his knee in friendly fashion. JOHN BOLOGNA, who leans on TORREGIANO, was a native of Douai. He had received advice from MICHEL ANGELO, who told him always to reflect and reason about his work before he attempted to finish it. His *Flying Mercury* at least is a masterpiece. For most of the portraits of the Renaissance period reliance has to be placed on VASARI's woodcuts. PETER VISCHER appears to have anticipated the needs of the future, for he took the precaution of introducing his own figure with his leather apron and his tools in his hand among those adorning the shrine of St. SEBALDUS in Nuremberg. It was well he was able to use the occasion, for, according to tradition, he was treated shabbily, and would have received little reward if it were not for the voluntary contributions of some good people. BACCIO BANDINELLI's position in the rear is a merited punishment for his morbid jealousy.

BENVENUTO CELLINI, like VISCHER, was anxious to be known to posterity, for he set an example, which some modern English painters have imitated, in writing an autobiography. His *Théséus* shows his skill in treating the figure on a large scale, but in the sixteenth century he was esteemed for his works in the precious metals. His discourse is listened to by BACCIO D'AGNOLO, who was more of an architect than a sculptor. JEAN GOUJON was the first among the great French sculptors, but about his life little is known. His fountain, figures on the Hôtel Carnavalet, and caryatides in the Louvre, demonstrate his powers. BERNARD DE PALISSY was an able man of science, a religious reformer and an admirable potter, but he is not ranked by the French among their sculptors. PIERRE BONTÉMPES was the sculptor of the bas-reliefs of the tomb of FRANCIS I. in the abbey of St. Denis.

GERMAIN PILON, a native of Paris, appears as a very grave man, but he has been called the CORREGGIO of sculpture. Most of his works are found in the churches of Paris, and they are admired for the beauty of the heads and the skill displayed in the treatment of drapery. ALONZO CANO, who is near him, was at one time entitled

the Spanish MICHEL ANGELO. After an adventurous life he entered the Church. NICHOLAS STONE was born near Exeter. He went to Holland and worked for PETER DE KEYSER. In 1619 he was appointed by CHARLES I. master-mason and architect for Windsor Castle, receiving the wages and fee of twelve pence by the day. He was in request for tombs. He died in 1647, and was buried in St. Martin's. An inscription on the wall testified that he was "esteemed for his knowledge in sculpture and architecture, which his works in many parts do testify, and, though made for others, will prove monuments of his fame." BERNINI was throughout his life regarded as a phenomenon. The son of a sculptor, the studio was his playroom, and at the age of eight he modelled a head which astonished the connoisseurs. When he was ten he was allowed to study and model in the Vatican, and at fifteen could produce life-size statues. The group of *Apollo and Daphne* introduced into the relief was cut out of a single block of marble before he had attained his eighteenth year. The tomb of URBAN VIII in St. Peter's, Rome, is one of his undertakings. LOUIS XIII. endeavoured to attract him to France without success. LOUIS XIV. was more fortunate, but in spite of the vast sums expended on the artist he failed to produce a design for the Louvre that was satisfactory. BERNINI was so familiar with the sculptor's art, he could only regard it as a means for exciting surprise. His dexterity in manipulation was wonderful, but it is rare to find any trace of the true spirit of the Renaissance in his work. Sir CHRISTOPHER WREN said he would give his skin for BERNINI's design for the Louvre, and the words suggest the admiration for the Italian which was then general. It was therefore allowable to show GRINLING GIBBONS looking at BERNINI with wonder. He also was a master of manipulation, and the carver of lace cravats and pots of flowers which were moved by the passing of coaches up and down Ludgate Hill must have envied the skill seen in BERNINI's flying draperies. Whether GIBBONS was an Englishman or a Dutchman cannot be ascertained. PIERRE PAUL PUGET was a native of Marseilles, and as he was born in 1622 he was nearly a quarter of a century younger than BERNINI. He made his way to Italy when he was only fifteen, and as he received kindness from PETER OF CORTONA he adopted that artist's work as his model. Many of PUGET's defects are to be attributed to that cause. When he abandoned painting for sculpture he showed a preference for works on a large scale. He had great force, and he attacked the marble without other aid than a very small model of the figure he contemplated; it was not unusual with him to finish one part almost to finesse before the remainder of the block had been touched. CAIUS GABRIEL CIBBER was a Dane who came to England and obtained work with one of the sons of NICHOLAS STONE. Although COLLEY CIBBER wrote many biographies he never attempted a life of his father. CAIUS was appointed statuary to the King's Closet. He produced several works, including figures of *Melancholy* and *Raving Madness*, for Bedlam, and the statues of the kings that adorned the old Royal Exchange; much of the ornament at Chatsworth is due to his chisel. FRANCIS BIRD was CIBBER's successor. He gained the approval of WREN, and was employed to prepare the sculpture for the pediment of St. Paul's. For this immense undertaking he received 1,180*l.*; for the original statue of Queen ANNE, with four figures around the pedestal, he was paid 1,130*l.* All his works are not equally meritorious, and consequently he was subjected to much abuse by POPE and other of his contemporaries. JOHN BUSHNELL was one of CIBBER's rivals. The figures of the kings introduced in the niches of Temple Bar were his work. Unfortunately he was excitable; to demonstrate his superiority he once attempted to construct a colossal Trojan horse. He executed the figures of ABRAHAM COWLEY, the poet, and Sir PALMES FAIRBORNE in Westminster Abbey. The long series comes to a termination with LOUIS FRANÇOIS ROUBILIAC, the Frenchman, many of whose works are to be seen in Westminster Abbey. FLAXMAN said, "His thoughts were conceits and his compositions epigrams." According to HENRY WEEKS, R.A., he was a man of high genius and great knowledge, and his works show "the first regeneration of sculpture from the state of chaos into which it had fallen." ROUBILIAC died in 1762.

BRITISH STANDARD SECTIONS.

ABOUT two years ago a committee was formed under the auspices of the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Institution of Naval Architects, the Iron and Steel Institute and the Institution of Electrical Engineers, for the purpose of ascertaining whether the sections of iron and steel which are rolled in this country could be reduced in number and made exactly uniform in dimensions. Although Great Britain is supposed to be exceedingly careless in meeting the demands of trade, there is no doubt that in many ways much labour is undertaken and large sums of money are expended not only to comply with the legitimate requirements of customers, but even with their caprices. In other countries there is more show of willingness, and it may be there are more protestations among manufacturers of a desire to be obliging at any cost, but eventually it will be found that the foreigner gives greater attention to outlay than is done among us.

It was ascertained when the subject was investigated that an infinitely larger number of sections of angles, tees, bulbs, channels and beams were produced in Great Britain than in the United States, Germany or Belgium. The questions naturally arose, how in those countries so vast a trade could be accomplished when the sections were few, and why English buyers often went abroad and made alterations in their requirements in order to favour foreign products? For instance, there are over sixty sections of channel-irons employed in England, while elsewhere a third of that number suffices. In sections of other forms there is no less marked a difference. Now, if it is recollected that the production of rollers for steel is costly, it must be evident that every section which can be dispensed with represents a dead loss. It was therefore concluded that one way towards meeting foreign competition would be by the avoidance of useless sections. With that object the Engineering Standards Committee was constituted, and several of the most prominent representatives of iron and steel production in Great Britain have been glad to render service by acting as members of the various committees and sub-committees. In addition, it is believed that about 30,000% has had to be expended, and it may be assumed that further disbursements will be indispensable.

The first result is the production of nine lists of sections which are recommended for adoption by the committee. It is needless to say adherence to them cannot be enforced, and it is still open to every manufacturer to make as large a variety of sections as formerly. There are, of course, two points of view from which to regard the subject, viz. the producers' and the users'; the latter will require information respecting weights and strength which has yet to be prepared. Many engineers, architects and designers have favourite sections which have served their purposes during several years, and which they may not care to relinquish on the moment. It is, however, an advantage in dealing with wrought-iron and steel that it is always possible to reach a desired degree of strength by a skilful arrangement of available materials. If one standard section does not serve another can be used which will afford an excess of strength without much addition to the cost of construction.

The first list shows sections of angles with equal sides, beginning with 1 inch by 1 inch. The sizes increase by quarter inches up to 3 inches by 3 inches. Then we have 3½ inches by 3½ inches, 4 inches by 4 inches and 4½ inches by 4½ inches. The other sections are 5 inches by 5 inches, 6 inches by 6 inches, 7 inches by 7 inches and 8 inches by 8 inches. The sections will vary in thickness, and it is said that angles ordered to the standard thickness shall be practically accurate in profile, but if the thickness is between, above, or below the standards the flanges will be proportionately longer or shorter than the standards. The profile at the back of the toe will be slightly rounded when above the standards instead of square, but the radii at the root and toe will remain unchanged. In equal-sided angles the thickness of the flanges will be the same. It is suggested by the committee that all angles be ordered by size of flanges and weight per foot. The curves at the root and toes are of a very simple kind which can be easily struck out.

The unequal angles begin with 1½ inch by 1 inch, and proceed as follows:—1½ by 1¼, 1¾ by 1½, 2 by 1½, 2½ by 2,

3 by 2, 3 by 2½, 3½ by 2½, 3½ by 3, 4 by 2½, 4 by 3, 4 by 3½, 4½ by 3, 4½ by 3½, 5 by 3, 5 by 3½, 5½ by 3, 5½ by 3½, 6 by 3½, 6 by 4, 6½ by 3½, 6½ by 4, 6½ by 4½, 7 by 3½, 7 by 4, 8 by 3½, 8 by 4, 9 by 4, 10 by 4.

Bulb angles, bulb tees, bulb plates, Z bars and channels are not much used in building construction, and we therefore need not notice the different sections.

There are thirty sections of rolled beams or joists recommended for use, which are as follows, the dimensions being given in inches:—3 by 1½, 3 by 3, 4 by 1½, 4 by 4½, 4½ by 1½, 5 by 3, 5 by 4½, 6 by 3, 6 by 4½, 6 by 5, 7 by 8 by 4, 8 by 5, 8 by 6, 9 by 4, 9 by 7, 10 by 5, 10 by 6, 10 by 8, 12 by 5, 12 by 6, 12 by 6, 14 by 6, 14 by 6, 15 by 5, 15 by 6, 16 by 6, 18 by 7, 20 by 7½, 24 by 7½. The weights vary from 4 lbs. to 100 lbs. per foot. The flanges slope from the web upwards, and the standard thickness is to be measured at distances half-way between the extreme edges of the flanges and the nearer side of the web. It is suggested that all beams be ordered by depth of section, width of flanges and weight per foot.

The T bars are of the following dimensions, in inches:—1 by 1, 1½ by 1½, 1½ by 1½, 1¾ by 1¾, 1½ by 2, 2 by 2, 2½ by 2½, 2½ by 2½, 3 by 2, 3 by 2½, 3 by 3, 3 by 4, 3½ by 3½, 4 by 3, 4 by 4, 4 by 5, 5 by 3, 5 by 3½, 5 by 4, 6 by 3, 6 by 4, 7 by 3½.

To anyone without experience in the use of steel the recommendations may appear to be insignificant. But the adoption of the sizes will be little short of an industrial revolution. For designers the use of normal sections will be advantageous in saving time, and to the makers of beams as well. It will no longer be necessary to institute inquiries about the obtaining of sections of the dimensions which are sometimes introduced in drawings without any consideration as to whether they are easily obtainable in the market. The number of sections of rolled beams is very satisfactory, and architects are not likely to encounter any difficulty in spans or loads to which one or other section is not equal. The rolling mills can easily produce the standard sections owing to the simple arrangement of the profiles. In the course of a year the sections generally required will, no doubt, be on sale. Meanwhile, and possibly for some time afterwards, the sections which have been already rolled cannot be rendered obsolete; indeed, there will always be use for them. It is not suggested that the new forms will have any advantage in the way of strength. The principle which determined the form of rolled beams is unaltered. When FAIRBAIRN first suggested their employment he thought that not only the I section, but one with a cellular top, or other varieties, might be employed; but experience has shown there is nothing better than the I section, and that has been adhered to by the committee. If we might say so it is not so much an engineering question which is under consideration, but an economical one. The competition with foreign ironmasters, it is believed, will be more advantageously upheld under the conditions suggested, and for that reason there will, we suppose, be little opposition offered to the British standard sections. As Mr. JAMES MANSENGH said when addressing the International Engineering Congress, "much of the real essence of economical engineering is contained in the work of settling standard sections of important constructive materials," and in attaining that desirable end co-operation is necessary.

An International Exhibition will be held at Limoges from May to September this year. The exhibits will be comprised under the heads of education, the liberal arts, general mechanics, electricity, civil engineering, agriculture, horticulture, forestry, metallurgy, social economics, hygiene, special applications of medicated alcohol to motive power, lighting and warming and other departments.

The Three Remaining Bays of the cloisters of the old Priory of St Bartholomew the Great, Smithfield, have now been purchased and a faculty obtained for connecting them with the church by means of the original monks' doorway, which, though at present bricked up, can still be traced in the wall of the south ambulatory. An historical and descriptive lecture on the church will be given on the 21st inst., at 3 P.M., and repeated on the 28th. The crypt and other portions of the church will be open for inspection without any fee, but contributions will be invited towards the cost of the newly acquired cloisters.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER VII.

UNITY, VARIETY, CONTRAST, &c.

UNITY may be defined as the maintenance of the prevalent idea in any design, and this is quite consistent with the introduction of adequate *variety* and even *contrast* in detail. Variegated unity is, in fact, a stock expression, though it is better termed "Unity with Variety." It may be easier to describe what unity implies by instancing failure. Regarding the house shown in fig. 50, it is evident that though well balanced, it suffers from lack of unity of design. The spectator's eye is distracted, and cannot find any central *motif*. In all good work—whether drama, novel-writing, music, or pictorial art—the best contains one main plot with various ancillary incidents grouped round it, some perhaps even meandering into byways here and there, but always with the central idea predominant, and keeping within proper bounds all the subsidiary incidents.

It does not necessarily involve lack of unity in a design to employ a combination of two or more different architec-

sight of, and though the sculpture and carving are frequently entirely disassociated from religious forms, yet the whole effect is congruous.

That variety need not destroy symmetry is well known; but it is also true that even an unsymmetrical arrangement of varied features may have an appearance of symmetry, either through these varied features being of minor importance or else through artistic management. In the façade of the Palazzo Pandolfini, Florence, the variations are slight, and certainly do not destroy the symmetry.

These remarks apply not merely to the form of ornamental features, but also to their grouping; where rigorous symmetry is not enforced, variety may be more freely introduced, and frequently with advantage.

The author is tempted at this place to quote *in extenso* a paragraph that appeared in one of the issues of *The Architect* not very many months ago:—"All beauty is the result of harmony, which is not a simple quality, but, as ARISTOTLE defines it, 'the union of contrary principles having a ratio to each other.' Harmony thus operates in the production of all that is beautiful in Nature, whether in the combinations, in the motions, or in the affinities of the elements of matter. The contrary principles to which ARISTOTLE alludes are: those of uniformity and

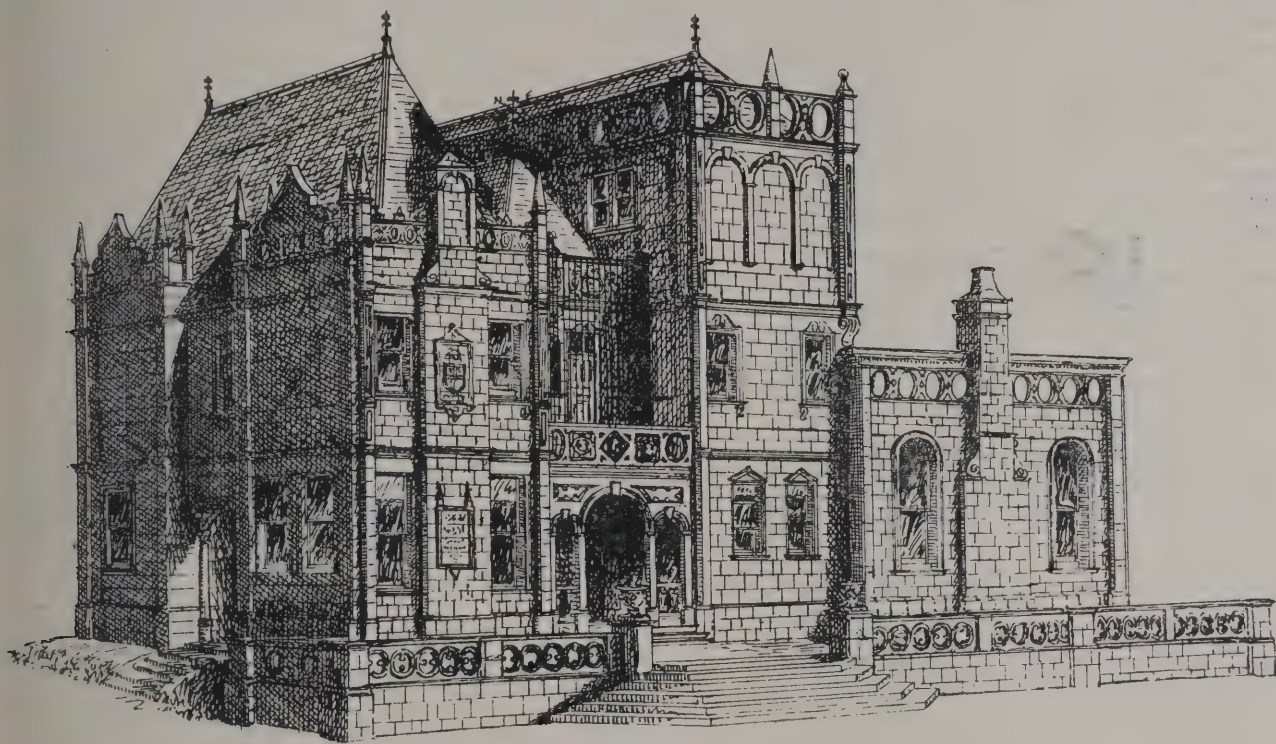


FIG. 50.

tural "styles," nor is there *per se* any æsthetic objection to such combination; a sentimental objection there may be; but Sir CHRISTOPHER WREN not infrequently combined Gothic and Renaissance in the same building: at times happily enough, though it requires a master hand to preserve the "unities" under such conditions. Opinions seem to differ as to the æsthetic value of the combination in the western towers of Westminster Abbey designed by this architect.

It is, however, not only a question of architectural style, seeing that proportion of parts, the attention devoted to chiaroscuro, and the use made of colour and ornament all have an influence on the preservation of "unity." An example of failure due mainly to excessive colour treatment is met with in London in the Albert Memorial, by Sir GILBERT SCOTT; on a small scale and under a glass case as a museum exhibit it looks sufficiently pretty and satisfactory. On the other hand, the Natural History Museum, London, by Mr. ALFRED WATERHOUSE (see fig. 51), is a fine exponent of the attention paid to unity with an adequate amount of variety. The mediæval cathedrals also serve as examples of the same combination; their main intent (of consecration to Divine ideals) is never lost

variety, for, according to the predominance of the one or the other of these principles, every kind of beauty is characterised. Hence the difference between symmetrical and picturesque beauty: the first allied to the principle of uniformity, in being based upon precise laws that may be taught so as to enable men of ordinary capacity to produce it in their works; the second allied to the principle of variety often to so great a degree that they yield an obedience to the precise principles of harmony so subtly that they cannot be detected in its constitution, but are only felt in the response by which true genius acknowledges their presence. The generality of mankind may be capable of perceiving this latter kind of beauty, and of feeling its effect upon the mind, but men of genius only can impart it to works of art. Throughout the sounds, forms and colours of nature, these two kinds of beauty are found, not only in distinct developments, but in every degree of amalgamation. We find in the songs of some birds, such as those of the chaffinch, &c., a symmetrical division, resembling in some measure the symmetrically precise arrangement of parts which characterises all artistic musical composition; while in the songs of other birds and in the other numerous melodies with which Nature charms and

soothes the mind, there is no distinct regularity in the division of their parts. In the forms of Nature, too, we find amongst the innumerable flowers with which the surface of the earth is so profusely decorated an almost

parts, as also amongst the hills and valleys, the mountain and ravines, which divide the earth's surface, we find in every possible variety of aspect the beauty produced by that irregular species of symmetry which characterises the picturesque."

The foregoing quotation deserves careful study, and is evidently the outcome of attentive observation. Whilst the same catholicity of observation is not a characteristic quality of the writer of the present work, yet one variety of Nature's mathematical treatment he has frequently noted with admiration, and this is the beautifully regular plan assumed by many flowers, whose petals so overlap or meet as to produce a perfect stellaloid by means of the hollow space next the calyx, after the fashion shown in fig. 52.

Monotony has been elsewhere mentioned under the heading of surface decoration, and it must be borne in mind that all monotony (whether of outline or of ornament) is to be deprecated, as being contrary to all the lessons that Nature teaches. If the façade of the Palazzo Farnese be

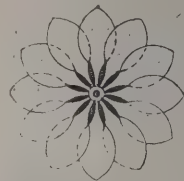


FIG. 52.

considered, it will be found to be distinctly monotonous in effect, due to the too frequent repetition of the same features insufficiently relieved by varied treatment. A remark once made anent it showed a ridiculous disregard of type and prototype. This was that the Palazzo Farnese "looks like a bank: one would fancy it might be taken out of Lombard Street or some thoroughfare of almost any modern city."

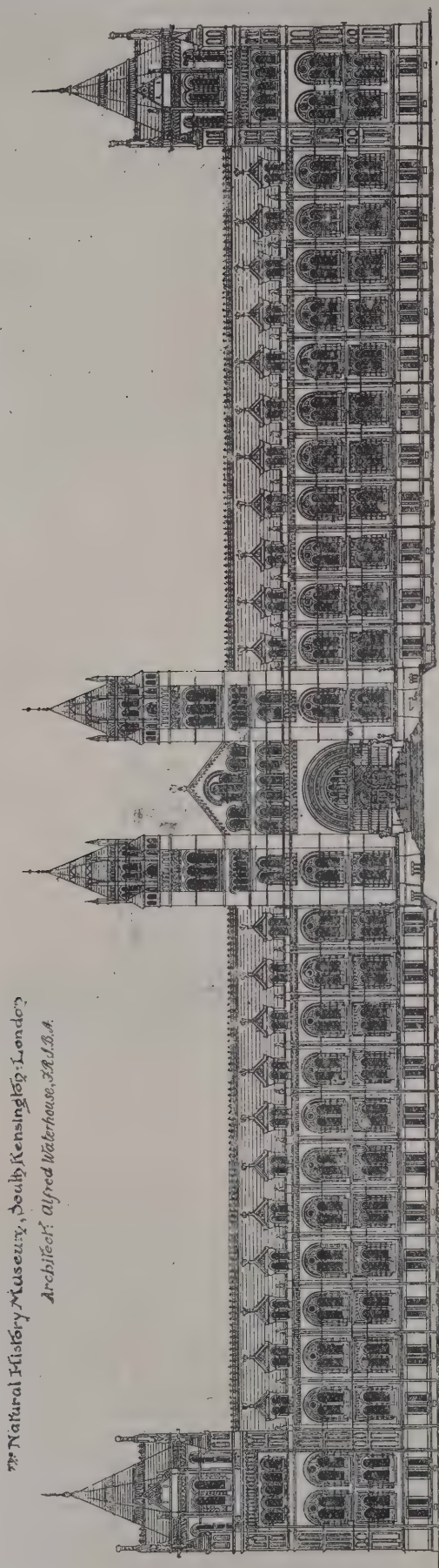
(To be continued.)

RYLSTONE HOUSE, BOURNEMOUTH.

RYLSTONE HOUSE, Bournemouth (see next page) was erected a few years ago for the late Mr. WILLIAM CHARLES LACEY, at that time town clerk of Wareham Dorsetshire. The house was built of red bricks with free stone dressings. The architect was Mr. JOHN TUR LACEY, of London. He was architect and surveyor to the County Fire Office, and died June 14 last year, at his residence, 17 Taviton Street, Gordon Square, and was interred at Highgate Cemetery on June 19, aged sixty-four years. He was born in London, and educated at Eagle Hall Academy, Southgate, having for his schoolfellow Sir JOHN AIRD, M.P., Messrs. W. & J. WATSON, builder W. F. POTTER, and other names now well known in the building trade. Mr. J. T. LACEY married Miss JULIA WHITEAVES, sister of Professor WHITEAVES, of Canada, professor of conchology. Mr. LACEY was succeeded as surveyor to the County Fire Office by Mr. J. J. BISSELL, his late principal assistant. Our illustration is from a pen-and-ink perspective drawing by Mr. W. F. POTTER.

DISCOVERY AT THEBES.

THE great event of the Egyptian season from an archaeological point of view has been the discovery of the tomb of one of the Pharaohs of the eighteenth dynasty, Thothmes IV. For the last two years, says the *Times*, Mr. Theodore M. Davies, an American gentleman who is well known in Egypt, has been excavating steadily and systematically in the Valley of the Tombs of the Kings at Thebes, clearing the rubbish away inch by inch, and so laying bare the bed-rock. He has been rewarded this spring by the discovery of a previous unknown royal tomb. The mummy of Thothmes IV. is in the Cairo Museum, having been found in the tomb of Amenhotep II., to which it had been conveyed by the Egyptian priests for the purposes of concealment, probably in the age of the twenty-first dynasty, but the sepulchre of the Pharaoh has never been discovered, though it was pretty certain that it was hidden somewhere under the debris in the Valley of the Tombs of the Kings.



Front Elevation
FIG. 51.

Natural History Museum, South Kensington, London.
Architect: Alfred Waterhouse, F.R.S.B.A.

endless variety of systematic arrangements of beautiful figures, often so perfectly symmetrical in their combination that the most careful application of the angleometer could scarcely detect the slightest deviation from geometrical precision; while amongst the masses of foliage by which the forms of many trees are divided and subdivided into



RYLSTONE HOUSE, BOURNEMOUTH.

The actual discovery was made by Mr. Howard Carter, the Inspector of the Monuments of Upper Egypt, who has been conducting the excavations for Mr. Davies, and it is to his care and practised skill that we owe not only the preservation of all the objects found in the tomb, but also a scientific record of the conditions under which they were discovered. The tomb itself, like the other royal tombs in the same valley, consists of a gallery cut into the heart of the mountain. After sloping downward for a considerable distance, it is interrupted by a deep square well, on one of the walls of which is a band of paintings. On the further side of the well the passage turns back upon itself, and finally opens into a large chamber, at the extreme end of which is a magnificent sarcophagus of granite covered with texts from the Book of the Dead. On either side are smaller chambers, the floor of one of which was covered with mummified loins of beef, legs of mutton and trussed ducks and geese, offerings made to the dead king between 3,000 and 4,000 years ago. Clay seals with the name of the king had been attached to the doors of the chambers, and it is interesting to observe that the Egyptians of the eighteenth dynasty had already to some extent anticipated the invention of printing, the raised portions of the seals having been smeared with blue ink before being impressed upon the clay.

The walls of a chamber which served as a vestibule to that in which the sarcophagus was laid are adorned with a few paintings, and on one of them is a hieratic inscription, dated in the eighth year of Hor-em-heb, and stating that the tomb had been plundered by robbers, but restored as far as possible by that Pharaoh. It was doubtless at that time that the jewellery and other precious objects buried with the king were stolen.

More than enough was left, however, to satisfy the archaeologist of to-day. The floor was literally covered with vases, dishes, boomerangs, symbols of life and other objects of blue faience. Unfortunately, nearly all of them have been wantonly broken; in some cases the damage must have been done by the original desecrators of the tomb, as the breakage has been repaired in the time of Hor-em-heb. Intermixed with the faience were fragments of exquisitely shaped cups and vases of rich blue or variegated glass. There are also fragments of an opaque white glass as well as what would have been pronounced to be the bottoms of modern beer bottles had they been met with on the surface of the ground. Equally

interesting is a piece of textile fabric into which hieroglyphic characters of different colours have been woven with such wonderful skill as to present the appearance of painting on linen.

The great and unique find, however, has been that of the actual chariot which was made for the Pharaoh, and in which he rode at Thebes. The body of it alone is preserved, but in a perfect condition. The wooden frame was first covered with *papier maché* made from papyrus, and this again with stucco, which has been carved, both inside and out, into scenes from the battles fought by the Pharaoh in Syria. The art is of a very high order, every detail being exquisitely finished and the faces of the Syrians being clearly portraits taken from captives at Thebes. The chariot is, in fact, one of the finest specimens of art that have come down to us from antiquity, and that it should have been made for the grandfather of "the heretic king," whose foreign correspondence has thrown such a light on the history of the ancient East, lends to it additional interest. Along with the chariot was found the leather gauntlet with which the king protected his hand and wrist when using the bow or reins.

MANCHESTER SOCIETY OF ARCHITECTS.

ABOUT 450 members and guests assembled at the City Art Gallery on Friday, February 27, and were received by the President and Council. Selections of music were played during the evening by the Manchester Military Stringband, and there was an interesting and representative exhibition of work by the members.

Among the guests who accepted were Mr. Alfred Hopkinson, principal of Owens College; Mr. David Morgan, president of the Cardiff, South Wales and Monmouthshire Society of Architects; Mr. A. H. Crawford, president of Edinburgh Architectural Association; Mr. S. Trevaill, president of the Society of Architects; Mr. John Belcher, vice-president of the Royal Institute of British Architects; Mr. John Slater, vice-president of the Royal Institute of British Architects; Mr. J. Flew, president of the Bradford Society of Architects and Surveyors; Mr. Arthur Clyne, president of the Aberdeen Society of Architects.

NOTES AND COMMENTS.

AN inquiry was lately instituted by members of the Iowa Engineering Society concerning the methods adopted for the appointment of city engineers in the United States. Information was obtained from twenty-five cities. It was found that in nine cases the selection rested with the mayor; in eight with the people; in four with the Commissioner of Public Works; in two with the City Council, and in two with the Civil Service Commission. The opinions of the holders of the offices varied. One engineer said, "There is no way that I know by which merit alone can place a man in this position." Another wrote, "In a city of this size it would be extremely difficult to remove the office out of the sphere of political influence, and I am not sure that it would be an improvement to do so." A third replied, "The office of city engineer is elective and the system from a merit standpoint is a failure. Anyone who hustles can get a nomination, and if nominated by the winning party is elected. From a close examination of election returns it does not look as if merit made any appreciable difference in the vote for engineer." More satisfactory answers were given in other cases. For example, in St. Louis, Mo., it is said:—"Up to the present time politics have not been considered to any great extent in the appointments; merits and not political influence are considered. I would say the only way for an engineer to succeed in a municipal office is not to affiliate with any of the party organisations, but to attend strictly to his duties, and in time the question of politics of an engineer will not enter into the appointment." But the consensus of opinion may be taken as favouring election by the people or appointment by the Civil Service Commission. In Philadelphia the appointments are made after competitive examinations, and in consequence the standard has reached a high degree of efficiency. No less than seventy-five college graduates, representing most of the colleges and universities in the eastern part of the United States, were engaged in the public service as officials of the engineering department.

IT is not often one individual can point to so much success in a few years' explorations as was done by Dr. HERZOG, of Tübingen. Last week he gave a narrative of his operations in the Island of Cos before the Archäologische Gesellschaft in Berlin. It was known that ÆSCULAPIUS was worshipped by the islanders, and Dr. HERZOG was able to discover the remains of the temple which had been long sought after. The building stood on a terrace and was approached by several steps. The material employed was white marble. Near the temple was a medical school, and it is supposed the votive offerings formed a collection that was useful in teaching anatomy. Dr. HERZOG was also able to make several discoveries relating to the Knights of Rhodes, who owned and ruled the island for about two centuries. It is supposed that remains of ancient sculpture found in their castle were derived from the ancient temple.

IT seems now to be contrary to good government for coins to be produced except by the State. But it is well known that from a very early period the archbishops of Canterbury possessed the privilege. It is also believed that in the reign of HENRY II. several of the great barons issued coins. The bishops of Durham, as became such princes, struck pennies from the reign of EDWARD I. to that of HENRY VIII. The Archbishop of York had also his mint. One of the charges against WOLSEY was his introducing the cardinal's hat upon the king's money. Mr. S. W. KERSHAW has a paper in the "Journal of the British Archæological Association" relating to the ancient coinage of Canterbury. THOMAS CRANMER was the last prelate to exercise the right. His initials T.C. were introduced on the coins. Mint Yard is shown on most maps of Canterbury. It was near and around the present King's school. The almonry was CRANMER'S mint. The abbots of St. Augustine's were likewise allowed to coin money. Canterbury also possessed an Exchange, which stood in the parish

of All Saints, High Street; it was bestowed by EDWARD III. on Eastbridge Hospital. There was a mint near the Exchange. In conclusion, Mr. KERSHAW says, "Canterbury, famous from the earliest time, has ever formed a central ground of history in all its departments. Whether we consider the Roman remains, the rich ecclesiastical and domestic work, or the monastic annals which crowd round Christ Church and St. Augustine's, in one and all there is a vast field for study."

ALTHOUGH it is near Edinburgh, we suppose few Englishmen ever heard of Queensferry and Southferry until they were introduced to notice by Sir WALTER SCOTT in the first chapter of "The Antiquary." Yet there were historical associations between the places and England. The queen commemorated by the name was the Princess MARGARET, the sister of EDGAR ATHELING, who married the Scottish king, MALCOLM CANMORE, and became an important influence in the civilising of the North. It is now proposed to utilise St. Margaret's Hope, one of the bays in the Forth, as a naval base. To what extent docks will be constructed as well as fortifications, breakwaters, &c., is not, so far as is known, yet decided. The position is important, and it is possible that the great Forth Bridge might be turned to account as an auxiliary fortification. There are several ironworks in the district, Falkirk being among them. It will be a strange metamorphosis of so quiet a locality when it becomes a naval station. But the prosperity of Fifeshire is likely to be augmented by the realisation of the project even on a restricted scale.

THE twenty-first Congress of the Sanitary Institute will be held in Bradford from July 7 to the 11th. The President will be the Right Hon. the Earl of STAMFORD. The section of sanitary science and preventive medicine will be presided over by Professor CLIFFORD ALLBUTT; the section of engineering and architecture by Mr. MAURICE FITZMAURICE, C.M.G.; the section of physics, chemistry and biology by Professor C. HUNTER STEWART, D.Sc. The lecture to the Congress will be given by Mr. J. SLATER, B.A., F.R.I.B.A. Eight technical conferences will also be held in connection with the Congress, presided over by Councillor W. C. LUPTON, Professor THOMAS OLIVER, Dr. J. SPOTTISWOODE CAMERON, Mr. T. H. YABICOM, C.E., Mr. C. DRABBLE, V.S., Mrs. MOSER, Dr. JAMES KERR and Mr. ISAAC YOUNG.

ILLUSTRATIONS.

THE MASTERS OF ART: SCULPTORS.

CATHEDRAL SERIES.—WORCESTER: THE HIGH ALTAR.

DANESFIELD, GREAT MARLOW.

METHODIST CHAPEL, WOLVERHAMPTON.

SEVENTY years ago, when JOHN BRITTON described Worcester Cathedral, he said that a "handsome openwork stone screen closes the back or east end of the communion-table." He believed that the choir and its transept must originally have formed a most splendid architectural design. But "modern whitewashing and fittings-up have, however, greatly deteriorated its effect and the irreverent, theatrical practice of fixing numerous galleries and seats in it for periodical oratorios must continue to deface and injure this splendid part of the church." The reredos shown in the illustration was designed by Sir GILBERT SCOTT, and is a characteristic example of the treatment he considered becoming in a cathedral. The figures under the canopies are CHRIST and the four Evangelists. The sculptors were Messrs. FARMER & BRINDLEY. On the back of the reredos is an inlaid cross with the following inscription:—"In memory of JOHN PEELE, D.D., Dean of this Cathedral from A.D. 1846 to 1874, who erects this reredos in affectionate remembrance of AUGUSTA his wife: this cross is inscribed by the Dean and Carvers and other friends, A.D. 1877."

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. L. Ambler, vice-president, in the chair. The following were elected as members:—Messrs. F. J. Commin, W. Curtis Green, W. Gilbert, F. Jennings, Owen Dudley, G. F. N. Clay and C. F. A. Voysey. Messrs. E. J. Wellman and A. B. Yeates were reinstated members.

The CHAIRMAN announced that a donation of ten guineas towards the new premises fund had been received from the Birmingham Architectural Association. A hearty vote of thanks was passed to the Birmingham Society.

Mr. A. W. S. CROSS, M.A., read the following paper on

Competitions.

As one who is greatly in favour of the system of obtaining designs for public buildings by means of competitions, I am, unfortunately, unable to agree with many of the views adopted by Mr. Cresswell in his extremely able paper which will follow mine. I have had, quite recently, the pleasure of perusing an equally excellent paper on the same subject by Mr. G. H. Willoughby, of Manchester, in which its author, a strong believer in the system, as he has shown by both precept and practice, writing from a standpoint diametrically opposite to that selected by Mr. Cresswell, argues in its favour as follows:—

"From my point of view, it is a mistake to suppose that the profession can dispense with healthy, stimulating competitions. A man never knows what is in him until he has measured himself with his fellows in real honest work of this kind. Consider what a large field for effort is presented to our younger men at the outset of their career, when youth, with its enthusiasm and capacity for work, is so strong. With many the commissions which they have in hand fail to fully occupy their time. Does not the opportunity thus afforded through the medium of competitions, which is, I think, confined to our profession, create, if grasped, a lasting habit of steady, continuous application and activity—a prelude to the time when hands and head will be fully occupied on more certain work? Let me remind you of the endless opportunities which cross our path, through the medium of competitive problems, for the study and investigation of the many kinds of structures the architect of to-day is called upon to design."

These words of Mr. Willoughby represent with more or less exactitude the views of those architects who, while believing that competitions are desirable and tend to the advancement of architecture, are at the same time determined to do their utmost to remedy the undoubted evils connected with the competition system in vogue in this country, which evils, involving as they do many miscarriages of justice and frequent deviations from rectitude on the part of promoters and assessors, must be rooted out, and with this object in view a society for the reform of competitions has been formed, and is now, I honestly believe, doing good work in its efforts to protect members of our profession against the wiles of unscrupulous promoters of competitions. But, after having made good their position with regard to promoters, competing architects should advance a step further and insist upon the employment, wherever practicable, of a jury of assessors in place of the present one-man system, which has proved to be a dismal failure. It is neither desirable nor necessary for me to enter into particulars, or to call attention to specific instances in which flagrantly unfair awards have been made; the general fact is common knowledge, and there are doubtless many members of this Association who have suffered, at times, from the incompetence, lack of sound judgment, call it what you will, of certain assessors.

In France, where, as a matter of course, "they manage these things better," and in America the jury system is now almost always applied to important competitions; in the latter country in accordance with the following code for the conduct of competitions, as presented to the American Institute of Architects at their annual convention in 1900, viz.:—

Form of Competition.—A competition as a means for the selection of an architect may properly assume one of the following forms:—(a) "Limited" to a certain number of architects, each of whom is invited to take part. (b) "Open" to all who desire to enter, or to all of a certain class. (c) "Mixed." Certain architects being invited, but others being at liberty to take part.

Payment of Competitors.—In all competitions the first prize should be the award of the commission to design the building and superintend its construction, and the programme should definitely state that the successful competitor will be so retained, and that he will be paid for his services at the rates established by the American Institute of Architects. To allow for the contingency of delay or of the discontinuance of the work, the programme should provide for a substantial payment to the successful competitor on the award of the competition, such payment to be regarded as on account of the final commission. Payments to unsuccessful competitors should be as follows, viz.:—In limited competitions each should be paid a fixed amount. In open competitions prizes fixed in number and

amount should be provided. In mixed competitions the two classes of competitors should be paid in the manner above described.

The Professional Adviser and the Jury.—It is highly desirable, in the interests both of the owner and the competitors, that a professional adviser should assist in the preparation of the programme, and that the professional adviser, or a competent jury, consisting, at least in part, of experts, should assist in making the awards. The professional adviser or jury may have full power to make the award, or they may select a number of designs, and placing them in order of merit leave the final choice to the owner or his representatives. Wherever possible, the adviser, or the jury, should make a positive report in favour of one design, and recommend the employment of its author as architect for the building.

The Programme.—The programme should be so drawn as to form a contract. It should (a) Name the owner of the structure forming the subject of the competition, and state whether the owner institutes the competition personally or through representatives. If the latter, it should name the representatives, state how their authority is derived, and define its scope. (b) State the kind of competition to be instituted, and in limited competitions, name the competitors, or in open competition, if it is limited, geographically or otherwise state the limits. (c) Fix a definite time and place for the receipt of the designs; the time should not be altered except with the unanimous consent of the competitors. (d) State the limit of cost, if fixed, the desired accommodation, and the conditions respecting the site. (e) Fix uniform requirements for the drawings, giving the number, the scale or scales, and the method of rendering. As the representation of a general scheme (rather than of a design perfectly studied in all its parts) is the object of the drawings, they should be of the simplest kind, capable of explaining such a scheme. (f) State whether the submission of more than one design by a competitor is forbidden or permitted. (g) State whether the competition is to be anonymously conducted or not, and if anonymously, provide the method. (h) Name the judge or jury, or provide a method for their selection. Define his or their power. (i) Provide for placing out of the competition any drawing which violates the terms, or any set of drawings whose authors have so disregarded the terms as to deserve the extreme penalty. (j) Provide that during the competition there shall be no communication upon anything relating to the competition, except in writing, between any competitor on the one hand, and the owner or any representatives of the owner, the professional adviser, or any juror, on the other, and that any information, whether in answer to such communication or not, shall be given in writing simultaneously to all competitors. Give a date after which no question will be answered. (k) Fix the nature or the amount of the awards or prizes. (l) State, in case the professional adviser of jury is not empowered to make the award, in whom such power is invested. (m) Fix the period of time within which the final decision will be rendered. (n) Provide for sending the decision and a copy of the report of the professional adviser or of the jury to each competitor. (o) Provide that no drawing shall be exhibited or made public until after the award, and not then without the consent of the author. (p) Provide for the return of unsuccessful drawings to their respective owners within a reasonable time. (q) Provide that nothing original as to this competition in unsuccessful designs shall be used without compensation to the author of the design in which it appears.

Whilst one may not agree absolutely with each individual clause in the above exhaustive code yet, broadly speaking, it appears to have been carefully and impartially framed alike in the interests of both promoters and competitors, and it is fundamentally sound in its insistence upon the following essentials which should be borne in mind during the preparation of every set of conditions issued to competitors in this country:—1. A definite pledge should be given by the promoters as to their intention to retain the services of the successful competitor. 2. The conditions should be framed to constitute a contract between the promoters and the competitors. 3. The drawings required should be of the simplest kind necessary for explaining the competitors' schemes. 4. A copy of the assessor's report should be sent to every competitor. 5. No communication, except in writing, should be allowed upon anything relating to the competition between any competitor on the one hand and the owner or any representative of the owner, the professional adviser, or any juror on the other.

With regard to (1), this clause is essential to the success of any properly organised competition. Promoters must be brought to understand that the payment of a premium is quite insufficient to reimburse the successful competitor for his outlay of time and money. As to (2), this proposal is an innovation as far as this country is concerned, but it is one that will form, sooner or later, an integral part of the conditions of the competitions for all public buildings. (3) Has been evidently framed with the object of minimising the amount of work

required from each competitor, and any experienced competing architect will vouch for its necessity. (4) Constitutes a laudable attempt to allay many of the heart-burnings that almost invariably follow an award. In my opinion, it is very desirable that a copy of the assessor's report, containing the award and his critical notes on the various designs, should be issued to every competitor. I have here a copy of such a report, kindly lent to me by its author, Mr. Paul Ogden, of Manchester, which is, in my opinion, ideal in its characteristics. It contains photographic reproductions of all the plans submitted, together with the assessor's criticism of each design, by which means competitors are enabled to obtain a very fair insight into the reasons governing the award. The last stipulation (5), although it might perhaps be strengthened, is, I think, a wise one under our haphazard system, or rather want of system. A competitor is often tacitly allowed to obtain special information from individual members of the promoter's committee or from officials and subordinates connected with them, and this course of action is to be deprecated, as the contest between the competing architects should be fought on the information conveyed by the conditions, and by the subsequent replies to questions, and by that information alone.

On the whole I think, gentlemen, you will agree with me that the problem relative to the conduct of architectural competitions having been successfully solved by the American architects, it is the duty of all members of our profession in this country to support the movement that has recently been initiated to insure a similarly satisfactory result here. By doing so you will be upholding the dignity of the profession, for what other body of educated men receives the insults that are constantly offered to us by promoters of competitions, who often advertise for designs for buildings which they have not the slightest intention of carrying out, or for which they have actually selected their architect before the issue of the conditions for their so-called competition? To put it briefly, competing architects must sift the good competitions from the bad ones, and protect themselves against unfair or incompetent assessors by insisting upon the introduction of the jury system of assessing. The only argument I have heard advanced, so far, against the appointment of jurors is that emanating, I presume, from those architects who have too great an appreciation of the value of the fees obtainable under the present system of assessing to make them desire any change; to the effect that the excessive cost of the jury system militates against its adoption, but if—as in America—no first premium be awarded, and the definite commission to carry out the work be substituted, there would not be apparently any insuperable difficulty in providing the necessary funds for the payment of three or more jurors.

Mr. H. B. CRESSWELL also contributed a paper on the subject. He said:—It is six years since I stood in this room, at the invitation of your committee, to read a paper before you on this same subject of architectural competitions which brings us here to-night, and I do not think that the interval has advanced this question any nearer to a satisfactory solution now than it was then. Six years ago the conclusion was forced upon me that arguments and suggestions on the subject of architectural competitions had reached very much the same position in the history of the world as puns, namely, in this, that they had all been made, and I do not think circumstances have changed since then sufficiently to make discussion of this subject more profitable than heretofore.

I would like to remind you that the whole subject of competitions, in almost the same aspects and involving the same dilemmas, the same difficulties, the same differences of opinion, has beset our profession like an incubus, and has provoked lengthy discussions, protracted correspondence in the professional journals, special commissions, sworn fraternities, and self-denying brotherhoods continuously for nearly 100 years. I can assure any one of you who cares to refer to the records which will be found within the walls of this building that he will be truly amazed at the huge amount of energy, mental activity, arguments, research and classification of facts which have been brought to bear, on this subject, and I may add by some of the most conspicuous and able men of their day; and yet, although in the particular of professional assessors, promoters of competitions have fallen partially in line with our views, the main question remains no nearer solution, and the confusion in the conduct of competitions is perhaps as great as it ever was.

I find that the subject of competitions has been prominently brought before us here or at the Institute or elsewhere during past years as follows:—

In 1838 a committee was appointed by the Institute to consider this subject of competition, who, having thoroughly investigated it, seemed appalled by its difficulties and concluded by publishing a report containing much "valuable information," but leaving the remedy very much as it was before, in the hands of the profession. In 1850 the Architectural Association considered the question and drew up a report

containing a code of regulations which it was suggested would meet the difficulties of the case. In 1857 Mr. George Morgan read a paper before the Institute upon this subject, which led to a debate in which everyone agreed again that something ought to be done. In or about 1860 the "Architectural Alliance" took steps to draw up a form of circular suggesting terms of "general conditions" which were sent to such committees and councils as showed symptoms of breaking out into competitions. In 1871, on the occasion of the General Congress of Architects, Professor Kerr read a valuable paper on the subject of the "Commercial Aspects of Competitions." Everyone agreed that something ought to be done. A special committee was again nominated, and deputed by the Congress to investigate the matter and report accordingly. In 1872 the report, together with a code of proposed regulations for the conduct of competitions, was read before the Congress of the year, and the Congress were, with one exception, unanimous in agreeing that something ought to be done. The exception was Sir Edmund Beckett, who made a very able and interesting speech in the character, as architects may consider, of devil (or grocer's) advocate.

I may mention here that it is the recommendations made by this report, revised again in 1883 and in 1892, which to-day stand in the Institute Kalendar as "Suggestions for the Conduct of Architectural Competitions." In 1879 Mr. Thomas Porter read his exhaustive paper on the subject, in which the belief that has been said in demonstrating the suicidal folly of the profession in acquiescing in the competition system is there printed and set down. After hearing that paper everybody was completely satisfied as they had ever been that something ought to be done. It was a past-president of the Architectural Association, Mr. Cole A. Adams, who the next year did—or very nearly did—the necessary "something" by drawing up and circulating a memorial which was signed by 1,300 architects, who there bound themselves to take part in no competition save where a professional adjudicator of established reputation was employed. This was presented at the Institute by the late George Edmund Street in 1881. Since then the subject has been again discussed, and there have been papers read since by Mr. Baggallay and others.

It will be noticed that a periodic recurrence of the subject of competitions is endemic with us—an affection of the spleen—and seems so essential a factor of the healthy existence of our profession that we may at least view this present outburst as an intimation of our healthy existence.

I am not going to restate in detail the injustices and stupidities which have been brought to the charge of those who organise competitions; they are vividly in the minds of all who do, however, briefly propose to remind you how disastrous the main principles which are involved in our system of competitions, because we are apt to reason from our own personal experiences, and personal ambitions and prejudices, and I think that it is this attitude which has produced and promulgated the confusion which makes impossible any chance of that clear view and approach to unanimity by which alone we can encounter and overcome the difficulties we discuss so exhaustively and with such futility. I will ask you to join me in my conviction that we shall never reach a solution until we can make our own immediate interests subservient to wider interests of the profession at large. I will then ask you to let me suggest to you wherein the root of our trouble lies, and to state what I believe to be the only solution which ever be possible until we are a closed profession, and registered and placed under compunction to obey the rules which are made for us.

First of all, I would remind you that competitions do not in any way influence the number of buildings erected. The whole mechanism of competitions effects nothing more than the selection of those particular architects who shall be appointed to execute certain particular buildings. Their justification rests, then, on the substantiation of the fact that the process of selecting architects by competition is better for the profession and for the national architecture than if an architect were selected by his reputation or his proved fitness for the work. The question is not, gentlemen, whether competitions afford a short cut to notoriety for individuals, whether, taken as a whole, that system of selection is the best system of selection. I am not going to urge the reasons which convince me that the competitive method of selection is a method as a frequent usage, and bad in all cases except limited competitions, but I will ask your permission to quote the mature opinion of Professor Kerr on this subject. It is reported to have spoken these words in 1871:—

"The only conclusion I can arrive at with any regard to common sense is that the system of architectural competition is radically unsound in principle, and in practice most injudicial to the profession of architects, both financially and morally. Whether it benefits the public in any way may for a moment be questioned, but even on this point I believe the answer must be eventually in the negative. . . . I have never known any man succeed in establishing by competition

reputation which he would not have better acquired without it, except occasionally a bad reputation, which but for competition he might fortunately have been able to escape. I know of no other temptation in business so subtle as that which assails, as I think, a high-minded man when involved in architectural competition, and especially if he is to be successful. I know of men who have succeeded by competing in attaining to the promise of a position which they were not qualified to hold, but they have never been able to retain it, and have in several cases been ruined in their legitimate prospects by the consequences of such hasty and fallacious good fortune. I do not hesitate to say that competition success leads generally to personal and public disrespect; and this not through jealousy alone or personal offence, but by reason of the ordinary estimate of the qualities by which alone such success can be obtained."

The remarkable emphasis of these words from a man of the experience and acquirements of Professor Kerr justify a dogmatic assertion, surely, that it is doubtful whether the apparent advantages of the competitive method of selection are not abrogated and overshadowed by the grave disadvantages attaching to it, and with that moderate statement before you, I will remind you at what costs and by what burdening of ourselves do we acquiesce in this system of competitions.

There are about thirty-six unlimited public competitions advertised yearly in England alone. The value of the average building is about 9,000*l.*, the number of competitors about forty, and the value of the first premium about 56*l.* (with further premiums aggregating to 52*l.*).

(To be concluded.)

DECORATION OF ST. PAUL'S.

A LECTURE was delivered on Monday evening by Sir William Richmond, R.A., on "The Decoration of St. Paul's Cathedral," before the members of the Institute of British Decorators. Mr Crace presided.

Sir W. Richmond said that his discourse would partake rather of the nature of a causerie than of a lecture. He stood here as a fellow-student who had tackled no doubt a very difficult task, and done it to the best of his ability. They all knew how many differences of opinion there must be with regard to matters of taste. Time alone settled the position which any work of art was to achieve and hold. If what he had done in St. Paul's was proved to have been a mistake 100 years hence, all he could say was he hoped they would crack it all out. Up to the period when what he was inclined to call sham classical became the fashion all over Europe all the churches in Great Britain and France and Italy were decorated with colours. It was the introduction of a noble style—the Palladian—which drove colour away. Therefore he was in a sense taken on the hip when he proposed to colour, frankly colour, a Palladian building; and to use colour, he hoped with discretion, but also visibly. He was told by a great many people that it was an impossible nut to crack, and he said that if it was impossible he would try to crack it. They knew that at the time of the Prince of Wales's recovery from his severe illness a sum of money had been collected for the decoration of St. Paul's Cathedral. That sum of money amounted to something like 100,000*l.*, out of which something like 30,000*l.* was wasted by the authorities in experiments. When he told them that to put up a scaffold underneath the great dome cost between 800*l.* and 1,000*l.* they could imagine that one did not particularly want to make any more expensive experiments with the residue of the money collected. His views respecting a scheme of decoration for St. Paul's were absolutely decided before he was asked even to consider the decoration of the cathedral, and they were decided in a very curious way. When he was a little boy of about thirteen his mother took him to hear the service at St. Paul's, and they sat in the choir. He looked up at that naked roof—that was before he had ever been in Italy or seen a piece of mosaic—and on going out he said, "Mother, some day I will cover that with mosaic." When he was nineteen he made his first visit to Italy, and said to himself then, hard on forty years ago, "I will now begin to prepare myself for the great task that some day come to me." He visited, and he had visited since, all the churches covered with mosaic in Italy, many in Asia Minor and all in Greece; so that in that sense he was prepared, at any rate, to think about the decoration of St. Paul's. There was a meeting of the committee, and he made up his mind to two things, which he would stick to absolutely—one was that the work should be carried out by Englishmen and not Italians, and the other was that he would have nothing to do with that odious modern invention, paper mosaic. All work which was *appliqué* could be done anywhere by one who had perhaps never seen the building in which it was to go. The axiom of all axioms which he would go to the stake for was that all decorative work should be done, if possible, *in situ*;

and after the enormous experience that he had had in covering more or less 15,000 square feet of wall he knew that the axiom was worth going to the stake for, because it was absolutely impossible to tell, excepting on the spot, how colours or even forms were going to appear in given circumstances. He accepted the commission, and said that they must first of all see how he was going to design the choir. He therefore made drawings for the spandrels in water-colour, and took them to the cathedral. His scheme was unanimously passed so far. Then he said that they must understand one another absolutely in one particular—he was not going to submit his designs to the approval of the British public. He knew the British public and he knew the British critic. He knew that the British public had not made up its mind in the least degree as to what it liked, and it was for the artists and decorators to make up the minds of the public as to what they were going to have. Also that band of gentlemen, admirable writers sometimes, who constituted the critics in the Press had not made up their minds either as to what they liked or did not like. They would find one set praising up one class of work, and another set demonstrating its follies, another set advancing current fashion, current opinions, and another set saying that these were all wrong. He determined that he would not submit his work to penmanship. It was therefore decided that a small committee should sit, and that he should, in a sense, be the chairman of that committee, because he did not intend to alter any design of his own excepting from the point of view of either ecclesiology or archaeology. He said, "You must trust me as the artist. I am supposed to know my business. If I make a failure of it there is always Waterloo Bridge and the Thames." Sir William Richmond then proceeded to give a detailed account of his work on the decoration of the cathedral. He concluded by saying that colour could either strengthen the appearance of a structure or weaken it, and he thought he saw indications in England of a willingness to accept a fine colour scheme, if only the architects could be made a little more broad-minded and would cease to say, "We insist upon our noble art standing alone." It never did. It was a most absurd and ridiculous position for the architects to take up that architecture ever stood alone. Colour was introduced into the very first buildings that arose. The Parthenon was coloured from top to toe, and if some of the sham classical gentlemen went into it they would ask to be let out because they would say it was not according to rule. Every Norman church in England was painted from top to toe, and at this moment there were over 2,000 churches in this country, notwithstanding the abominable Puritans and the iconoclasts, which retained vestiges of the Mediaeval paintings, and England was renowned on the Continent for the great number of her decorated churches. Until they got the architect and sculptor and painter to work in common, and not in antagonism, they would never get art in its broad, big, noble sense back into their country.

He began upon the north-east arch of the sanctuary, and all his tesserae were set in cement. The composition of this was wax, lime and resin, and he found the recipe in a church at Boulogne, where he learned that it was used in the decoration of the Baptistery at Florence. In the preparation of the work for the vault alone he had made 3,500 drawings. The chief beauty to be aimed at was to be simple in the design: one of the hardest lessons to be learned was what to leave out. He had made many mistakes, but none in the simplicity of his work. He began by using thirty colours, but soon reduced them to fifteen, and finally to five. The art of stained-glass production was going out of this country. The most beautiful windows ever made were those which were outlined only with lead, and had no pigment applied. It was the paint and not the lead which made windows dark. In insisting upon the appropriate decoration in colour of all churches he stated that there were many churches in England as he had stated, which retained traces of Mediaeval paintings. England at that time had more painted churches than could be found in France and Italy combined.

EXETER CATHEDRAL.

THE following correspondence has passed between the Society of Antiquaries and the Dean of Exeter:—
Society of Antiquaries of London, Burlington House, Piccadilly, W.: February 7, 1903.

Very Reverend Sir,—The Society of Antiquaries of London has had under consideration the proposal to replace with modern glass the painted west window of the cathedral church of Exeter, and at its last meeting unanimously passed the resolution of which I beg to enclose a copy.

The Society has assured itself that the glass in the window is in a sound state, and that its condition cannot furnish any justification for removal. A letter in the *Times* of this morning quotes the late Archbishop as having remarked on the

brilliancy and suitability of the glass. It is then difficult to discover why a large sum should be laid out on such a work, for which there is no structural need, while, as a memorial to Archbishop Temple, the only evidence we have of his views shows that he would certainly have disapproved of such an act.

There is only one reason conceivable, viz. that Peckitt's window is held to be in bad taste; but I need scarcely point out that in such a building as a cathedral this is the most dangerous of reasons, and if admitted to be valid might eventually lead to the destruction of any or every part of all our ancient cathedrals which represent the varying taste of centuries.

The Society is well aware that its protest, and, in fact, any protest from outside, can be ignored by the Chapter, which is free to treat the fabric under its charge in any way that it pleases. But the Society would desire to point out that this very absence of external control makes the responsibility of a Dean and Chapter the greater. The Society would, therefore, venture to ask the Chapter to assure itself of the necessity and propriety of the serious step now contemplated.—Your faithful servant,
CHARLES H. READ, Secretary.

The Very Rev. the Dean of Exeter.

"The Society of Antiquaries of London, having assured itself of the sound condition of Peckitt's glass in the west window of Exeter Cathedral Church, desires to enter a strong protest against its removal.

"The Society is of opinion that the glass is of such age as to give it historical interest and of such merit that its removal would be an act which a future generation of wider artistic sympathy would condemn."

The Deanery, Exeter :

February 9, 1903.

Dear Sir,—The Dean and Chapter of Exeter appreciate the motives of your learned and honourable Society in calling their attention to the grave responsibility resting on them in connection with the contemplated work in their cathedral. They are keenly alive to the responsibility, but they feel that from the nature of things it is a responsibility which they cannot share with others. They have called in as their adviser one of the most eminent architects of the day, to whose care many of the finest buildings in England have been successfully entrusted, and who is, moreover, specially experienced in the special work which is now contemplated; and they venture to think that, having done this, their wisest course will be, not unreservedly, but subject to their collective decision, to follow his advice, and they feel quite confident that when the work contemplated shall have been completed the result will give general satisfaction. As to the letter in the *Times* to which you refer, it is misleading and inaccurate. As to the resolution which you forward, I assure you, without any wish to be discourteous, that it is not in accordance with the facts of the case, and I am at a loss to understand who could have so advised your Society. But my main point is just this—our responsibility is of such a nature that we cannot share with others. We are most anxious, in the face of much ignorant and misinformed criticism, to do that which is necessary and right under suitable guidance.

I am, dear sir, with the fullest appreciation of the motives which have led to this correspondence,—Your obedient servant,
ALFRED MARLBOROUGH, Dean.

Society of Antiquaries of London, Burlington House,
Piccadilly, W. : February 13, 1903.

Very Reverend Sir,—I have to acknowledge and to thank you for your courteous letter of the 9th inst., which I laid before the meeting of my Society last night.

I am now directed to ask you to be good enough to tell me, for the information of my Society, in what particulars the resolution of the Society to which you refer is "not in accordance with the facts of the case."

The Society holds, as you can understand, that this imputation is a grave one.—Your faithful servant,

CHARLES H. READ, Secretary.

The Very Rev. the Dean of Exeter.

The Secretary of the Society in sending the letters to the *Times* remarks:—The first intimation received by the Society was on the day before the public meeting to be held in Exeter, and a telegram was sent to the Bishop protesting against interference with Peckitt's work and asking that the protest might be read at the meeting. A courteous acknowledgment was received from the Bishop's chaplain stating that the telegram had been handed to the High Sheriff, who presided; but it does not appear that the protest was even mentioned at the meeting.

The Society then despatched a competent person to report on the state of the glass, and upon his statement that it was in good condition the Society passed the resolution given below and referred to in my letter to the Dean of February 7. The Dean's reply and my further letter to him of the 13th ends the correspondence, for the last remains without an answer.

There are two points to which attention may be directed. First, although probably no one would claim Peckitt's work to be of the highest quality as stained glass, yet it forms a milestone in the history of the art, and as such is deserving of respect. That it fails to reach the ideal of a modern writer of glass painting, or that its story is "sordid," has nothing to do with the matter. It would scarcely be wise to inquire too closely into the real motives of subscribers, even in church matters. Secondly, the window is said to be in bad taste. But surely, in dealing with a fabric of such slow growth as a cathedral, this is dangerous ground to take. Are the seventeenth-century and later monuments in Westminster Abbey "good taste"? Can the phrase be used, in fact, of a building to which additions have been made from century to century?

I submit that, if the Dean and Chapter of Exeter sweep away all parts of the structure in their cathedral that may not seem to them to be in the best of taste, they will go far to destroy the story of the building, and will have an account to settle with posterity.

The Dean of Exeter, in a letter to the *Times*, says:—Mr. Read is guilty of four improprieties:—(1) He publishes a letter without my consent and without notice. This is unusual. He has done me unwittingly a service by disclosing the reasonableness and courtesy with which I answered his letter. (2) He cites a dead witness in a controverted matter, and, with singular want of honourable feeling, tries to hinder a memorial to a great and noble man, whose name should have been so used, by a statement which the dead man cannot gainsay. The man who cites a dead witness is on a par with the man who writes an anonymous letter. I disallow the dead witness in the name of ordinary propriety; but I do more, I traverse, and am in a position to traverse, the statement, alas! that he cannot speak—that he admired Peckitt's miserable glass. (3) He sneers at the motives of the subscribers to a memorial, whose hearts are aglow with love for that great name, which ought not to have been dragged as a dead witness into this petty controversy. (4) He depends on the authority of an anonymous expert in support of the resolution of his Society, which from its wording is not the resolution of persons directly or personally acquainted with Peckitt's glass, but based on the second-hand evidence of an anonymous critic. I have asked for the name of this anonymous authority, for the date of his visit to our cathedral, and for information as to the methods by which he arrived at his decision as to the value and condition of the glass. None of our officials—they are not absent from the cathedral—knew of this visit. No assistance was asked; it was a clandestine visit, no scaffolding, ladders were used. The inspection must have been very hasty, functory and superficial, and until we know the name of the expert we cannot judge of the real value of the resolution based on his report. I misjudge the readers of your columns if I place much reliance on the opinions of those who can only sneer at dead witnesses, sneer at the motives of others, and expect the public to be guided by a resolution based on the report of an anonymous authority. If the secretary wishes to advertise the Society cheaply he has done so, but not much to their advantage or his own.

P.S.—I can almost hear the indignant voice of my good old friend exclaim—Cite a dead witness? You incur disgrace! Trust to the unsigned report of an anonymous critic? You incur ridicule! It is all of a piece. Dead witness! Clandestine visit! Anonymous critic!

Mr. G. F. Bodley, R.A., writes:—As architectural adviser at the cathedral of Exeter I have been asked to answer objections raised against the removal of the glass now in the west window.

A correspondence on the subject, between the secretary of the Society of Antiquaries and the Dean, appeared in the *Times* of the 6th inst.

I feel sure that it cannot be generally known what a disfigurement the glass is to the beautiful interior of the cathedral.

Painted at a time when glass-painting was a dead art, the window is entirely worthless. In colour it is most inert and in drawing it is beneath criticism. Indeed, it is without merit. The glass, so cruelly crude and harmful to the beauty of the building, seems to pervade the whole interior to its great detriment. It has not age to make it venerable, certainly not any art to make it desirable that it should be retained.

It is the work of Peckitt, a glazier who patched the old work at York Minster. His work there too is most objectionable. The glass in the rose window and the lancets of the north transept in Westminster Abbey has recently been removed and new has taken its place. But the glass here was not so bad as this window at Exeter. It is true that the glass may be a period of bad art, but that is hardly a sufficient reason for letting it remain when an opportunity offers for filling the window with better work, more worthy of the cathedral.

CHARNWOOD FOREST.

AT a meeting of the Royal Geographical Society on Tuesday, Professor W. W. Watts, F.R.S., read a paper on "Charnwood Forest: a Buried Triassic Landscape." He said that the most obvious feature of the present landscape of Charnwood Forest, in Leicestershire, was the sharpness of the contrasts which it presented. Such contrasts at once suggested to the geologist abrupt contacts of two very different classes of rock, and the surmise was correct. The bolder scenery was found to be based on hardened and ancient Charnian rocks of pre-Cambrian age, principally volcanic in origin; the milder landscape was based on the keuper marl of the triassic system, which everywhere rested uncomfortably on the older rocks. The landscape was really a landscape of Welsh type, submerged under the new red marl, the dominant rock of the English Midlands. In many places the cover was thick, and the ancient rocks were for the most part so deeply buried that only their highest points protruded. The new red marl was, indeed, covering a mountain system of which the summits alone were visible. He mentioned Bardonia Hill, Newhurst Quarry, Groby, Sheet Hedges, the quarries about the Brand and Southland, and the district of Woodhouse Eaves as among the best localities for studying the actual unconformable relations of the cover to the ancient floor. It was, indeed, a triassic landscape which was now being uncovered again or "developed" for our inspection; and we were at liberty to use it to picture to our minds the appearance of this part of England as it was seen in triassic times. The trias was a period of desert, salt lake and intra-continental conditions, and we might think of Charnwood as being, at that date, like the mountains in the neighbourhood of the Great Salt Lake desert, which were now more or less buried under the sediments of the ancient Lake Bonneville. His investigations led him to the conclusion that the Mount Sorrel granite was exposed to the sand-blast of wind erosion in the earlier triassic times, and that it acquired its characteristic smoothness and polish, and perhaps its rounding and terracing, as the result of wind erosion in the triassic deserts, before it was finally buried and sealed up under the new red marl. The paper was illustrated by a series of photographic transparencies, showing the remarkable characteristics of the two rock formations described. Professor Watts also exhibited a contour map which he had prepared of Charnwood Forest, and another showing the contours of the ancient rocks of the district.

Professor Bonney, who nearly forty years ago conducted geological inquiries in the same forest, said that Professor Watts had accurately described the interesting process by which nature was carefully taking off the protecting covering that had concealed the ancient Charnian rocks from a remote age.

ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

A LECTURE was delivered in the hall of the Royal Society of Antiquaries, 6 Stephen's Green, on the 5th inst., by Mr. Percy Fitzgerald, M.A., F.S.A., on "Robert Adam and his Architecture and Art." The chair was occupied by Mr. George Ashlin, president, and there was a large attendance.

The Chairman, who introduced the lecturer, said that it was almost unnecessary to go through that form, because Mr. Fitzgerald's name was well known to all present, and they might fairly assume with confidence that what he said would be of the deepest interest.

Mr. Percy Fitzgerald, who was received with applause, in the course of a most interesting discourse said that the subject of his lecture was one of the most wonderfully endowed men of his generation, a man who was filled with the fullest artistic instinct—one of whom it might well be said that everything he touched he adorned, and one who by instinct reached things which it took others year to effect. Adam was an artist. He was really a most original, brilliant being. Discussing Adam's accomplishments, the lecturer pointed out that he was first an architect who designed and built public buildings, noblemen's palaces and country houses, squares, streets, private houses, theatres. Next he was a decorator—one of the most beautiful and ornamental. He decorated his own houses. His decoration being structural and in relief—not painted—it was inseparable from his buildings, and could not be altered. His arrangements of interiors were all novel and striking—witness his wonderful ceilings which are to-day what they were about 130 years ago. Next he was a sculptor; they knew the wonderful Adam chimney-pieces and his modelled figures for decoration. Fourthly, his ironwork—balconies, railings, fireplaces—all was marked by a wonderful freedom of treatment. Fifthly, he was a great designer of furniture. Everyone knew the wonderful Adam furniture that rivalled that of the French masters under the last Louises. He devised girandoles, vases, cornices, curtains, carpets, paper-hangings. Adam was also a goldsmith, who created beautiful

things in gold and silver and other metals like the work of the old Italian goldsmiths. Further, he was a contractor on a vast scale, the work on his own buildings being carried out in a very businesslike style. Also he was a painter and did landscape and other subjects. He was actually inventor of a style of his own—a unique thing—a style that could be recognised, and had held its ground for 130 years. Not only did he form a style, but he also imposed it on his generation. Adam began his labours about the middle of the eighteenth century, when the old Classical style was in vogue, and his first thought was to find a new style. The lecturer then explained how Adam found beautiful buildings in the cities by the Adriatic, and by modifying their style produced that which characterises his work. Discussing Adam's style, the lecturer said he might be designated a pictorial architect. His designs affect the eye much as a picture does. Examples of his various public buildings and of his interior decoration, ornament, furniture and metal design were then given on the screen, the lecturer remarking that in Dublin he had seen in several houses fine examples of the Adam style of decoration.

A vote of thanks to the lecturer, moved by Mr. R. Carroll and seconded by Mr. Albert Murray, brought the meeting to a close.

TESSERÆ.

Greek Vases.

THE distinguishing features of ancient painted vases are their form, colour, material, weight, varnish, design and inscriptions. From one or other of these signs we are able to determine their authenticity and to judge of their date, which ranges from about B.C. 600 to B.C. 200. The earliest Greek vases are the Archaic Corinthian, made of yellow clay, with grotesque animals in Assyrian style painted in bands round them. The next period may be called the "Panathenaic," dating probably back to about B.C. 500, though we find one in the British Museum dated as late as B.C. 328. They are painted in black on red, and bear the legend "Of the games at Athens," denoting that they were given as prizes to the successful competitors at the Pentathlon, and bearing on each side of the design two pillars with cocks on the top of them, representing the *meta* of the Greek circus. The picture usually represents Athena or a warrior, or one or other of the five games of the Pentathlon—leaping, foot-racing, hurling the quoit and javelin and wrestling. These vases were given full of oil, perhaps because the olive was sacred to Athena, or for the utilitarian reason that the competitors used oil to lubricate their limbs. After this period the Greek artists made vases representing their divinities and scenes from private life, notably representations of banquets and funerals, and it was then, namely, about B.C. 400, that the grand epoch of vase-making was reached. Then came a period of transition which is sometimes called the "Floral period," of which the best specimens have been found at Ruvo and Canosa. M. Lenormant thinks that these vases were made at Tarentum; many of them are of great beauty, but the artists departed from the purity and simplicity of the grand epoch, and loaded their work with scrolls, sprays, gold, colours and other decorations. This period may have lasted down to about B.C. 300, and then, perhaps owing to the introduction of bronze, or perhaps on account of increased population and greater demand, the vases were sent out carelessly finished. The artists degenerated, their drawings became incorrect, their paste coarse, their colours second-rate and gaudy, the slovenly sgraffito was scratched where the careful inscription should have been written, and the period of decadence set in, until, in about B.C. 200, the art was lost altogether and these beautiful vases became things of the past. As to the method of painting them, it appears that when they came from the lathe they were covered with a coat of red paint. The ornaments were then drawn in in black and afterwards the figures were delineated with a stylus. The black background was then painted in, and the finishing touches were put by the artist before the final baking.

The Gothic Renaissance.

Shenstone and Horace Walpole, in the middle of the century, successfully sought to introduce a reform into the arts of landscape-gardening and architecture, of which the chief characteristics were an attention to the natural features of scenery and a revival of the "Gothic" principles of art. In the *World*, a fashionable periodical of 1753-55, formed on the orthodox model of the *Spectator*, we find a fancy for Gothic architecture mentioned as a recent and prevalent whim, likely to be displaced by a still later whim for Chinese construction and decoration. The writer in the *World* speaks of both with equal contempt; but while the Chinese fancy, an exotic imported after Lord Anson's voyage in 1744, proved itself a mere transitory caprice and passed away, Gothicism, the purer kind—for here, as so often happens, real knowledge was

struggling with pretension—held its ground. Horace Walpole was its most efficient advocate and champion. Writing from Worcestershire just at this time, he says:—"Gothicism, and the restoration of that architecture, and not of the bastard breed, spreads extremely in this part of the world." And when in Yorkshire he exclaims with kindling enthusiasm at sight of the ancient remains, "O what quarries for working in Gothic!" His letters are full of this new taste, which for many years was quite the passion of his life. He worked out his own conceptions in what, though it seems to us now but a spurious and flimsy imitation of Mediæval art, was doubtless one of the most important initiatory steps in that renaissance movement which has to so great an extent given the law to our modern æsthetics—the famous toy of Strawberry. And not only in architecture and decoration, but in literature also, Horace Walpole may be said, perhaps by his zeal, to have deserved the meed of originality in this revival more than any of his contemporaries, while, by his lively fancy, he almost anticipated the popularising process of time on the materials before him. Within the ten years succeeding the publication of Percy's "Reliques" appeared Dr. Johnson's and Stevens's editions of Shakespeare, and Warton's "History of English Poetry," both most important labours, as turning up the as yet nearly virgin soil of English philological research. Antiquarianism in the various departments of literature and art now began to form a school of ardent disciples. Dr. Johnson, with sententious condescension, uttered his celebrated dictum, "Whatever withdraws us from the power of our senses, whatever makes the past, the distant or the future predominate over the present, advances us in the dignity of thinking beings. . . . That man is little to be envied whose patriotism would not gain force upon the plain of Marathon, or whose piety would not grow warmer among the ruins of Iona." Shenstone, devoted to song writing as well as landscape-gardening, found the hunt after old abbeys and old ballads congenial to his sense of the picturesque both in scenery and verse. Captain Francis Grose, from 1773 to 1776, made the tour of England and Wales, and published its results in four quarto volumes of "Antiquities," elaborately got up with descriptions and plates. Gough and Pennant prosecuted their topographical investigations. The Society of Antiquaries put forth in 1770 the first volume of their *Archæologia*. All tended in the same direction. Then, after a short interval, followed the era of the German classics, and of inquiry into the antiquities of Teutonic fable; and, contemporaneously with these, the stupendous wars and convulsions of the French Revolution, giving that impetus to the imaginative faculty which is never so effectually supplied as by the vivid experiences and sharp vicissitudes of human fate.

The Gardens of the Philosophers.

The gardens of the philosophers occupied a surface somewhat exceeding a mile square in the environs of Athens, and extended from the banks of the Ilissus to those of the Cephissus. The centre belonged to the disciples of Epicurus, to the south were those of Aristotle, and northwards the followers of Plato. Never did sects discover less turbulence, nor neighbours fewer jealousies; an alley of olive-trees, or a thicket of myrtles, separated the dominions of system, and served as boundaries in the empire of opinions. Each sect, however, was distinguished by peculiar manners and characteristics sufficiently remarkable. The Epicureans affected no extremes, either of opulence or poverty; observing great simplicity and rigid economy, they did not appear anxious to augment the patrimony of their founder, but when attempts were made to injure this property all the Epicureans in Europe revolted against the injustice. The successors of Plato suffered exceedingly during the wars of Philip, son of Demetrius. Their possessions were then totally pillaged, and they had the misfortune to experience equal barbarity in the days of Sylla. But as the Greeks delighted in the study of metaphysics they discovered their predilection for the Platonists by repairing all the injuries their garden had sustained from those leaders of banditti. At length it became customary among the most distinguished personages to appoint the professors of this sect in the number of their heirs, and by such means the annual income of the community exceeded a thousand pieces of gold. This circumstance indeed must appear very extraordinary, particularly in the eyes of those barbarians who are accustomed to nourish fakirs only and leave the learned to perish. The disciples of Aristotle, occupying the Lyceum on the banks of the Ilissus, were in declared opposition to the humiliating life of the Cynics, and distinguished themselves as far as their fortune would admit by an affectation of splendour. Lycon, who long governed their republic, introduced a profusion until then unknown, and he was even accused of having surpassed the expenses of the Epicureans. It appears in general that the aversion of the philosophers towards the town was still stronger than that of the other Athenians. But depending in some measure on the capital for instruments and other succours relative to the arts and sciences, they adopted under Plato the medium between extremes and inhabited the gardens in the environs of Athens.

It was there in the shade of tranquillity, and far from importunate cries of the vulgar, that he succeeded in forming so many great men, one of whom alone would have sufficed to render a whole nation illustrious. This rural education of the Greeks possessed infinite advantages, as has been often observed, over the method in use among those nations of Europe where youth confined to infected colleges are often once exposed to the three great plagues of luxury, ignorance and prejudice. When the most celebrated philosopher, such as Polemon, had too many scholars to be contained within bounds of a garden, they constructed for them other habitations called Calybia. In these wretched huts, framed of wood and covered with straw, the students of Greece were lodged to their satisfaction, for they endured everything to attain what they called wisdom, and acquire what was termed by the ancients immortality.

Ancient Painting and John Bellini.

The mere reproduction of ancient forms derived from Greek or Roman sources, without reference to the requirements and convictions of the time, can have no influence on the multitude although it may interest scholars. The spirit which inspired Classic art has long passed away, and all attempts to revive it, whether in literature, art or manners, must necessarily fail. The true problem consists in determining how the antique can be practically and usefully adapted to modern ideas. There are no remains of ancient painting as there are of sculpture which can give us any adequate notion of masterpieces of the Greeks or Romans in that branch of art. The head of a Muse in the Museum of Cortona (if genuine) that of a piping Faun in the British Museum, the *Nero* of Aldobrandini in the Vatican, the well-known mosaic of the battle of Issus or Arbela in the Museum of Naples, the wall paintings of Pompeii and Herculaneum, and a few other remains, all works of a secondary class executed for provincial towns, afford probably but a very faint idea of them. They are, however, sufficient to prove that the ancients were well acquainted with drawing foreshortening, colour and composition. But they do not enable us to judge of the full extent to which this knowledge was carried by the best painters of antiquity. We may assume that if the just and noble proportions, the dignified composition and the beautiful forms of Greek sculpture could be combined on the canvas with the highest expression attained by Christian art, and with the colour of the Venetian school, painting would attain as near as possible to perfection. Giovanni Bellini appears to have been the first to attempt this combination, with what success a series of small subjects in the Academy at Venice and a religious allegory in the Uffizi at Florence will show. In the forms and composition remind us of an antique gem, and are united to the most exquisite poetic feeling in treatment and the richest and most harmonious colouring. His picture of "The Bacchanals," painted in his old age for Alfonso I. of Ferrara, and now in the possession of the Duke of Northumberland, shows what he might have achieved had he struck out this path in his youth. Titian appears to have been so much impressed with the beauty of the composition that he was induced to complete the unfinished picture, and to make it the first of a series of four similar subjects, two now in the public gallery at Madrid (a Bacchanalian scene and a "Goddess of Fecundity"), and the fourth, the "Bacchus and Ariadne," in the National Gallery. Nothing produced since the revival of the arts probably affords a better idea of what the highest class of ancient painting may have been than these four pictures. It may indeed be questioned whether without limited scientific and technical knowledge the ancients attained an equal perfection in colour.

The Walls of Colchester.

The walls which were constructed at some date between the invasion of Boadicea and the invasion of the first Saxon settlers are unique among the inhabited towns of Britain. Neither York nor Lincoln nor Exeter, nor even Chester, boast of being still girded by her Roman walls in anything like the same perfection in which Colchester is. Nowhere else in Britain, save in fallen Anderida and Calleva, is the line of old defences so thoroughly complete. But unluckily it is a line only. While the circuit of the walls is so much more perfect than at York and Lincoln, the fragments which remain at York and Lincoln have kept much more of the ancient masonry than can be found at Colchester. Colchester can show far more than can be seen at Chester, where, though the Roman lines are all but as perfectly followed by the later defences, little is left of the actual Roman wall beyond its foundations. It has been in many places patched and rebuilt over and over again; one great time above another, and rebuilding is recorded in the days of Edward the Unconquered. But the wall has a higher historic interest, becomes a more living witness of Roman influence, from the very fact that much of it is not actually of Roman date. The very fact shows far more clearly, far more strikingly, how the arts and the memory of Rome lived on. Whatever be the

of any part of the walls, they are Roman; they are built *more Romano*. It is at Colchester as it is at Trier, as it is at Périgueux, as it is in a crowd of other places where the influence of Roman models had struck deep. In places of this kind the Roman construction lived on for ages. Here in Colchester we have actual bricks of Roman date in the places where the Roman engineer laid them. We have bricks of Roman date used up again in the construction of later buildings. And we have bricks, not of Roman date but of thoroughly Roman character, made afresh at all times at least down to the fifteenth century. Here, where brick and timber were of necessity the chief materials for building, the Roman left his mark upon the bricks as in some other parts of Britain he left his mark upon the stones. Northern England reproduced the vast stones of the Roman wall in a crowd of buildings built *more Romano*, with masonry of massive stones. With such stones again, no less *more Romano*, did Æthelstan rebuild the walls of Exeter. Here at Colchester Roman models were no less faithfully followed; but here the *mos Romanus* naturally took the form of brick, and to build *more Romano* meant to build with brick and not with stone. It meant to build with bricks either taken from some Roman building or cast in close imitation of those which the Roman buildings supplied. In this sense the castle of Eudo Dapifer may be called a Roman building. So may the one tower of Primitive Romanesque to be found in Colchester, which, while other towers of its type are of stone, reproduces in material as well as in form the campaniles of Italy. So may St. Botolph's Priory, second only to St. Albans as an instance of Roman materials, not so much taught to assume new shapes as brought back to their true Roman use before Italy began her imitation of the arts of Greece. But the walls are Roman in a yet stricter sense than any of the other buildings around them. They are the old walls of the colony, in many places patched, in some, we may believe, actually rebuilt. But they have undergone no change which at all destroys their personal identity. The wall is not an imitation, a reproduction, of a Roman wall; it is the Roman wall itself, with such repairs, however extensive, as the effects of time and of warfare have made needful. The walls of Colchester are Roman walls in the sense in which the walls of Rome are the walls of Aurelian.

production and misappropriation of what has been extravagantly produced. It is bad enough when the rates are used for the purchase of land and the erection of huge blocks of workmen's dwellings ostensibly for the poorest section of the community, but unfit for any man having less than 30s per week, but it would be infinitely worse if in these circumstances the authorities having committed the first blunder were allowed to commit another still worse and more pernicious in its far-reaching consequences, viz. letting these houses at less than their commercial value.

The more we look into the matter the more obvious it will be that this one thing—misdirected charity—does more than all else to perpetuate that quagmire of social and moral degradation from which the well-meaning, who cannot find a more wholesome environment, too often perish, and go to swell the numbers who must be provided for in our workhouses, hospitals and asylums.

The Bill at present before Parliament, to empower Boards to grant relief in cases where the pauper is in receipt of an allowance not exceeding 5s. from a friendly society is a step in the right direction, but another step in the same direction likely to be productive of still more beneficial consequences is wanted, namely, to empower Poor Law Boards to administer under certain limitations funds placed at their disposal voluntarily by benevolent parishioners. This would practically constitute each parish council the charity organisation society of the parish, and with proper management would insure the offerings of the benevolent being turned to the best account, and ultimately result in the total suppression of vagrancy—that plague-spot at the root of our greatest social degradation—which still survives and flourishes through the misdirected charity of unthinking people who know not what they do.

I think a scheme could easily be devised by which excellent results would follow from the additional freedom of action, which I suggest should be granted to parish councils, both rural and urban.—Yours, &c,

JOHN HONEYMAN.

Glasgow: March 10, 1903.

Stained Glass of the Future.

SIR,—While agreeing very largely with the general views expressed in the paper read by Mr. Sparrow before the Architectural Association, I think a strong protest is necessary against his narrow definition of what "good glass" is, and his unfair assumption that other glassworkers are all alike fraudulent.

Everyone working in glass for windows is aware how much Messrs. Powell & Sons have done to furnish workers with glass equal in every respect to the old glass, and most of us are equally aware that for certain "antique" colours they are unapproached; but those of us who dislike paint and who are always seeking for the best in glasses, know equally well that there are certain colours and combinations that are not to be obtained of Messrs. Powell. Many valuable and indispensable antiques are produced only by other equally skilled glass-makers.

Mr. Wm. Chance has laboured for many years concurrently with the Messrs. Powell to produce fine antique glasses, working, as they have, along lines suggested by artists and students of old glass, and attempting with success to give to them all that they have demanded. Mr. Wood, of Sunderland, and Mr. Cowper, of Glasgow, are also contributing valuable material to the supply, and as the rejected suitor remarked, "There are others." Messrs. Powell would, I believe, be the first to acknowledge these facts, and unless I am greatly mistaken, do acknowledge it in a most practical and definite manner.

If Mr. Sparrow would extend his outlook, and take the pick of the market regardless of make, many of his limitations would disappear. He would have less need to "plate," and he would discover that Venetian opalescent and gold ruby will "fire." Besides this, his favourite qualities of luscious colour and rich depth could be indulged in to a far greater degree than his limited resources admit of.

Personally, I care not whether my glass comes from Dan or Beersheba, England or America, as long as I can get the richness, depth and quality I want. Sometimes a good thing comes out of Nazareth.

Early English glass originated in the "gin bottle."

Prior's glass is very fine, but being made as easily as a "gin bottle," and having been placed on the market at a price much in excess of "gin bottles," it has of course been imitated. Any gin-bottle blower could blow it and any antique mixer could prepare the metal. The similar glass produced by other makers is as good in all but name, and in some respects, notably in brilliance, it is even better. For such a position as the clerestory windows in Westminster Cathedral, Norman glass slabs are more effective and bright than Prior's glass, and much better metal.

The points of value in these slabs lie in the convexity of the fire surface, and in the clearness and irregularity of the air



The Housing Problem.

SIR,—The sensible and well-timed letter by the Duke of Westminster to the Town Council of Chester, published in *The Architect* of the 27th ult., deserves the earnest attention of all town councils, great and small, which feel disposed to overstep the limits of their proper legitimate duties and trespass on the domain of our parish councils. It is rather humiliating to think that so many people throughout the country who are thought by their constituents wise enough to be councillors should require instruction in the simple, elementary economic lessons so clearly stated in the Duke's letter. There has been of late years evidence of a strong disposition on the part of municipal authorities to err in this way. It does not seem to have occurred to them that any abatement of rent they may think proper to allow below the actual commercial value is *pro tanto* a measure of outdoor relief, which in many instances might be given with great advantage, but not by a town or city council. These bodies have no right to levy rates for the relief of the poor, fortunately, and they have no qualified organisation to undertake the proper distribution of such relief. If, therefore, any such work is to be done the duty must devolve on the parish councils, who are entitled to levy rates for a great variety of eleemosynary purposes, and have duly qualified officials.

It naturally follows that if parish councils are to be dispensers of this variety of outdoor relief they should also be entrusted with the construction or remodelling of houses to be let.

It will, I believe, be found, if this matter be carefully looked into, that this would prove to be the best arrangement possible. The officers of the parish councils, both rural and urban, know the poor of their respective districts; they know those who deserve relief, and they also know in what form it may be most advantageously given. They will take care not to provide more accommodation of the kind than is absolutely required; and will probably be content, so far as practicable, merely to improve existing dwellings and to make them clean and healthful homes for the decent poor they think proper to assist.

With the examples of Glasgow and London before us I cannot doubt that town councils have a tendency to fall into two serious errors in dealing with this matter—extravagance in

bubbles and striations that diffract the light and diffuse it within the glass.

The conclusion that a glass worker would substitute other makes or avoid the use of the two glasses named for extra profit is absurd. Powell's antique glasses, colour for colour, are the same price as those of Messrs. Chance. Messrs. Cowper actually cost more, but the cost of the actual glass in an important window is such a fraction of the whole that it never enters into the artist's consideration. His one point is to get his colour right, and to that end he dips into his stock, usually arranged, somewhat like an artist's palette and regardless of maker, and takes just such bits as fit in with his requirements.

The suggestion that an architect should specify makes of antique glass as he does makes of drain pipes is distinctly humorous. A similar suggestion might be made to the artist in oils, thus:—"Paint the historical panels 10 feet by 6 feet in Jones's colours only, Smith's oils to be used for thinnings." I hardly think any self-respecting craftsman would submit to these limitations, simply because if he did so he would be driven to the shifts that Mr. Sparrow adopts, as painting upon thin brittle sheet glass because his glass won't "fire," and using two or three thicknesses to get a necessary colour.

I have occupied too much space to say anything about Mr. Sparrow's technological remarks, but here again does he not attempt to limit his outlook to his own methods and elevate his own practices into universal principles? Is it not, too, a little bold to say of a common everyday practice among glass workers, it "has never been thought of hitherto"? I refer to the recognition of timbre and texture.

The limitations of the would-be artist in glass are all too narrow, and his opportunities and possibilities all too scarce. There is no necessity to draw unnatural boundaries closer still.

WALTER J. PEARCE.

Manchester: March 8, 1903.

Marlborough House.

SIR,—I notice that in your issue for March 6 you say that the delay in the commencement of the sanitary work at Marlborough House "was due in the first place to the presence of guests for the Coronation, and in the second place to the illness of Professor Corfield, the sanitary inspector for the Board of Works."

As the latter part of this statement is entirely incorrect, I shall be obliged by your stating in your next issue that the sanitary work at Marlborough House was in no way delayed by my recent illness, and was as a matter of fact commenced while I was abroad, and about two months before I was taken ill.—I remain, yours faithfully,

W. H. CORFIELD.

19 Savile Row, W.: March 9, 1903.

[The statement in question was an official explanation.—ED.]

GENERAL.

The Regulations of the Royal Academy are likely to be altered next year. Academicians and Associates will, it is said, be allowed to send in only six works instead of eight, while with outsiders only two pictures will be received.

Two Urns have been found during excavations in Whitgift Street, Croydon, each containing nearly 2,000 bronze coins, in all about 3,800. They were conveyed to the town hall, and afterwards some of them were submitted to the authorities at the British Museum. There it was found that the majority were of the Emperor Constantine, and almost all appear to have been issued from 300 A.D. to 375 A.D. They are in a wonderful state of preservation, and after a little polishing the designs are almost as distinct as in modern coins, while on some the words "Gloria Romanorum" are easily decipherable.

An Automobile Exhibition will be held in the Agricultural Hall from March 21 to 28. Almost every variety of car will be seen.

A Correspondent of the *Standard* in New York states:—Messrs. Horgan & Slattery, the favourite architects of "Tammany," have of late had several designs rejected by the new Municipal Art Commission. Recently they submitted drawings of statues from St. Peter's in Rome and other masterpieces. The Commission disapproved them as "inartistic, crude, unworthy and inharmonious."

Mr. Robert Walter Macbeth has been elected a Royal Academician. He became an Associate in 1883.

Mr. J. Pierpont Morgan has filed plans for a museum to be built of marble next door to his New York residence, in which he will collect the art treasures upon which he has spent 10,000,000 dols. during the past twenty years, and which are now scattered in London and Paris and various places in Italy and Greece.

The Royal Society of British Artists on Monday last elected the following members:—P. Paul, Wallace Rimington, Emile Fuchs, M.V.O., Sydney Lee and J. W. Schofield.

The City Engineer has prepared plans for widening Bishopsgate Street Without, between Angel Alley and the City's boundary, to a uniform width of 70 feet. The outlay is estimated at 333,900*l.* The co-operation of the London County Council is to be invited.

A New Town Hall at a cost of 750,000*l.* is proposed to be erected in Newcastle-on-Tyne.

The Sending-in Days for the Salon of the Société Nationale des Beaux-Arts are from March 9 to 11, except for associates, who have until March 27, and for sociétaires, who have till April 2. Varnishing day is April 15, and at the salon April 30.

Alderman Sir Henry Knight has given notice of his intention to propose to the Corporation of London the necessity of considering the provisions of the London Building Act, 1894, and other cognate statutes, and their effect on the property trade and commerce of the City, and of reporting what amendments are desirable.

The Stevens Institute of Technology, Hoboken, U.S.A. has recently received from Mr. Andrew Carnegie, vice-president of the Board of Trustees, an additional endowment of 125,000 dollars for the Carnegie laboratory of engineering.

An Exhibition of Mohammedan art is about to be held in Paris. It will comprise examples produced between 625 the year of the flight from Mecca, to the end of the eighteenth century in Asia, Egypt, Turkey and Spain.

The Académie des Beaux-Arts have awarded the Archille Leclerc architectural prize of 1,000 francs to M. René Brassart, pupil of the Ecole des Beaux-Arts. M. P. Olmet, pupil of M. Redon, received an honourable mention. The subject was "A Monumental Entrance to a Library."

Remains of a Roman Bath with a large number of drinking vessels were discovered a few days ago in excavation for a new bath in Wiesbaden.

Mr. Briton Riviere, R.A., has presented to the Corporation Art Gallery at the Guildhall his picture "The Temptation in the Wilderness," which was exhibited at the Royal Academy some years ago.

Count Bülow, the German Chancellor, has written to Professor Dörpfeld, the director of the Archaeological Institute at Athens, congratulating him on the appearance of his new work "Troja und Ilion" and on the success of the Institute.

The Transvaal and Orange Colony Railway Conference has decided to recommend a new Natal-Johannesburg line by way of the Wilge river, at an estimated cost of 1,330,000*l.*

The "Deutsche Kunstverein," or Art Union, has during the ten years of its existence expended about 12,000*l.* on works of art. There have been distributed 139 oil-paintings, 30 water-colours, 71 works of sculpture, 868 engravings, 597 illustrated works and 1,068 reproductions of famous works.

The Ziftah Barrage, between Cairo and the sea, forming a complement to the barrages at Assouan and Assiut, was opened by the Khedive last Saturday. The new barrage is 408 yards long, and comprises fifty arches, each 16½ feet broad. There is also a lock 184 feet long and 40 feet wide. The cost has been 450,000*l.*

A Cycle Track is to be laid out along the Cours la Reine between the Place de la Concorde and the Place de l'Alma. If the experiment is successful it may be repeated in other parts of Paris.

Mr. Laurence Hobson will read a paper on Monday before the Liverpool Architectural Association on the "Ancient Churches of Wirral."

The International Society of Sculptors, Painters and Gravers will open their exhibition in Budapest early in April. There will be a British section.

The South Wall of the sanctuary of Peterborough Cathedral is being underpinned. Three stone coffins, one very large and two small ones, and the stem of a Saxon cross, richly ornamented with moulding of a well-known Celtic pattern, have been discovered. The spot is the north-eastern extremity of the Saxon church which was destroyed by fire by the Dane and probably formed part of a monastic burial-ground. Archaeologists believe the small coffins may have been those of the children of one of the kings of Mercia. The cross is to be preserved in the cathedral.

A Paper on "Artistic Fans" will be read before the Society of Arts on Tuesday next, at 4.30 P.M., by Miss Hannah Falck. Sir George Birdwood, K.C.I.E., C.S.I., will preside.

Under the auspices of the Aberdeen Federated Building Trades, a dinner took place in the Imperial Hotel, Aberdeen on the 6th inst. Mr. John Morgan presided, and Mr. A. Hall, carpenter, acted as vice-president.

Plans have been prepared for the erection of a new church and chapel in connection with the Tennyson Road Wesleyan Methodist church, Preston, at a cost of 5,500*l.* The church will provide sitting accommodation for 450 worshippers. The present premises will be continued as an infants' school.





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The Architect, Mar 13th 1903.



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The Architects



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THE MASTERS OF ART: SCULPTORS.

REPRODUCED FROM THE ALBERT MEMORIAL, HYDE PARK

BY H. H. ARMSTEAD R.A. AND J. B. PHILIP

THE

Architect and Contract Reporter.**EDITORIAL NOTICES.**

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 5,000l. Premiums of 60l., 25l. and 15l. will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

CASTLEFORD, YORKS.—March 31.—Designs are invited for free library. Premiums 15l. and 10l. respectively. Mr. H. I. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—April 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60l. and 30l. are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—March 31.—Designs in competition are invited for extension of the town hall. Premiums of 300l., 200l. and 100l. are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000l. Premiums of 75l., 50l. and 25l. respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100l., 50l. and 25l. will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

TASMANIAN SOLDIERS' NATIONAL MEMORIAL.—A premium of twenty guineas is offered for the best design for a national memorial to be erected to Tasmanian soldiers who lost their lives during the recent war in South Africa. The cost of the memorial must not exceed 1,000l., and full particulars can be had on application to the Agent-General for Tasmania, 5 Victoria Street, S.W.

YEOVIL.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ALNWICK.—March 31.—For erection of a 150-quarter malt-house, adjoining the Tweed Dock and North-Eastern Railway sidings at Tweedmouth, Berwick-on-Tweed. Messrs. Brewill & Bailey, architects, 44 Parliament Street, Nottingham.

ASHFORD.—March 16.—For erection of a small scullery in connection with the infirmary of the workhouse, Willesborough, Ashford, Kent. Mr. T. H. Wilde, architect, Albemarle Road, Willesborough.

BARNSELY.—March 16.—For erection of a house and shop at Four Lanes End, Mapplewell. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnsley.

BATH.—March 17.—For general repair of the Bath stone-work to the exterior of the Cross Bath and the west portico of the hot baths. Mr. Alfred J. Taylor, 18 New Bond Street, Bath.

BEDMINSTER.—March 17.—For extension of a factory at Bedminster. Messrs. Oatley & Lawrence, architects, Edinburgh Chambers, Baldwin Street, Bristol.

BRIDLINGTON.—March 18.—For erection of an isolation hospital at Bampton Lane. Mr. A. E. Matthewman, town clerk, Town Hall, Bridlington.

BRIGHOUSE.—March 26.—For erection of a chancel, &c., to St Martin's Church. Mr. C. Hodgson Fowler, architect, The College, Durham.

BOURNEMOUTH.—March 20.—For enlargement of the head post office at Bournemouth. Particulars, &c., may be seen on application to the Postmaster.

BRADFORD.—March 17.—For erection of two shops in Darley Street. Mr. C. H. Hargreaves, architect, Exchange Buildings, Bradford.

COALVILLE.—March 17.—For erection of a pumping station and engineer's cottage at Coalville, Leicester. Mr. Thomas Jesson, clerk, Urban District Council, Coalville, Leicester.

CHESTER.—March 26.—For erection of lavatories in the public market. Particulars may be obtained at the office of the City Surveyor, Town Hall.

CORK.—March 22.—For erection of dwelling-house at Ballinlough Road. Mr. D. J. Coakley, architect, 1 Charlotte Quay, Cork.

CROFT.—March 16.—For erection of four cottages. Messrs. Clark & Moscrop, architects, Feethams, Darlington.

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EAST HAM.—March 16.—For erection of a technical school adjacent to the town hall, and a building for refuse destructor at the sewage works. The Chairman of the Council, Town Hall, East Ham.

ECCLES.—March 16.—For supply of the following goods for the year ending March 31, 1904:—Setts (lonkey, paving, crossing, grit, no granite), flags (natural and concrete), flags (manhole, lamp-eye and gully), kerbs (straight and circular), channel stones (straight and circular), pitch, creosote oil, tar, prepared tar, limestone (broken to various gauges), limestone cubes and chippings (various sizes), granite macadam and chippings (broken to various gauges), castings, pit or river gravel. Mr. Wm. Henry Hickson, town clerk, Town Hall, Eccles.

ELLENBOROUGH.—March 16.—For erection of reading-room, &c., Ellenborough. Mr. J. Bell, the School House, Ellenborough.

GLOSSOP.—For erection of four-storey stone building. Messrs. Olive & Partington, Ltd., Turn Lee Mills, Glossop.

GRAVESEND.—March 25.—For erection of an infectious diseases hospital at Whitehall Road, Cobham, near Gravesend. Mr. E. Godfrey Page, architect, 4 and 5 Warwick Court, Gray's Inn, W.C.

HALIFAX.—March 19.—For erection of a residence at Clover Hill, Halifax. Mr. Raymond Berry, architect, Commercial Street, Halifax.

HARTLEPOOL.—March 21.—For erection of a public library in Northgate. Mr. H. C. Crummack, borough engineer, Borough Buildings, Hartlepool.

HULL.—For erection of five new houses, Anlaby Road; new premises, Alfred Gelder Street, and new premises, corner of Anlaby Road and Brook Street. Mr. John M. Dossor, architect, Manor Street, Hull.

HULL.—For erection of offices in Parliament Street. Messrs. Brodrick, Lowther & Walker, architects, Hull.

HUNTINGDON.—March 18.—For erection of post office at Huntingdon. All particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

ILFORD.—March 24.—For erection of a crematorium at the City of London cemetery, Little Ilford, Essex. Clerk of the City of London Burial Board, Guildhall, E.C.

ILKLEY.—March 16.—For erection of a cottage hospital at Ilkley. Messrs. Adkin & Hill, architects, Prudential Buildings, Bradford.

IRELAND.—March 17.—For erection of a teachers' residence in connection with Lisnaskea National school No. 2. The Rev. Albert E. Glanville, Newtownbutler, Lisnaskea.

IRELAND.—March 19.—For erection of a convent and chapel, Governors of St. John's Hospital, Limerick. Mr. Brian E. F. Sheehy, architect, 57 George Street, Limerick.

IRELAND.—March 23.—For additions and alterations Listoke House, Drogheda. Mr. Frederick Shaw architect, Drogheda.

IRELAND.—March 23.—For erection of a kiln, bins and other works, at Drogheda Brewery. Mr. Frederick Shaw architect, Drogheda.

IRELAND.—March 26.—For alterations to kitchen and the erection of a new service-room, &c., at the Down District Lunatic Asylum buildings. Messrs. Graeme-Watt & Tuflooc architects, 77A Victoria Street, Belfast.

ISLEWORTH.—March 18.—For demolition of old workhouse premises off the Twickenham Road, Isleworth. Mr. William Stephens, clerk, Union Offices, Isleworth, W.

KEGWORTH.—For erection of a branch store, comprising three shops, at Kegworth. Mr. Ernest R. Ridgway, architect, Long Eaton, near Nottingham.

KENDAL.—March 20.—For erection of three dwelling houses at Burneside. Mr. Stephen Shaw, architect, Kendal.

KNUTSFORD.—March 20.—For the construction of a brikgasholder tank, 92 feet in diameter and 22 feet deep, a boundary wall on the premises of the Knutsford Light and Water Company. Mr. W. S. Inman, secretary, Office, Princess Street, Knutsford.

LAMPETER.—March 21.—For erection of assembly room at Lampeter. Mr. L. L. Bankes-Price, architect, 28 High Street, Lampeter.

LEEDS.—For the erection of a workshop in Bowman Lane, Leeds. Messrs. Elsworth Bros., Bowman Lane, Leeds.

LEVENSHULME.—March 16.—For erection of a greenhouse and potting-shed at the recreation grounds, Chapel Street, Levenshulme, Lancs. Mr. James Jepson, surveyor, Guards Chambers, Tiviot Dale, Stockport.

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LIVERPOOL.—March 16.—For repairs at the workhouse, Brownlow Hill, and other parochial buildings. Mr. H. J. Hagger, vestry clerk, Parish Offices, Brownlow Hill.

LIVERPOOL.—March 21.—For erection of (1) public lavatory at Bowersdale Park, Seaforth; (2) bowl-house and shelter at Victoria Park, Waterloo; (3) shelter at Victoria Park, Waterloo. Mr. F. Spencer Yates, surveyor, Town Hall, Waterloo.

LONDON, W.—March 17.—For alteration to arches in the goods yard, &c., at Paddington Station, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station, London.

LONG EATON.—March 16.—For erection of a three-storey factory in Leopold Street, Long Eaton. Mr. John Sheldon, architect, Darley House, Long Eaton.

LUMB.—March 16.—For additions to National school, Lumb. Mr. A. Brocklehurst, architect, Waterfoot.

LYNDHURST.—March 16.—For additions and redrainage at Lyndhurst police station, Hants. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

MANCHESTER.—For erection of the first section of the Manchester Jewish Hospital. Mr. W. Cecil Hardisty, architect, 5 John Dalton Street.

MANCHESTER.—March 16.—For erection of the Victoria Baths, High Street, Chorlton-on-Medlock. Particulars may be obtained at the office of the City Architect, Town Hall, Manchester.

MANCHESTER.—March 21.—For construction of an underground lavatory for males at the junction of Corporation Street and Miller Street, Manchester. Particulars may be obtained at the offices of the City Surveyor, Town Hall.

MANCHESTER.—March 24.—For construction of a retaining wall, &c., at Auburn Street, London Road. Particulars may be had on application at the City Surveyor's office, Town Hall, Manchester.

MANSFIELD WOODHOUSE.—March 20.—For erection of a house and shop, with outbuildings, at the corner of Debdale Road and Sherwood Street, Mansfield Woodhouse. Mr. J. H. Keble Fisher, architect, Cresswell, near Mansfield.

MORLEY.—March 16.—For extensions and additions to residence in New Brighton, Morley, Yorks. Messrs. T. A. Buttery & S. B. Bird, architects, Albion Walk, Leeds.

MUMBY.—March 19.—For restoration of the nave and aisle of Mumby Church, near Alford, Lincs. Mr. C. Hodgson Fowler, architect, The College, Durham.

NANTWICH.—March 16.—For erection of Congregational schools, Monks Lane, Nantwich. Mr. R. Matthews, architect, Nantwich.

NORWICH.—March 19.—For erection of two blocks of workmen's dwellings in Angel Road. Mr. Arthur E. Collins, city engineer.

PATRICROFT.—March 24.—For additions to the Guardians' offices. Messrs. Hurrell & Taylor, Brazennose Street, Manchester.

PENZANCE.—March 21.—For erection of a villa residence at Lescudjack, Penzance. Mr. Oliver Caldwell, Victoria Square, Penzance.

PORTSMOUTH.—March 18.—For erection of a galvanised iron shelter, with water-closet adjoining, near the entrance lodge in the Stamshaw recreation ground. Mr. Alexander Hellard, town clerk, Town Hall, Portsmouth.

PRESTWICH.—March 21.—For erection of twenty-one cottages on the vacant land south of North Road, Prestwich, Lancs. Particulars may be obtained upon application to the Co-operative Society's Office, Warwick Street, Prestwich.

PUDSEY.—March 18.—For erection of a brick chimney at the Waterloo mills, Pudsey, Yorks. Messrs. Jowett Kendall & J. Harper Bakes, architects, Calverley Chambers, Victoria Square, Leeds.

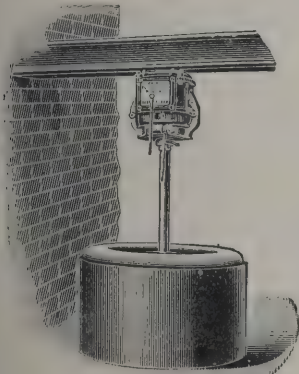
RADCLIFFE.—March 17.—For construction of basement, foundations to buildings, open space and other works in connection therewith on the south side of Market Place, Radcliffe, Lancs. Mr. J. Sharples, clerk, Urban District Council Offices, Radcliffe.

RADSTOCK.—March 18.—For reconstruction of a section of retaining wall situate on the Bath New Road. Mr. G. H. Gibson, surveyor, Radstock, Bath.

SCOTLAND.—For erection of a cottage at Bothwell Park, near Bellshill. Mr. James Davidson, architect, Academy Street, Coatbridge.

SCOTLAND.—March 16.—For alterations to the Dennistoun and Dalmarnock tramways depôts, Glasgow. Mr. John Young, general manager, 88 Renfield Street, Glasgow.

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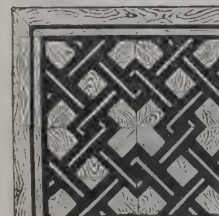
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SCOTLAND.—March 16.—For erection of sanitation works, consisting of forty-one brick water-closet shafts, with closets and accessories, cast-iron and lead water pipes, sewers, man-holes, sewage purification works, &c., and other contingent works, Barleith Buildings, for the Glasgow and South-Western Railway Company. Mr. F. H. Gillies, secretary, St. Enoch Station, Glasgow.

SCOTLAND.—March 23.—For erection of a central police office in St. Andrew's Square and St. Andrew's Street, Glasgow. Mr. J. Lindsay, clerk, City Chambers, Glasgow.

STONEV STANTON.—March 21.—For erection of a shop, stores, public hall and cottage. Mr. Hugh Carpenter, 7 Humberstone Gate, Leicester.

SWINDON.—March 18.—For erection of a corrugated iron fire station at Lansdown Road, Swindon. Mr. Robt. Hilton, town clerk, Town Hall, Swindon.

TAUNTON.—March 24.—For erection of a farmhouse at Brewers Water, Crowcombe, Taunton. Mr. George G. Strawbridge, Alma Street, Taunton.

THETFORD.—March 16.—For erection of a schoolroom, &c., at the Congregational church, Shipdham. Rev. A. J. Fitton, Everleigh, Shipdham.

THRELKELD.—March 18.—For erection of a farmhouse at Doddick, Threlkeld, Penrith. Mr. J. W. Rothery, Eaglesfield.

THRESHFIELD.—For erection of stables, &c., in connection with the proposed new hotel at Threshfield, Skipton. Mr. John W. Broughton, architect, 19 High Street, Skipton.

WALES.—March 25.—For erection of twenty-five dwelling-houses at Fleur-de-Lys, Pengam. Mr. Geo. Kenshole, architect, Station Road, Bargoed.

WALES.—March 16.—For erection of boundary and retaining walls, levelling, &c., of recreation ground at Pontllynn. Mr. John Jones, Hengoed, *via* Cardiff.

WALES.—March 17.—For erection of twenty-four dwelling-houses on Pwll Glas Farm, Pengam. Mr. D. Williams, School House, Pengam.

WALES.—March 18.—For erection of a schoolroom attached to Pysgah Independent chapel, Groeslon, R.S.O. Mr. John Hughes, secretary, Carmel.

WALES.—March 18.—For erection of thirty-eight cottages at Godreaman. Mr. T. Roderick, architect, Aberdare.

WALES.—March 18.—For erection of eleven houses, a villa residence and outbuildings, stabling, &c., in Pennant Street, Ebbw Vale. Mr. B. J. Francis, architect, Abervagenny.

WALES.—March 21.—For erection of the following buildings in Pontardawe:—Ten cottages in Grove Road and two business premises and dwelling-houses in Herbert Street. Mr. David J. Michael, architect, 5 Herbert Street, Pontardawe.

WALES.—March 21.—For the erection of a new chapel at Langum, Pem. The Rev. W. Davies, Rosedale, Langum.

WALES.—March 22.—For erection of farm buildings at Trefiffth, Moylgrove. Messrs. George Morgan & Son, architects, 24 King Street, Carmarthen.

WALTHAMSTOW.—March 24.—For erection of a timber refreshment kiosk at Lloyd Park. Mr. G. W. Holmes, engineer, Town Hall, Walthamstow.

WALWORTH.—April 2.—For alterations and decorative repairs to Nos. 194, 196, 198 and 200, Boyson Road, S.E., for the purpose of converting the same into a reception home for children. Mr. G. D. Stevenson, architect, 13 and 14 King Street, Cheapside, E.C.

WARMINSTER.—March 21.—For erection of twelve cottages in the Old Brewery Yard. Mr. A. F. Long, architect, 53 Market Place, Warminster.

WARMINSTER.—March 25.—For covering-in the market house. Plans and specification can be seen at Longleat estate office.

WARNINGCAMP.—March 17.—For erection of a classroom adjoining the school at Warningcamp, near Arundel, Sussex. Mr. Arthur Shelley, clerk, Town Offices, Littlehampton.

WATFORD.—For enlargement of the Watford district hospital. Mr. C. P. Ayres, architect, Watford.

WATFORD.—March 25.—For additions to the electric-light station. Mr. D. Waterhouse, surveyor, 14 High Street.

WENSLEYDALE.—March 16.—For rebuilding a portion of Bolton Hall, near Leyburn, Wensleydale, Yorkshire. Mr. C. Hodgson Fowler, architect, The College, Durham.

WEST AUCKLAND.—March 21.—For erection of Primitive Methodist church and school at West Auckland. Mr. R. Race, architect, Westgate, Weardale.

WHITBY.—March 20.—For sanitary alterations in the work-house. Particulars may be had at the Workhouse.

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WHITEHAVEN.—March 16—For rebuilding 42 Scotch Street. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

WHITEBY.—March 21.—For alterations (including reroofing) to Lythe Hall. Messrs. R. Lofthouse & Sons, architects, 62 Albert Road, Middlesbrough.

WINCHESTER.—March 25.—For erection of three cottages at Houghton, Winchester. Mr. Thomas Stopher, surveyor, 57 High Street, Winchester.

WREXHAM.—March 23.—For erection of a wrought-iron shed in the clinker yard, Willow Road. Mr. Thomas Bury, town clerk, Wrexham.

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THE Coalbrookdale Company, Ltd., are showing at their London showrooms, 221 Queen Victoria Street, their newly-introduced Bostel stove, slow or quick combustion grate, which burns ordinary house coal without smoke, a desideratum which is now universally recognised. This is not, however, by any means its only strong point. Another is that it will burn for about eight hours with a consumption of about 15½ lbs. of coal and no attention. Then it is of very attractive appearance. It is said that it will effectually cure a smoky chimney. It is of the utmost simplicity in working. Fires therein are very easy to light and when lit give out a capital heat. Its peculiarity consists in that it is so made that the fire burns either sunk in the hearth or it can be tilted up to burn with the bars raised. The advantages of this combination are great. No air duct has to be provided through the hearth, yet there is no difficulty in getting the fire to light or to burn up when required. The grate when tilted up induces a quick draught and the fire soon becomes a glowing mass of smokeless fuel; the bars are then lowered to the sunk position, bringing the fire well forward so that practically the whole of the heat generated is given out into the room, and the gases as they pass into the chimney are quite cool. Combustion is slow; the fire will burn for hours without any attention or additional fuel, and the coal burns away to a powder, which falls into the pan below the bars and is easily removed.

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MATHER & PLATT, Park Works, Manchester (accepted).

BARNESLEY.

For erection of two houses and outbuildings in Sheffield Road, Barnsley. Messrs. CRAWSHAW & WILKINSON, architects, 13 Regent Street, Barnsley.

Accepted tenders.

S. Squire, Sheffield Road, mason.
W. Goodyear & Son, Sheffield Road, joiner.
W. Scholey, Doncaster Road, slater.
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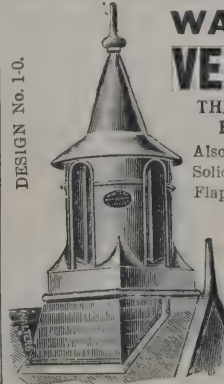
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For erection of a Baptist chapel and school at Legram's Lane and Horton Grange Road, Bradford. Mr. ABM. SHARPE, architect, Pearl Assurance Buildings, Market Street Bradford.

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I. Taylor, Lees, near Keighley, joiner.
Taylor & Parsons, Ltd., Harris Street, steelwork.
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Wenham & Waters	2,352	0	0
D. Rowell & Co.	2,199	10	0
Bayliss, Jones & Bayliss, Ltd.	2,156	11	3
J. Priest & Sons, Ltd.	2,100	0	0
Rowland Bros.	2,047	0	0
Morton & Co., Limited	1,950	0	0
S. Webb	1,867	9	9
Hill & Smith	1,860	16	0
Dudley Art Metal Co.	1,840	5	0
W. Bain & Co.	1,798	10	10
Miller & Sons	1,798	0	0
E. J. Raybould	1,697	10	10
J. Elwell	1,682	7	6
B. C. Barton	1,660	0	0
A. E. WOOD, Arabin Road, Brockley (accepted)	1,535	10	0

ECCLES.

For relaying part of the Queen Victoria Street sewer and incidental works. Mr. THOMAS S. PICTON, borough surveyor.

SNAPE & SONS, Boardman Street (accepted) £277 7 0

For street works in Catherine Street, Park Road, Pine Grove and Poplar Road, Eccles. Mr. THOMAS S. PICTON, borough surveyor.

Accepted tenders.

F. Welch & Sons, 385 Great Cheetham Street, Higher Broughton, Salford, Catherine Street	£163	19	2
W. H. Johnson, 20 Monton Road, Eccles, Park Road	175	4	6
W. H. Johnson, Pine Grove	85	16	11
W. H. Johnson, Poplar Road	64	1	9

GREAT BROUGHTON.

For erection of an infant school at Great Broughton, Cumberland. Messrs. W. G. SCOTT & CO., architects, Victoria Buildings, Workington.

Rigley & Son	£1,212	0	0
TINNION, Flimby (accepted)	1,063	16	0

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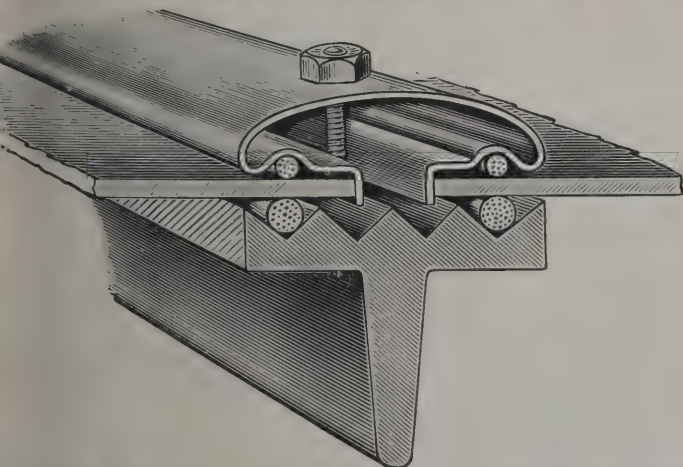
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For Index of Advertisers, see page x.



GREAT YARMOUTH.

For erection of fishing premises, South Denes, Great Yarmouth.
Messrs. OLLEY & HAWARD, architects, 5 Queen Street,
Great Yarmouth.

Moore & Sons	£1,960	0	0
G. E. Hawes	1,860	0	0
F. Grimble	1,830	0	0
Carter & Wright	1,769	0	0
J. Ward	1,710	0	0
A. Gunns	1,694	0	0
G. W. Beech	1,665	0	0
W. H. Everitt	1,600	0	0
S. & F. Smith	1,551	0	0
A. Wright	1,520	0	0
J. E. PESTELL, 8 York Road (accepted)	1,494	10	0

For alteration of boundary walling, removal and re-erection of children's offices, &c., at Northgate school. Messrs. OLLEY & HAWARD, architects, Queen Street, Great Yarmouth.

A. Gunns	£1,329	10	0
J. D. Harman	1,260	0	0
J. Read	1,241	0	0
G. W. Beech	1,222	0	0
J. Ward	1,208	10	0
J. N. Dawson	1,162	0	0
J. Rand	1,142	0	0
J. LEGGETT, Dene Side (accepted)	1,137	0	0

HALIFAX.

For street improvement works in Plum Street, Tennyson Street and adjoining back streets. Mr. JAMES LORD, borough engineer.

LONGBOTTOM & SUTCLIFFE, 16 Wainhouse Terrace (accepted) £285 13 8

HOLT.

For construction of about a mile of stoneware pipes, man-holes, ventilating shafts, &c., in connection with the sewerage and sewage disposal of Holt, Norfolk. Mr. T. INGLIS GOLDIE, engineer, Bank Buildings, Bank Plain, Norwich.

Greengrass	£2,246	13	6
Weston	1,881	16	0
Baker	1,734	18	0
BRADSHAW, London (accepted)	1,669	14	8
Edwards	1,666	10	5

HAWORTH.

For the construction of sewerage works, Haworth, York. Messrs. W. B. WOODHEAD & SONS, engineers, 18 Exchange, Bradford.

WADDINGTON BROS., Oxenhope, near Keighley (accepted).

KEIGHLEY.

For erection of a shop and offices, North Street, Keighley. Messrs. MOORE & CRABTREE, architects, York Chambers, Keighley.

Accepted tenders.

Waddington Bros., Oxenhope, contractor.

J. Haithy, Keighley, joiner.

W. Bottomley, Keighley, plumber.

W. Thornton, Bingley, slater.

J. Greenwood, Crosshills, plasterer.

KENDAL.

For supply of 70 tons of 18-inch cast-iron pipes. Mr. R. HAMPTON CLUCAS, engineer.

Staveley Coal and Iron Co.	£718	11	1
J. Needham & Sons	705	18	
Cochrane & Co.	704	5	
Clay Cross Co.	653	6	
Stanton Ironworks Co.	644	4	
R. McLaren & Co.	640	17	
H. Rishton	631	4	
D. Y. Stewart & Co.	619	12	
R. Laidlaw & Son, Ltd.	616	15	
Cochrane & Co., Ltd.	599	6	
Sheepbridge Coal and Iron Co.	576	12	1
W. Middleton	556	19	
J. & S. Roberts, Ltd.	545	6	
J. ABBOT & Co., Gateshead-on-Tyne (accepted)	535	13	

KIRKBY-IN-ASHFIELD.

For sinking a well and driving headings at the waterworks in Kirkby-in-Ashfield. Messrs. ELLIOTT & BROWN, engineers, Burton Buildings, Parliament Street, Nottingham.

J. N. Stone	£1,187	3	
H. Vickers & Son	1,015	0	
J. F. Price	817	6	
Lane Bros.	785	17	
J. H. BANSON, 10 Spring Terrace, Cheapside, Burnley (accepted)	635	19	

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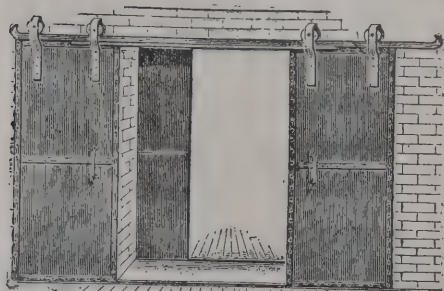
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KIRKHEATON.

For erection of six dwelling-houses at Field Head, Kirkheaton, near Huddersfield. Mr. J. BERRY, architect, 3 Market Place, Huddersfield.

Accepted tenders.

- H. Pearson, Kirkheaton, mason
- F. Greensmith, Kirkheaton, joiner.
- H. Webster, Almondbury, plumber.
- J. C. Winterbottom & Son, Hill House, plasterer.
- T Longbottom & Sons, Lockwood, slater.
- A Wood, Kirkheaton, painter.
- J E Dyson, Lindley, concrete.

LANCHESTER.

For construction of sewers at Maiden Law, Lanchester. Mr. J. R. LUPTON, surveyor.

J. Atkinson	£211	2	0
T. H. Starforth	199	16	0
J. Turnbull	190	11	8
S. Dart	188	18	8
W. GARNETT, Chester-le-Street (accepted)	183	6	4

LITTLEHAMPTON.

For construction of underground public conveniences on the Green, near Esplanade, Littlehampton. Mr. H. HOWARD, F.S.I., surveyor

A. Longhurst	£1,427	0	0
G. Jennings, Ltd.	1,350	0	0
A. Burrell	1,349	0	0
Snegin Bros.	1,323	0	0
W. Wallis	1,277	0	0
LINFIELD & SONS, Littlehampton (accepted)	1,197	0	0

LONDON.

For supply of fire-extinguishing appliances to the Tooting Bec Asylum.

Blakeborough & Sons	£226	2	6
Rosser & Russell, Ltd.	178	5	6
Shand, Mason & Co.	161	17	6
Merryweather & Sons	160	6	6
Tylor & Sons, Ltd.	153	1	0
H. GREENE & CO., Martin's Lane, E.C. (accepted)	143	2	4
McGregor & Co	138	16	6

LONDON—continued.

For installation of electric fire-alarm systems at the Eastern and Western Hospitals.

Pulford Bros., Ltd	£976	7	8
Electrical Engineering Co.	862	10	0
J. E. Spagnoletti & Co.	850	0	0
Merryweather & Gunter	728	0	0
Buchanan & Curwen	720	0	0
Ryan, Eben & Co.	698	0	0
Cox-Walkers	614	0	0
Marryat & Place	575	0	0
Private Wire and Telephone Installation Co.	564	0	0
Jackson Bros.	515	16	0
G. Weston & Co.	456	0	0
P. S. Tasker	430	0	0
F. J. COLEBY & Co., Manchester Square, W. (accepted).	425	0	0
Consolidated Telephone Construction and Manufacturing Co., Ltd.	390	8	0
Donnison, Berlyn, Sillem & Co.	322	0	0

LONDON SCHOOL BOARD.

For improvements, school for mentally defective children, three classrooms of twenty each, Cormont Road.

J. Smith & Sons, Ltd	£3,452	0	0
Holliday & Greenwood, Ltd.	3,353	0	0
F. & H. F. Higgs	3,254	0	0
Holloway Bros. (London), Ltd.	3,137	0	0
W. Akers & Co.	3,129	0	0
W. Smith & Son	3,093	0	0
Lathey Bros.	3,063	0	0
W. Downs	2,982	0	0
W. Johnson & Co., Ltd.	2,916	0	0
E. Triggs	2,910	0	0
J. & C. Bowyer.	2,887	0	0
W. J. Mitchell & Son	2,865	0	0
T. D. Leng	2,830	0	0
J. Garrett & Son	2,817	0	0
J. Marsland & Sons	2,803	0	0
Rice & Son	2,799	0	0
E. P. BULLED & CO. (accepted)	2,795	0	0

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For improvements, providing halls and teachers' rooms for all departments; extending girls' playground on roof; converting present teachers' rooms into cloak-rooms, &c.; providing new exit from babies' room, and enclosing, draining and tar-paving the additional land, accommodation unaltered, Netley Street.

J. Simpson & Son	£4,764	0	0
C. Cox	4,641	0	0
C. Miskin & Sons	4,617	0	0
Johnson & Co.	4,600	13	0
C. Dearing & Son	4,548	6	0
Unsigned	4,530	0	0
J. Grover & Son	4,422	0	0
E. Lawrance & Sons.	4,232	0	0
McCormick & Sons	4,108	0	0
W. King & Son	4,027	0	0
E. Triggs	3,946	0	0
Treasure & Son	3,855	0	0
H. WALL & Co. (accepted)	3,760	0	0

For providing and fixing low-pressure hot-water apparatus, including channels, painting pipes, &c., Kingsgate Road.

G. Davis	£546	0	0
A. Dougill & Co., Ltd.	532	14	5
W. G. Cannon & Sons	499	0	0
J. & F. May	467	0	0
J. Wontner-Smith, Gray & Co.	439	14	0
G. & E. Bradley	403	0	0
M. Duffield & Sons	398	0	0
Wippell Bros. & Row	390	0	0
B. HARLOW & SON, Macclesfield (accepted)	372	0	0

LOUGHBOROUGH.

For laying-out the proposed new cemetery at Rothley. Messrs. LANGLEY & BAINES, surveyors, 16 Friar Lane, Leicester.

Hutchinson & Son	£796	0	0
W. Hanson	715	0	0
Bradshaw Bros.	658	12	0
J. Ball	657	0	0
J. Holme	590	10	0
J. Mason	562	13	10
A. Green	479	8	11
F. SLEATH, Rothley, Loughborough (accepted)	475	0	0

LONG REACH.

For extension of pier-head buildings at Long Reach.

W. C. Reeder & Co.	£3,968	0	0
A. Fasey & Son	3,504	17	4
J. Shelbourne & Co.	2,684	0	0
ENNES BROS., Erith (accepted)	2,622	13	4

NEWTON ABBOT.

For erection of casual wards, &c., at the workhouse. Mr. S. SEGAR, architect, Union Street, Newton Abbot.

W. Brenton	£3,347	0	0
L. Bearne	3,025	0	0
H. Drew	2,997	0	0
Parker Bros.	2,990	0	0
R. Yeo & Son	2,954	8	5
F. A. A. Stacey.	2,950	0	0
G. Hicks	2,895	13	0
M. Bridgmann	2,890	0	0
F. ZEALLEY, Newton Abbot (accepted)	2,796	0	0

POCKLINGTON.

For an extension of the scheme of Pocklington main sewerage.

Bell	£219	19	0
W. Tinson	209	0	0
B. Firth	200	3	7
R. R. Tinson	198	10	0
R. Fisher	190	15	6
W. G. STEEL, George Street, Pocklington (accepted)	165	0	0
C. Birkill	160	8	5

PORTSMOUTH.

For supply of Lancashire boilers, steel chimney, mechanical stokers, &c., for the Portsmouth electric-light station.

HEWETT & KELLET, Bradford (accepted)	£5,543	0	0
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RAUNDS.

For additions to boot and shoe factory at Raunds, Northants.

Smith & Son	£987	0	0
W. H. Lovell	967	0	0
Building Co-operative Society	880	0	0
J. LAWRENCE, Thorpe Street, Raunds (accepted)	805	0	0

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Hunt Bros.	£10,733	17	2
Holder	10,445	c	0
Ham	9,540	0	0
Jones	9,478	0	0
Horton	9,182	0	0
Hilton & Caswell	9,100	0	0
Mallin	8,999	0	0
Rounds	8,964	0	0
Dallow	8,760	0	0
Willcock & Co.	8,750	0	0
Speake & Sons	8,749	0	0
Tooby	8,698	0	0
Oakley & Coulson	8,685	0	0
Herbert	8,586	0	0
HENRY GOUGH, Dudley Road (accepted)	8,390	0	0

SOUTHAMPTON.

For making four boreholes at Otterbourne, near Shawford, Hants. Mr. W. MATTHEWS, waterworks engineer.

DUKE & OCKENDEN, Littlehampton (accepted) £174 10 0

For supply of 25-n h.p. portable engine and boiler. Mr. W. MATTHEWS, waterworks engineer.

WANTAGE ENGINEERING COMPANY, Wantage (accepted). £450 0 0

SOUTHSEA.

For repairing, painting and decorating the pavilion, bar and reading-room, &c., on the South Parade Pier. Mr. G. E. SMITH, 145 Victoria Road North, Southsea.

C. A. Grylls	£329	13	0
M. Coltherup	298	0	0
Gould	286	9	10
Humby & Sons	275	0	0
Till	255	4	0
Stanfield	245	0	0
Pryor	177	15	0
Carter	168	16	0
Norman	161	0	0
Taylor	154	10	0
BARNES & SONS, 121 Commercial Road, Landport.			
(accepted)	135	0	0
Smith	133	0	0

SWINDON.

For supply of iron cart-shed at the depôt, Cromwell Street.

COLES & BROWN, Agnes Ironworks, Bristol (accepted) £127 0 0

TAMWORTH.

For erection of storage hoppers, aerial cableway, stations and other timber structures in connection with breaking and screening plant, &c., at Dosthill.

Accepted tenders.

T. Wincott, Church Street, Nuneaton	£409	0	0
Goodwin, Barsby & Co., Leicester, supply of riddles, elevators, conveyors, main shafting, pulleys, bearings, gearing, &c., including fixing	375	0	0

TRING.

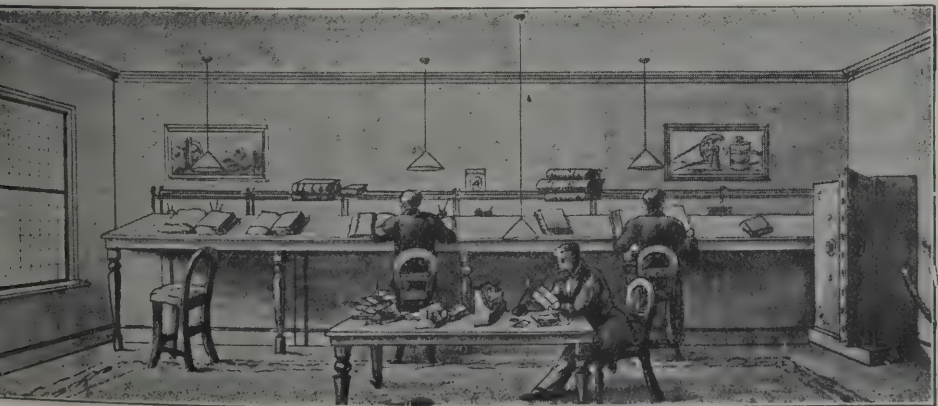
For sewage disposal works. Messrs. WILLCOX & RAIKES, engineers, 63 Temple Row, Birmingham.

W. Morley & Sons	£2,674	12	8
Bower Bros.	2,139	14	0
E. Smith & Son	1,949	0	0
C. Ford	1,937	0	0
H. Williams	1,925	0	0
Green & Co.	1,747	0	0
Yirrell & Co.	1,727	0	0
T. Vale	1,727	0	0
SIDDONS & FREEMAN, Oundle (accepted)	1,600	0	0

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WALES.

For restoration of the tower of Bassaleg Church, Mon.	Mr.
C. B. FOWLER, architect, 6 High Street, Cardiff.	
A. Nevins & Co.	£789 0 0
J. Charles	745 0 0
J. Linton & Co., Ltd.	684 4 0
W. Thomas & Co.	615 0 0
E. C. Jordan	580 0 0
C. Lock	575 0 0
Cox & Bardo	568 5 6
S. SHEPTON & SON, London Road, Cardiff	
(accepted).	535 10 0
J. Jenkins	477 0 0
Leadbeter Bros.	398 0 0

For alterations and additions to the Garth infants' school, Maesteg. Messrs. E. W. BURNETT & SON, architects, Maesteg.	
S. Lewis	£648 0 0
W. J. Jackson	646 0 0
E. Evans	590 0 0
J. Jenkins	569 10 0

For erection of police buildings and magistrates' assembly room, Caergwrle, Flint.	
WRIGHT & SONS, Kensal, Chester (accepted).	£1,200 0 0

For supplying and laying 420 yards, or thereabouts, of 3-inch cast-iron water pipes, with fittings, &c., at Radyr and Morganstown. Mr. JAMES HOLDEN, surveyor, Llandaff Chambers, 35 St. Mary Street, Cardiff.	
J. Matthews	£157 1 6
F. ASHLEY, Cardiff (accepted)	142 18 9

For erection of an infirmary at the St. Asaph Union Workhouse. Mr. JAMES HUGHES, architect, Denbigh.	
R. Jones	£5,400 0 0
G. H. Marshall	5,349 0 0
T. Jones	4,990 0 0
R. Williams	4,907 0 0
D. Griffiths & Son	4,699 0 0
P. Edwards	4,650 0 0
E. Williams	4,470 0 0
W. H. Thomas	4,430 0 0
R. EVANS & SONS, Old Colwyn (accepted)	4,397 0 0
Jones & Prichard	4,291 0 0

WALSALL.

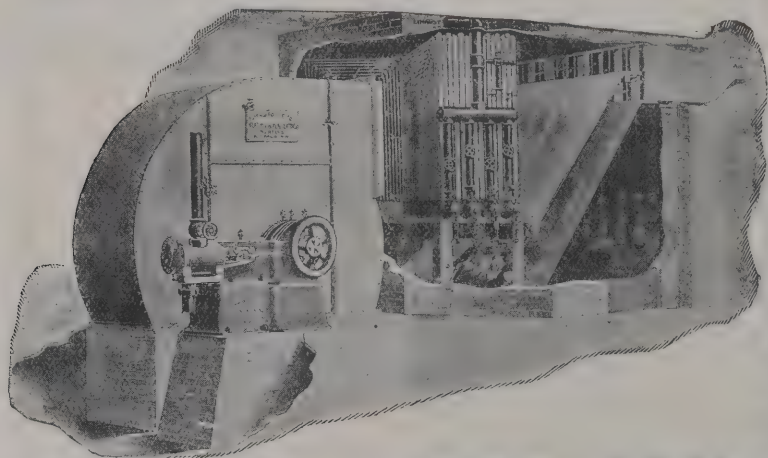
For erection of a transformer station in Butts Road.	
W. WISTANCE, Walsall (accepted)	£1,029 0 0
For erection of a caretaker's house at Cheslyn Hay school and at Great Wyrley school. Mr. W. J. BOOT, architect, Wolverhampton Road, Cannock.	
Great Wyrley.	
M. B. Anderson	£370 0 0
T. Mason	361 0 0
F. T. Williams	353 13 0
C. W. Reynolds	348 15 0
L. & R. Barton	333 0 0
W. H. Moore	330 0 0
W. Ingram	300 0 0
J. & F. WOOTTON, Bloxwich (accepted)	285 0 0

Cheslyn Hay.

M. B. Anderson	£370 0 0
T. Mason	361 0 0
F. T. Williams	358 0 0
C. W. Reynolds	355 0 0
W. H. Moore	336 0 0
L. & R. Barton	333 0 0
W. Ingram	300 0 0
J. & F. WOOTTON (accepted)	290 0 0

WESTHOUGHTON.

For sewerage works, partly in Over Hulton and partly in Westhoughton, Lancs. Mr. THOMAS PARTINGTON, surveyor.	
W. Winnard	£3,813 5 8
J. Wood	3,173 9 6
T. Rowland	3,126 16 0
E. Yates	2,800 0 0
Etheridge & Clarke	2,639 4 3
R. Hawley	2,519 16 3
S. Cowburn & Sons	2,448 13 0
H. & F. Lomax	2,442 0 0
P. Heyes	2,355 4 6
C. Musker Bros.	2,320 0 0
S. Johnson & Son	2,248 14 4
J. Moore	2,214 7 6
W. Pollitt & Co.	2,180 3 3
T. Jackman, jun.	2,017 6 3
J. Horrocks	1,967 4 6
P. O'Maha	1,923 19 7
T. KILBURN, Bolton (accepted)	1,859 10 3



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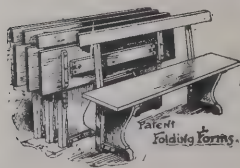


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WANSTEAD.

For road works in Chigwell Road.

Kerb.

W. Thomas	£282	18	4
J. Jackson	280	0	0
W. Manders	263	5	6
G. Bell	262	10	0
T. Adams	261	0	0
Grounds & Newton	238	17	6
W. & C French	230	12	6
B. W Glenny	228	4	6
W. Griffiths	227	17	6
PARSONS & PARSONS, Ilford Wharf, Ilford (accepted)	205	0	0
Making-up roads.			
J. Jackson	2,040	0	0
W. Manders	1,801	0	0
G. Bell	1,692	0	0
Grounds & Newton	1,659	0	0
Parsons & Parsons	1,607	0	0
T. Adams	1,549	0	0
W Griffiths	1,300	0	0
W. & C. FRENCH (accepted)	1,173	0	0

WEALDSTONE.

For footpath paving works, &c., at Wealdstone, Middlesex.

Mr. H. T. WAKELAM, county engineer.

T. Adams	£1,139	0	0
B. Nowell & Co.	1,004	19	2
G Wimpey & Co.	975	0	0
H Brown	975	0	0
W. GRIFFITHS & Co., London (accepted)	865	0	0

WIMBLEDON.

For supply and erection of a high-tension switchboard and switchboard gallery.

Allgemeine Elektricitäts-Gesellschaft	£1,800	0	0
General Electric Co.	1,686	0	0
J. Fowler & Co., Ltd.	1,604	10	0
S. Z. de Ferranti, Ltd., Hollinwood (provisionally accepted)	1,560	0	0
Siemens Bros. & Co, Ltd.	1,555	0	0
British Thomson-Houston Co., Ltd.	1,107	0	0
Cowans, Ltd.	944	0	0
B. Thomas	905	10	0

WEST HARTLEPOOL.

For construction of about 138 lineal yards 3 feet by 2 feet egg-shaped brick sewer in Hart Lane, with manholes, &c.

Mr. J. W BROWN, borough engineer.

B. COOKE & Co, Westminster, S.W. (accepted).

WORKSOP.

For erection of shedding, grand stand, offices, &c., for the show to be held at Worksop on June 2 and 3.

F. & J. E. GREEN, Lenton, Nottingham (accepted).

YARDLEY.

For road works at Reddings Lane, Hall Green, Yardley, near

Birmingham. Mr. ARTHUR W. SMITH, surveyor

R. W. FITZMAURICE & Co, Birmingham (accepted).

YORK.

For erection of a lunatic asylum at Water Fulford, near the city of York. Mr. A. CREER, architect, Guildhall, York.

G. LONGDEN & SON, LTD., Neepsend,

Sheffield (accepted) £92,453 9 9

Received too late for Classification.

GLASGOW.

For erection of first portion of St. Bride's Church, Hyndland Road. Mr. G. F. BODLEY, architect, London.

STEPHENS, BASTOW & CO., LTD., Bristol

(accepted) £3,842 0 0

IRELAND.

For erection of a lecture hall in Buncrana, Londonderry.

J. THOMPSON, Ramelton, co. Donegal (accepted) £581 0 0

IN the work of demolition which is in progress on the site of Simpson's Restaurant and the old Savoy, Strand, on Saturday morning, two labourers, named Snooks and Lawrence, were injured by falling brickwork. A mass, calculated to be about 50 tons in weight, came down unexpectedly. Snooks was partially buried by the debris, and Lawrence became pinned in an upright position against a wall. Both men were taken to the Charing Cross Hospital and detained.

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THE LATE MR. E. H. SHORLAND.

WE regret to announce the death of Mr. Ernest Hooper Shorland, of the firm of Messrs. E. H. Shorland & Brother, of Manchester, which took place at his residence, Brooks's Bar, Manchester, on the 9th inst. Mr. E. H. Shorland was one of the foremost warming and ventilating engineers in the country, and his firm have carried out and have in progress at present some of the most important contracts in the kingdom. The business of the firm will now be under the active management of Mr. F. H. Shorland, who has been connected with his brother in the business all his life.

TRADE NOTES.

A LARGE chiming clock has just been erected upon the parish church at Gaddesby, Leicestershire, by the liberality of Mr. Samuel Greaves, of Kirkby Bellars. The clock is fitted with all the latest improvements, and has been made to the designs of Lord Grimthorpe by Messrs. John Smith & Sons, Midland Clock Works, Derby.

MR. CHARLES E. GITTINS, of Nechells Park Road, Birmingham, has been successful in obtaining the contract for the supply of ironmongery to the City of Birmingham Corporation for the ensuing year for the following articles: bolts and nuts, cut nails, wire nails, coach screws, machine screws, locks, &c.

THE Mayor and Corporation of Leeds have given instructions to make and fix an illuminated turret clock at the new police station and free library, Dewsbury Road, to Messrs. W. Potts & Sons, Leeds and Newcastle, to the design of Messrs. Bedford & Kitson, architects, Leeds, which has to be completed by an early date.

THE tender of the Columbian Fireproofing Co., Ltd., 37 King William Street, E.C., for concrete fireproof floors, roofs, coal bunkers, &c., has been accepted for the electric-generating station at Ipswich for the Ipswich Corporation, and they have now commenced work on it. The architect is Mr. C. Stanley Peach, F.R.I.B.A. We understand the steel works of the above company at St. John's Wood are now rapidly approaching completion.

THE Fearnhead Electric Light Travelling Carrier Fitting is the invention of Mr. A. Fearnhead, of 354 Caledonian Road, N. It has been designed for the purpose of enabling a rise-

and-fall pendant to be moved laterally, so that the position of the light can be altered at will, thus providing an extremely useful fitting for the drawing benches of architects and surveyors, operating tables of medical men, cashiers' desks in banks, railways, &c., cutting tables, &c., &c. The fitting is made in polished brass rod and brackets, with brass carrier, complete with ceiling rose, lamp, opal shade, brass counter-weight and silk flexible cord, and its price is moderate.

ELECTRIC NOTES.

IN pursuance of the resolution adopted by the Marylebone Borough Council, on the subject of the arbitration award of 1,212,000 $\frac{1}{2}$ as the price to be paid by the Council for the Marylebone property of the Metropolitan Electric Supply Company, the opinion of Mr. Asquith, K.C., M.P., a resident in the borough, has been taken as to the "possibility of the award being annulled or modified," and as to the consequences of a failure to carry out the umpire's decision. The opinion of the learned counsel will be made known at a special meeting of the Council. Meanwhile the Council's electrical adviser has prepared a report showing that the undertaking can be worked by the Council at a considerable profit.

At the monthly meeting of the Ludlow District Council a letter was read from the Board of Trade stating that they refused to extend the time of the provisional order for electric lighting, and that unless the Council could show they were going to do the work, they should remove the order. The electric-lighting committee presented a report recommending the Council to pass a resolution to at once put in force its powers under the local Act, such scheme of electric lighting to be in connection with the refuse destructor, and that the requisite permission for loans, &c., be asked from the Local Government Board. The recommendation was adopted.

BUILDING AND BUILDERS.

THE Dawley Urban District Council have instructed Mr. R. E. W. Berrington, M.I.C.E., of Westminster and Wolverhampton, to prepare a scheme of water-supply for their district.

A LOCAL Government Board inquiry has been held at Oakengates by Mr. A. A. G. Malet, M.I.C.E., into the application of the Urban District Council to borrow 18,520 $\frac{1}{2}$ for sewerage and sewage disposal works. The engineer to the

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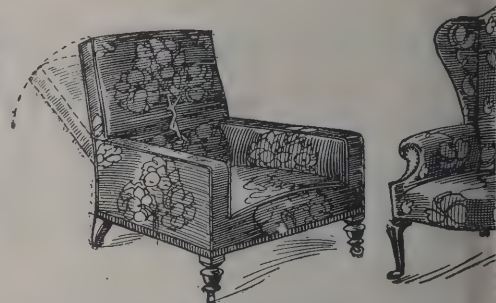
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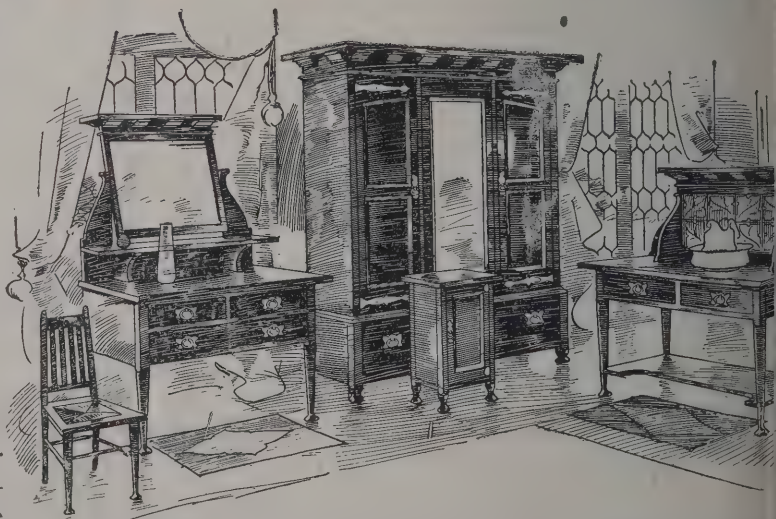
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council, Mr. R. E. W. Berrington, M.I.C.E., of Westminster and Wolverhampton, gave evidence in support of the application.

THE annual meeting of the Birmingham Brickmasters' Association was held at the Cobden Hotel on the 4th inst. Mr. Josiah Derrington resigned his position as president upon his retirement from the trade. Mr. Derrington first joined the association in 1864, and has served the trade as honorary secretary, treasurer and president. The members received the resignation with regret, passed a hearty vote of thanks to Mr. Derrington, and requested his acceptance of a testimonial as a token of their esteem and regard.

AFTER a year's work of a dangerous kind on the Smithfield Market, Jamaica Row, Birmingham, without accident, a carenter named Charles Griffiths (22), in the employ of the contractors, Messrs. Fenwick & Co., fell from the roof last week, and was killed. The roof was nearly completed, and the scaffolding was being removed when the accident happened. Griffiths, who was standing with one foot on an iron pillar and one on the roof, had attached a rope to a piece of timber with the assistance of a labourer, and had given the signal for it to be lowered, when he lost his balance and fell a distance of 30 feet. His head struck the granite setts, and on arrival at the General Hospital it was found that life was extinct.

AT Pwllheli on the 10th inst. the first of a series of public meetings was held in aid of a movement to raise about 50,000*l.* for new buildings for the North Wales University College, Bangor. Mr. J. E. Greaves presided. During the meeting the following letter, addressed by the Prince of Wales, the Chancellor of the Welsh University, to Lord Penryon, the president of the college, was read:—"Dear Penryon,—I have heard with much interest of the inauguration of a fund to raise the sum necessary to erect permanent buildings for the University College of North Wales at Bangor. My visit to Bangor last May enabled me to realise the inadequacy of the present buildings both for the accommodation of the increasing number of students as well as for the provision of those new departments, other than those of arts and science, which are necessary to meet the educational demands of the present day. As Chancellor of the University I am anxious to do all in my power to co-operate with the efforts to be made on behalf of one of its constituent colleges. I earnestly trust that our appeal to enable buildings to be

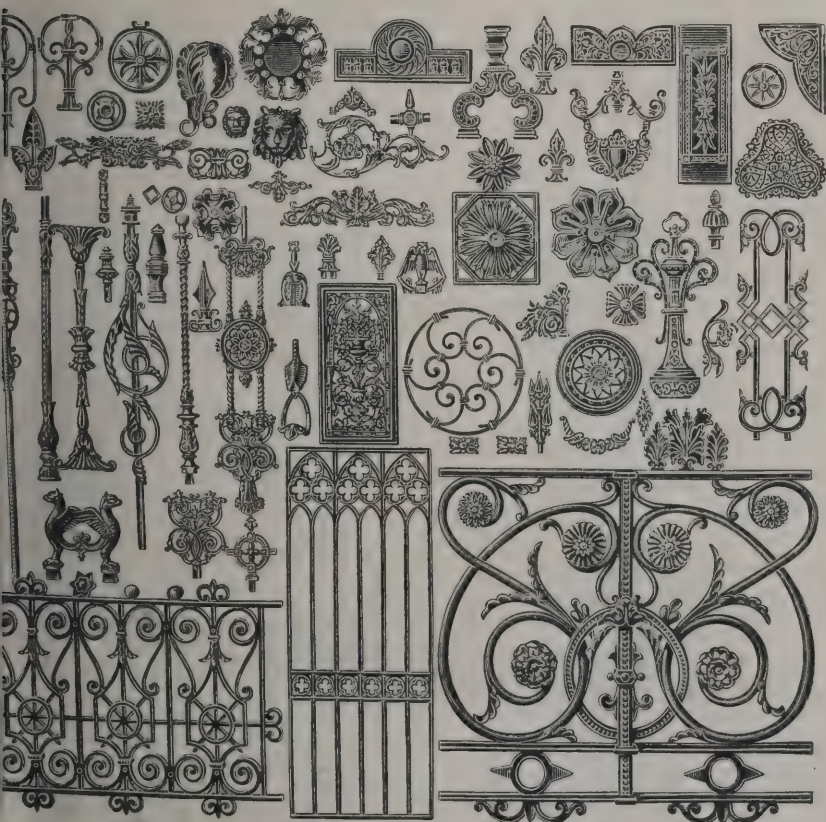
erected worthy of the University and of the admirable site so liberally given by the city of Bangor will receive the generous support of all classes in North Wales." The fund at present amounts to 11,566*l.*, to which the King and the Prince of Wales have given 100 guineas each, Lord Penrhyn 3,000*l.*, the Duke of Westminster 1,000*l.*, and many others large amounts.

VARIETIES.

THE Associate section of the Edinburgh Architectural Association held their sixth ordinary meeting on the 4th inst., Mr. J. Douglas Trail presiding. Mr. James Gillespie read a paper on "English Towers and Spires," in which he dwelt upon the importance of towers and spires in architectural design, pointing out how their use on a building at once added to it that stateliness and dignity which elevation always conveyed. The lecturer contended that for good outline and beauty of detail none could be found that excelled the Gothic spires of England. The position of the central and western towers were explained, and the lecturer concluded with some Renaissance, Scottish and Edinburgh spires. The lecture was illustrated by a large number of lime-light views and measured drawings.

CRAIGLOCKHART public school, the latest addition to the schools under the charge of the Edinburgh School Board, was opened on the 4th inst. The new school, which has been in occupation since the beginning of the year, faces Ashley Terrace, and is situated upon one and a quarter acres of ground, acquired from the Edinburgh Merchant Company. It is a three-storey building, and contains accommodation for 1,534 children. A central hall is provided for both the juvenile and infant departments. These halls measure 68 feet by 30 feet, and round them the classrooms are grouped. A gymnasium and a combined workshop and cookery-room are placed on the top floor. The school is heated by means of hot-water pipes and ventilated by mechanical power. The building is designed in a free treatment of Classic, and the hall in the centre of the building is lighted by large double windows, finished on the first floor with semicircular heads. The wings are marked by pedimented gables, and an ornamental belfry is placed in the centre of the roof. The plans of the building were prepared by the late Mr. Robert Wilson, architect to the Board, the work being supervised by his successor, Mr. J. A. Carfrae.

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WRITE FOR QUOTATIONS.

THE new waterworks provided by the Rothwell, Notts, Urban District Council were formally opened on the 28th ult. by the vice-chairman (Mr. R. C. Lane). The new supply comes from the old Shotwell Mill, about 33 acres in extent, purchased from the executors of the late Mr. Wm. Chater, nine acres from Mr. R. C. Lane, and the reservoir site from Mr. J. Stiles, at an inclusive cost of 3,200*l*. The supply is obtained from that land out of the water-bearing strata known as the Northants sand by drains laid below the rock into the clay, and the yield is at the rate of 120,000 gallons per day. The collecting drains lead to a valve chamber, which regulates the supply to three softening tanks, each having a capacity of 33,000 gallons, and to a storage for emergency. The service reservoir has a storage capacity of 200,000, and is provided with high-pressure standpipes by means of which the water level is raised 32 feet higher than the service reservoir in order to cope with property on the highest levels. The town mains are then supplied by gravitation from the reservoir with varying pressures to 75 lbs. per square inch, and fitted with ball fire hydrants about 100 yards apart, air valves, relief valves and sluice valves dividing the water into districts. The old mill pond has been cleaned out and converted into a storage in case of fire, and has a capacity of 500,000 gallons. There is a capital pumping station fitted with machinery by Messrs. G. R. Mather & Son, of Wellingborough, while the whole of the scheme was designed and carried out by Mr. W. T. Pearson, the Council's surveyor. The cost of the work has been about 6,350*l*., which has to be repaid in 28 years, and the cost of the land (3,200*l*.) to be repaid in 50 years.

ELECTRICAL ENGINEERS.

THE annual dinner was held on Friday at the Grand Hotel, Manchester, of the local section of the Institute of Electrical Engineers. Mr. H. A. Earle presided, and a large company included the Lord Mayor (Mr. John Royle), Sir James Hoy, Dr. Edward Hopkinson, Mr. J. H. Wicksteed and Mr. S. Z. de Ferranti. The toast of "The Section" was proposed by Dr. Hopkinson. Manchester, he said, was the largest producer of electrical energy amongst the municipalities of the kingdom, quite apart from traction. The citizens had invested vast sums in connection with the lighting and tramways undertakings. It might be said they had gone on too fast, but his own opinion was that in a very few years they would be able to look back

with feelings of intense satisfaction upon the work of the electricity committee of the Corporation and its engineer in providing for developments which they were sure to witness. In his reply the Chairman said that Manchester was second to no city in the country as a centre for the manufacture of electrical apparatus, and he was glad to know that at Owens College and the technical school the provision for the training of students in this branch of the engineering profession was all that could be wished. Mr. W. J. P. Fawcus proposed the health of the guests. The Lord Mayor, in responding, said there were those who thought that the Manchester Corporation had been spending capital on rather a lavish scale. They had to admit that big sums had been expended in the electrical undertaking of the city, but he was glad to hear Dr. Hopkinson say that they were pursuing a right policy. Mr. J. H. Wicksteed also responded. Mr. S. Z. de Ferranti proposed "The Manchester Technical and Scientific Societies." In responding, Sir James Hoy said he hoped that at the Manchester Technical School, as at Owens College, the provision made for the teaching of the various branches of the science of engineering would be taken full advantage of.

A SCHOOL FOR ENAMELLING AND METALWORK.

It is proposed by Mr. Alexander Fisher, some of whose enamels and metalwork have been seen at the Royal Academy, to open classes for goldsmith's work, silversmithing, jewellery and enamelling, and also for the production of fine work by craftsmen who have had thorough training. Pupils may join for short courses in any of the subjects, or for a complete course of two years' training. The advantages of such an institution cannot be better expressed than in the following letter from Mr. G. F. Watts, Hon. R.A. :—

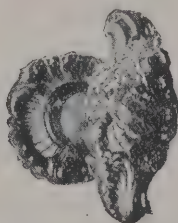
"I feel the greatest interest in the scheme for the establishment of studios for the study of enamelling and metalwork. It is perhaps of even more importance than may at first appear. The barren conditions of modern life and habits in all those things from which the painter and sculptor derive their inspirations render it almost impossible they should rival the splendid achievements of the past, but the artist in enamels, &c., may still be inspired by what he may every moment see, from the sun shining through a green leaf to the rainbow. The nature and natural effects with which he deals still afford him glorious visions and suggestions. Mr. Alexander Fisher is the one man

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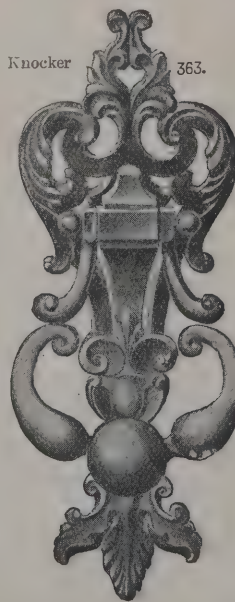
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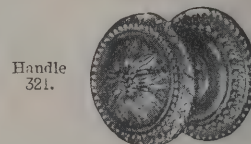
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give the instruction and carry out the design which affords highest possibilities, and would, I believe, be able to give life and impetus required to the scheme."

Communications are to be addressed to 17 Warwick Gardens, Kensington, W.

NOTTINGHAM INDUSTRIAL EXHIBITION, 1903.

Organisers of the Nottingham Exhibition, which opens in May next under the management of Mr. Charles Imre Kiralfy, are now busy at the erection of the various buildings and the laying out of the extensive grounds, which are so charmingly situated adjoining Trent Bridge.

The industrial and machinery halls are handsomely designed buildings in the oriental style, and the spacious floors are planned so as to give the greatest possible facilities to exhibitors, many of whom have already applied for space.

Arrangements are being made to devote a liberal portion of space to exhibitors in the various trades which this journal represents.

Military bands and popular music of every description will be provided on a lavish scale, and altogether both exhibitors and visitors are being catered for in a manner that leaves nothing to be desired.

In the amusement department a water-chute, circular loggan, fairy river, and all the various attractions which so largely contributed to the success of the late Glasgow and Liverpool exhibitions are being constructed.

Applications for space should be made to Mr. Charles I. Kiralfy, 19 Buckingham Street, Strand, London, W.C., where plans of the Exhibition can be inspected.

PLUMBERS AND THE PUBLIC HEALTH.

Dr. KAYE, medical officer to the West Riding County Council, in a meeting of plumbers and others held on Thursday last at Bradford Technical College, under the auspices of the Bradford District Council for the National Registration of Plumbers, delivered a lecture entitled "Plumbing in relation to Public Health." Mr. Malcolm Paterson, C.E., presided, in the unavoidable absence of the late mayor, Councillor W. C. Paterson.

Dr. Kaye traced the evolution of plumbing from its earliest beginnings, saying that the great change which had taken place should, on reflection, give people some idea of the great extent to which the plumber now contributed to the comfort and enjoyment of life. The field of sanitary knowledge was constantly and rapidly widening, and the plumber must keep abreast of the times. He said improvement in the trade could not be complete until legislation made it illegal for other than a duly certified plumber to practise. Referring to the injurious influence of defective plumbing on health, he observed that neither gases nor germs could pass through a properly constructed and properly laid water trap on a properly ventilated system.

Dr. Kaye classified the measures needed for maintaining the standard of plumbing at the level of improving sanitation under the three heads of registration, education and practical experience, and dealt at length with each topic. He mentioned that there were upwards of 11,000 registered plumbers in England and Wales, of whom 800 were in the West Riding. He also gave advice for the maintenance of the plumber's own health, and congratulated his hearers on being enrolled in the vast army now engaged in the battle against dirt, disease and death.

HOUSING IN CHESTER.

AN inquiry has been held in Chester by Mr. M. K. North, inspector of the Local Government Board, in relation to an application of the Chester Corporation for authority to borrow £2,160 to erect twelve houses in Tower Fields which could be let at 3s. 6d. to 4s. weekly. Evidence was first read in favour of the proposal and then against it.

Mr. H. S. Walley, surveyor, said the proposed cottages were not required, as the supply already exceeded the demand. He had recently visited sixty courts, and was able to say that 90 per cent. of them were airy and good. The Chester Cottage Improvement Company had supplied the existing requirements. Any private builder could erect the cottages cheaper than the Corporation. He had not seen a single case of overcrowding in the courts.

The Hon. Cecil T. Parker, agent to the Duke of Westminster, in opposing the scheme, said the Duke, as a ratepayer of Chester, and a large owner of property in Chester, was opposed to the Corporation proposal. In the opinion of his Grace houses of the description proposed would not cater for

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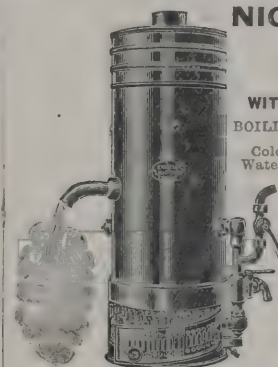
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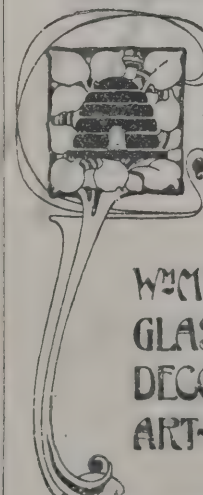
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the very poorest and humblest of Chester's citizens in the way suggested, and would not in any way get rid of the difficulty that existed in regard to the slums. If the Corporation were genuinely desirous of getting rid of the courts and alleys it could be done by providing houses such as the housing committee originally contemplated—houses of 2s. and 2s. 6d. per week. In his view this scheme, if carried, would permit the better-off class of workmen taking advantage of the rates, whereas the poorer classes would be still left in the slums. The Corporation ought not to embark on the enterprise unless absolute necessity were shown for their intervention. They ought to abolish the courts first of all.

Cross-examined, witness said the scheme was almost a contemptible one, because it did not deal with the root of the evil at all.

You would have supported a more general scheme which would have rooted out the courts and put in their place respectable sanitary dwellings?—I would have supported the improvement of the slums.

You know that the late Duke of Westminster did not take quite the same view as the present Duke on the question of insanitary property in Chester?—I don't know; he was always a friend to improvements.

Do you remember when Sir Horatio Lloyd made that speech about insanitary cottages in Chester the late Duke wrote to Sir Horatio Lloyd and said there was some land belonging to him in Fellmonger's Yard which he had proposed making an ornamental ground, but which he would give up for dwellings?—Yes; plans were prepared.

That was the late Duke's view. He was so struck with this speech that he gave up his ornamental scheme for dwellings to be put up?—Plans were prepared for that purpose.

But it has not gone any further?—Because the late Duke died.

Alderman Thomas Smith denied that the Corporation had passed the resolutions in support of the scheme unanimously.

Mr. H. J. Price said it was considered that at the present moment it was very inopportune for the Corporation to come forward with the scheme. The rates were exceedingly high, and were likely to become higher.

Mr. Thomas Mills supported the Corporation scheme. He referred to the number of houses demolished by the Corporation, and to the modesty of the Corporation scheme, remarking that to carry out their legal and moral obligations they ought to erect at least fifty houses.

Mr. E. H. Lloyd, in urging the inspector to report against the application, ridiculed the idea that the scheme would provide accommodation for the poorer classes, and pointed out that nearly half the total uninhabited houses in Chester were cottages. If there was the evil in Chester such as had been described, this scheme would not touch it not only because of the prohibitive rents it was proposed to charge, but also account of the ludicrous inadequacy of the number of cottages proposed to be built. If this matter were to be dealt with it could be done best on a commercial basis and by the Corporation Improvement Company, instead of by the Corporation laying it out into further municipal enterprise.

Mr. Smith replied for the Corporation, and the meeting closed.

NATIONAL ASSOCIATION OF MASTER PLUMBERS.

An indenture or agreement of apprenticeship framed by the Plumbers' Apprenticeship Board of London has been adopted in substance by the National Association of Master Plumbers and the United Operative Plumbers' Association of Great Britain and Ireland, as well as by the London Master Builders' Association.

The material points of agreement are (a) the art of sanitary plumbing taught under the indenture is defined as "technical knowledge of water fittings and other sanitary appliances, skill to construct and adjust the same in such manner as to prevent the contamination of air or water in dwelling-houses and other buildings by emanations from drains and sewers;" the apprentice is required to attend approved evening classes of technical instruction; and (c) to attend periodical examinations in technical knowledge and workmanship during term, the final examination qualifying for registration by the Plumbers' Company, or any statutory body established for maintaining a national register of plumbers in the profession.

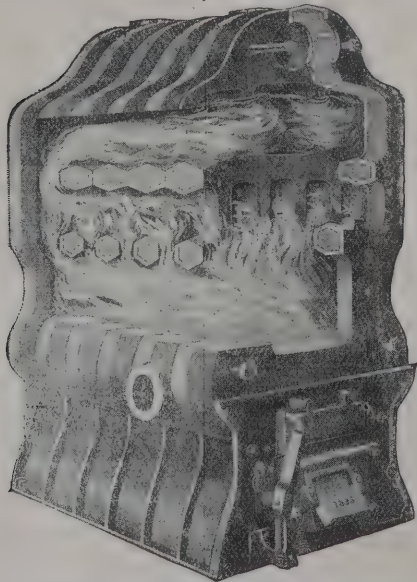
Under the general provisions of the indenture other branches of trade may be taught, but it is required that instruction in sanitary plumbing should conform to local regulations affecting the efficiency of plumbers' work in its sanitary aspects as defined.

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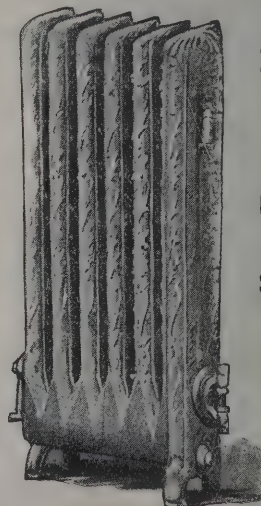
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authorities, and the practical branches of the examinations are conducted under the regulations of the Plumbers' Company by joint boards, including employers and workmen.

YORK AND THE ELECTRIC LIGHT.

LOCAL GOVERNMENT BOARD inquiry was held at the Guildhall, York, on the 3rd inst., by Mr. F. H. Tulloch, M.I.C.E., relative to the application of the York Corporation for sanction to the extension of the electric-lighting plant. Amongst those present were the town clerk (Mr. R. P. Dale), the city accountant (Mr. J. W. Davison), the city electrical engineer (Mr. C. A. Midgley), Councillor Scott (chairman of the electric-lighting committee), Councillor C. C. Walker, Councillor R. Robinson and Dr. Parker.

The Town Clerk, after stating the object of the application, said that on October 25, 1897, the Council decided to undertake the electric lighting of the city, and directed application to be made to the Local Government Board for their approval to the borrowing of the requisite amount, viz. 20,000*l*. The sanction of the Board was obtained on May 26, 1898, and on August 1, 1899, Mr. C. A. Midgley entered upon his duties as resident electrical engineer. On February 26, 1900, the works were formally opened. On April 2 of the same year the Council resolved that in view of the largely increased demand for the supply of electricity to extend the boiler-house building and provide additional engines, boilers, dynamos, mains, &c., to cope with such demand, and directed application to be made to the Local Government Board for their sanction to the borrowing of a further sum of 20,000*l*. On the same date as this application was made the supply of electric light to consumers commenced. Sanction for the second borrowing was obtained on January 28, 1901.

Mr. Midgley (resident electrical engineer) stated that the works which were laid down by Professor Kennedy when opened on April 2, 1900, were of 320 horse-power, which was equivalent to the supply of power for 6,500 eight candle-power lamps. On October 1 of that year, the beginning of the winter season of 1900-1, they were supplying 4,600 lamps, but by March 1901 the number had increased to 16,300. To meet that extra demand the committee had to borrow 20,000*l*. With this sum the capacity of the plant was raised to 13,000 horse-power, which was equivalent to 20,000 eight candle-power

lamps. The demand further increased, and at such a rate that by March 1902 the number of lamp connections had grown to 32,766. In anticipation of this growth and of the general development he had in October of 1901 submitted a scheme to the Council for the extension of the installation and buildings involving the expenditure of 50,000*l*. The scheme provided for two further engines and dynamos, each of 1,000 horse-power, which would give the plant a capacity of 3,300 horse-power, which would be equivalent to 56,000 eight candle-power lamps. The demand from March, 1902, to date had continued to increase till there were now 42,500 lamps connected with the mains, with applications for 4,000 more lamps already in hand. So far he had spoken only of the 50,000*l* loan. Under the original scheme as laid down by Professor Kennedy the mains were far too small for the requirements of the winter season, 1900-1, and on July 1, 1901, the electric-lighting committee placed before the Council a report asking for leave to borrow the further sum of 10,850*l*. for the extension of the mains and accumulators

The Inspector: These two loans then will keep you going for some little time?—Mr. Midgley: For about fifteen months. You will want more money then in fifteen months' time?—I think so.

BOURNEMOUTH MASTER BUILDERS.

THE annual dinner in connection with the Bournemouth and District Master Builders' Association took place on the 26th ult. at the Bournemouth Hôtel Métropole.

Among those present were Mr. J. W. Davis, the president of the Association, who presided; the mayor (Alderman J. E. Beale), Alderman W. Mattocks, J. C. Webber and C. H. Mate, Councillors W. E. Jones, S. Minty (secretary of the Association), and A. Drake, Messrs W. Hoare, C. Gifford, E. W. Jenkins, G. McWilliam, W. Millard, C. S. Hall (deputy town clerk), W. J. Bacon and W. H. Aish (president and secretary respectively of the Bournemouth Ironmongers' Association), G. Martin, J. A. Nethercoate, F. T. Cutler, W. A. Hillier (treasurer of the Association), Randall-Jones, A. E. Kitcher, D. Drake, Walter Hoare, C. Keep, E. W. Ingamells, I. H. Salt, T. A. Norris Cox, A. Lambert, H. Harding (vice-president of the Association), H. Marshall, president, and A. T. Doggrell, secretary of the Southampton Master Builders' Association, &c.

At the close of the dinner the Chairman proposed the Royal toasts.

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C. SMEDLEY BECK, Architect.
11a, Prince of Wales Road, Norwich, Jan. 21, 1903.

ARCHITECT.

I am exceedingly pleased with the result of the Velure I had last year. Our doors look and feel like ivory, and show every appearance of great durability. I find that they keep very clean, and do not take the dirt.

A. E. PURDIE, F.R.I.B.A.
Meadow Grange, Blean, near Canterbury, Jan. 2, 1902.

IN A STEAM DISINFECTOR.

I am pleased to state that the Velure has been a perfect success so far. It has been subjected to great heat, steam pressure, and withstood the expansion and contraction of the iron, and there are no cracks or flaws to be found, the surface being perfect. It was applied by unskilled labour, the hospital porter doing the work.

J. BROOK, S.I.C., A.S.I., Surveyor, R.D.C.,
Stratford-on-Avon, 5th December, 1902.

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JOHN MACKENZIE, Sail Maker.
Sandbank, Argyllshire, Sept. 26, 1901.

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Mr. C. Gifford proposed the toast of "The Imperial Forces," and it was acknowledged by Capt. E. W. Jenkins and Cyclist W. Miller.

The toast of "The Trade and Commerce of the Borough" was proposed by Alderman J. C. Webber and Messrs. Martin and Cutler responded.

"The Architectural Profession" was proposed by Mr. E. W. Jenkins and acknowledged by Mr. Gifford.

In proposing the toast of "The Association," Alderman Mattocks suggested that it would be well if builders and decorators took a little greater interest in technical education in order that they might become more skilled workmen.

The Chairman responded, and said there was no member of the Association who did not wish well to his employes, and they hoped that in return the employes would do all they could for their masters.

Councillor Minty also responded, and incidentally mentioned that according to his calculations the members of the Association paid from 100,000*l.* to 150,000*l.* each year in wages.

SOCIETY OF ENGINEERS.

At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on Monday evening, March 2, Mr. J. Patten Barber, president, in the chair, a topical discussion on "Road Traffic in and near Large Cities" was opened by Mr. W. Worby Beaumont, past president, and of which the following is a *résumé* :—

The author first pointed out that the congestion of traffic in the main streets of London and other great cities in Great Britain had intensified to a disconcerting degree in the past few years, and none of the efforts for alleviation had had any marked effect. It would be remembered that he dwelt upon the roads and traffic questions in his address as President in 1898, and referred to changes that were then becoming inevitable in street construction and traffic methods. The time had now arrived when it was imperative that the traffic requirements must be faced by the governing authorities. A great increase in the size and number of main streets or arteries must be provided for, and every opportunity must be taken before the difficulties in the way became greater than they were even now.

The difficulties relating to road traffic in and near large cities manifested themselves chiefly by the congestion or not-room-enough conditions observable every day. The cause of

that was, in most places, the gradual conversion of a business and residential centre into a vast congeries of offices and warehouses, the workers in which no longer resided in the houses in that centre, but at various distances miles away from it.

The people going to and from their offices and the merchandise going to and from the warehouses might be reckoned thousands as compared with the numbers which would obtain with the requirements of the residential population for which the streets were originally made. Not only had those houses increased in business requirements demanding traffic facilities but increase in the number of houses, offices, &c., had taken place along the old lines of route which had in effect been lengthened and lengthened, while their width remained unaltered. Moreover, tangled masses of lanes and alleys where once were houses and cottages with gardens round them had grown into business hives, all having outlets on the few arteries and adding to the demand for space in the already congested thoroughfares.

The cities had, in other words, developed by accretion along main thoroughfares, and by internal growth, and at the time had it appeared to be absolutely incumbent upon the local or State authorities to decide upon the laying out of new main thoroughfares on broad principles. The cities had grown gradually like vast extensible bottles, the necks of which had remained unaffected in size or number, until now they were utterly inadequate for the requirements of the vast population. They were, in fact, like a great water supply system, the branches of which had enormously outgrown the capacity of the mains.

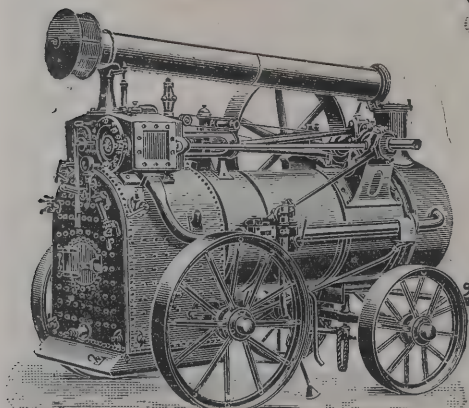
The difficulties were becoming greater because the rate of growth of wheeled traffic was greater than the rate of growth of the population, partly in consequence of cheapened road surface conveyance and partly because of the distances growing more and more beyond the walking distances for the masses. In some of the suburban districts and in country roads tramways had added materially to the convenience of suburban and outlying populations, but tramcars in city streets were the cause of frequent blockings of the traffic, their hard and fast line of route made them incapable of accommodating themselves to the other and more numerous vehicles. That difficulty was greatly increased in many districts where the great growth of branch and suburban populations had increased the local traffic on the main roads and the number of vehicles which must be accommodated outside the business establishments along them.

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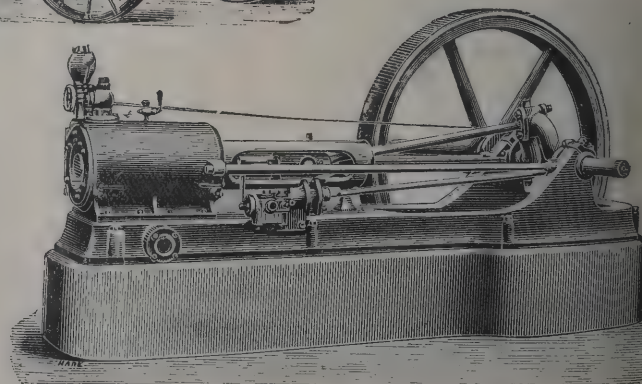
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The great question was, How is the conducting capacity of the existing principal thoroughfares to be increased, and how the new main thoroughfares to be obtained on anything like a satisfactory principle or design? There could be no doubt that much of the difficulty in London would be removed by the coming general use of motor vehicles for all purposes, firstly, because of the smaller space they occupied as compared with horse vehicles; secondly, because of their manoeuvring capabilities; and, thirdly, because of the greater speed they could make possible. That might be said to be an alleviation which would come of itself, but that was only partly true.

The regulation of street traffic must be something more than mere crossing work. The power of control of heavy, slow traffic must be given to the police authorities, so that street and road capacity should not be thrown away, as it was now, by careless and bad drivers, who wasted several feet of the side of the middle of the road, which could not be used by other vehicles. Drivers of heavy vehicles and of omnibuses habitually wasted the road space now, and it should be within the power of the police to stop that by penalty for disobedience of regulations. The maintenance of the road or street surfaces could be much better than it was now, and more continuous vehicles of every kind should be fitted with effective brakes.

The great necessity, however, was for more and wider main thoroughfares. It meant, in fact, the Haussmannising of a great part of London, and it meant that London must recognise as a hard fact that immense sums of money would have to be spent to remedy the evil of past neglect, and it must wake to its duties of to-day to secure the planning of a well-considered system of wide and well-made thoroughfares into and out of the growing London before building operations made it as costly, and in some respects impossible, as it was now nearer the centre.

Improvements in the modes of locomotion would do much, but at the present rate of growth of wheeled traffic it would not do more than provide for that increase even with great improvement and extension of the chief thoroughfares. Well organised motor omnibus services would save much in space and time, but that would not be until omnibus companies could use motors on a larger scale, so that no vehicle should run more than a certain maximum per day, and so that the mechanical requirements of a thorough system of daily examination, adjustment, repair and making ready were perfectly carried out under a properly organised staff.

In conclusion, Mr. Beaumont observed that improvements in the streets and roads must be taken in hand seriously and at once, for London was a vast hive, into and out of which not only all the bees flocked in the morning and left at night, but into and out of which all the carriers of their honey did the same through a very few small doorways.

A long and interesting discussion followed Mr. Beaumont's opening remarks, during which a consentaneous opinion was expressed as to the necessity of improving the existing condition of things, although a variety of conflicting views were advanced as to how improvement should be effected.

THE MANCHESTER DOCK EXTENSION.

THE construction of the immense new dock on the site of the old Manchester Racecourse is proceeding apace. Within the last few days the contract for the erection of transit sheds along the southern side of the dock has been let to Mr. Henry Lovatt, of Wolverhampton, and within a few weeks the builders will be at work. These sheds will, when completed, form a range of buildings 2,250 feet in length and 125 feet wide and three storeys in height, with flat roofs specially constructed for the storage of merchandise. There will be five sheds, separated as to the lowest storeys by gaps 25 feet in width, but connected as to the upper floors by covered gangways. Four of the sheds will be 425 feet long and one 450 feet long, and the total area of their floor-space (including the flat roofs) will be 22½ acres. The lowest floor will be on a level with the quay, in order to permit the ingress and egress of waggons, and railway lines will be laid both in front of the sheds and behind them. In front—that is, between the sheds and the water side—there will be a paved road with three sets of rails, one for electric cranes and two for railway waggons; whilst in the rear of the sheds will run another broad paved road with two sets of rails. Electric instead of hydraulic cranes are to be installed for two reasons. The hydraulic cranes used on other parts of the docks are capable of lifting 30 cwt., although in ordinary practice it is found that the load to be lifted is often as small as 5 cwt. or 10 cwt. But the power expended by the hydraulic crane is always the same, be the load great or small. In this way a considerable amount of power is wasted. The electric crane, on the other hand, uses only so much power as is necessary to cope with its load. The electric crane, moreover, works

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noiselessly, with the practical advantage that the men working with it are able to hear one another speak. Therefore the electric crane has been preferred. The railway tracks between the waterside and the sheds will enable cargo to be transferred directly from the steamers' holds to railway waggons. This cannot be done, of course, with all cargo, but it is calculated that over 25 per cent. of the inward cargoes received at the Manchester docks can be so treated, with an obvious economy of time, labour and shed accommodation. At the back of the sheds there will be a verandah enabling luries and railway waggons to load or unload under cover.

Perhaps the most interesting feature of the new transit sheds, apart from their great size, will be their structural character. According to the *Manchester Guardian*, they will be built without brick, stone, mortar, wood or girders of iron or steel. The whole of the buildings, foundations included, will be of ferro-concrete, upon what is known as the Hennebique system. This consists of Portland cement concrete combined with steel rods and hoop-iron bands or stirrups in such a way as to form a beam in which each of these materials shall develop the maximum of its useful properties, the concrete acting in compression, the steel in tension, and the hoop-iron (embedded in the core of the concrete) holding them solidly together. The walls, pillars and floors will be of the same material. The principal advantages claimed for this system of construction are incombustibility and, what is not quite the same thing, fire-resisting capacity; absence of joints, rivets and bolts, so that the work forms one solid mass; durability, facility of execution, and the fact (important in dock warehouses) that the buildings so constructed are proof against rats. This system of construction is a French invention, and was employed in some of the Paris exhibition buildings, which have been permanently preserved. Both it and other systems of ferro-concrete construction have hitherto been used more largely by continental than by British engineers and architects, although examples of the Hennebique system are to be found in the Southampton cold store and lairages, the Great Western goods and grain warehouses at Brentford and Plymouth, the London and South-Western cargo-sheds at Southampton, the Co-operative Wholesale Society's new warehouse at Newcastle-on-Tyne and some other buildings. The Manchester dock transit sheds will, however, be by far the largest range of ferro-concrete buildings as yet constructed in this country. Associated with Mr. Lovatt in the contract is M. Bruder, who erected the Hennebique buildings at the Paris exhibition, and

it is probable that in the first stages of the work some skilled French assistance may be needed. But Mr. Hunter, the Ship Canal engineer, has great confidence in the versatility of British labour, and he believes that English workmen will very quickly master all that there is to be learnt about the handling of the new material. As to the appearance of the transit sheds when finished, it is to be feared that they will be sufficiently ugly to satisfy the most exacting utilitarian. They will be nearly half a mile long, flat topped, a dirty drab or grey in colour and devoid of any kind of adornment. But when they are seen receiving the cargoes of fine steamers like the *Manchester City* and *Bostonian* simultaneously they will be not altogether displeasing to the eye of the Manchester citizen.

The dock itself, of which they are to be but an adjunct, has likewise some peculiarities of design. Instead of solid masonry walls like those of the existing docks, it will have walls consisting of a series of masonry piers and arches, with the dock-side or bank sloping behind them. The design may be roughly conveyed by the image of an ordinary sloping canal bank, with a miniature railway viaduct standing in the water immediately in front of it and connected with it by a solid platform. When the dock is filled with water, however, this peculiarity of its construction will not appear, for the water-line will be above the level of the arches, and only the super-imposed wall will be seen. One advantage of this pier-and-arch wall is that when a large steamer is moving along the dock to or from her berth other steamers already moored at the quayside will not be disturbed by the displacement of the water to the same extent as if the wall were flat and solid. This "ranging" of steamers at their moorings when another passes them in narrow waters is a serious inconvenience, and has caused a certain amount of trouble at the Irwell Park wharf and other places in the Canal. The depth of the new dock is to be 28 feet—2 feet more than the present depth of the Canal, and the same as the depth of the lock sills. The dredging of the whole Canal to this depth will of course be undertaken when the increasing size of steamers makes it necessary. The contractor for the new transit sheds has engaged himself to have them finished within two years from the beginning of the building, and we understand that a beginning will be made next month. The new dock will, it is hoped, be ready for opening in July 1905, and there is no reason to fear that when that time comes the trade of the port will not have attained to such dimensions as to require the abundant additional accommodation which will then be at the Canal Company's disposal.

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The Architect.

THE WEEK.

WE have several times warned architects and engineers as well as contractors about the risks they incur when they carry out the commissions of local boards and corporations without agreements bearing a common seal of the authority. It is, we allow, difficult to imagine that Englishmen who claim to be honest and honourable in their private business will conjointly repudiate indebtedness on account of so miserable a subterfuge. But instances so often arise there are grounds to suppose the weakness is more general than is believed. The latest has caused some surprise among lawyers, for, contrary to the majority of precedents, it has ended in favour of the engineer. We refer to *LAWFORD v. Billericay Rural District Council*, in which the Court of Appeal has just given a decision. Mr. *LAWFORD* is an engineer with much experience in sewerage and other sanitary works. In July 1899 he was formally engaged as engineer by the defendants, and the agreement was under their common seal. In the next year he received verbal instructions to undertake similar work in connection with an extension of the district. Mr. *LAWFORD* wrote to the clerk defining his position, and arranging for payment of his fees. He was informed that the Council were agreeable to the terms. His work was duly performed. Tenders were sent in, but one was not accepted. Plaintiff's claim for payment was met by the announcement that there was no valid agreement as regarded the extension, because it was not under seal. It was acknowledged that instructions were given and that the work of the plaintiff was necessary. Mr. Justice *DARLING* at the hearing of the case gave judgment for the District Council on account of the informality. In the Court of Appeal Lord Justice *VAUGHAN WILLIAMS* relied on the judgment of Mr. Justice *WIGHTMAN* in *CLARKE v. Cuckfield Union*, and on Lord *BLACKBURN*'s interpretation of it. In that case it was declared there was an implied contract, although not under seal. The Lord Justice said that as, in the present case, the defendants had also accepted and availed themselves of the services and work of the plaintiff there was an implied contract to pay for them. In that opinion Lord Justice *STIRLING* and Lord Justice *MATHEW* agreed, and accordingly the appeal of the plaintiff was allowed. It is to be devoutly desired that nothing will arise to admit of a return to the belief in the indispensableness of a common seal through which so many have suffered.

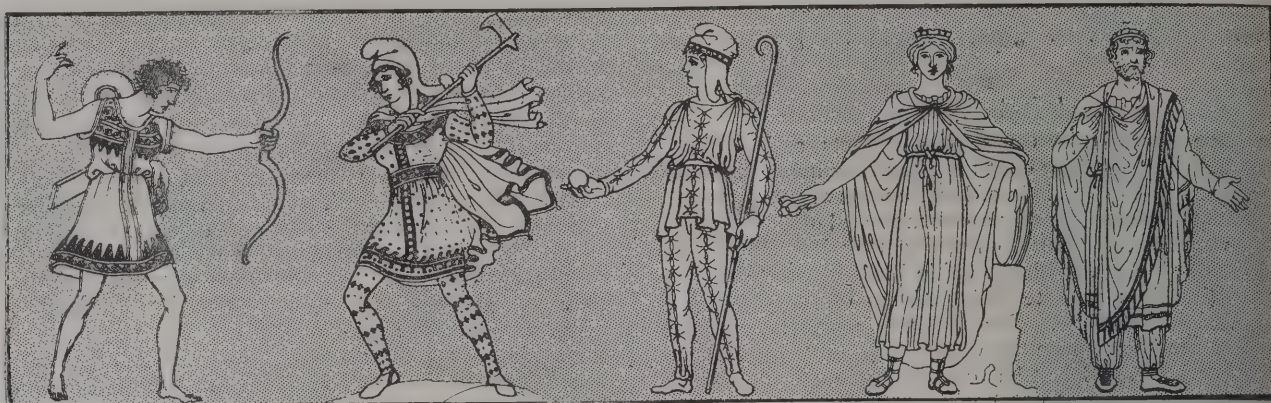
If the ancient port of Sandwich were only surrounded with a more agreeable landscape, and if the sea would return a little nearer it would become an attractive watering-place. The quietude of the town and the apparent absence of out-of-door life make a novel sensation on a visitor. But it requires some courage to remain there for a week. It is doubtful whether Sandwich derives much benefit from its antiquity, for excursionists from Ramsgate or Dover seem to be in a hurry to escape from streets whose silence suggests a period of plague or other visitation. It is therefore the more creditable to the Corporation of the town that they have lately resolved to restore the old Barbican. It has been allowed by their predecessors to fall into a state of decay, which could have been prevented by timely reparation at a moderate cost. It will now be necessary to renew the roof-timbers and weather-boarding, to replace the tiles, and other indispensable work, besides removing cement facing and other excrescences. Mr. *JENNINGS*, the diocesan architect, has been entrusted with the work, and we have no doubt all the operations will be carefully performed. Sandwich will have a more becoming and impressive entrance on one side, which will not be out of keeping with the sleepy old buildings within the town.

It is difficult to make ends meet in the Hôtel de Ville of Paris, and a special committee was lately appointed to consider whether some means could not be discovered or invented to increase the municipal revenue. The new taxes have not only irritated people, but they have failed to obtain the amount estimated. The report of the

committee cannot be considered as satisfactory. The difficulty of the case is suggested when it is found that the defacement of several municipal buildings is recommended in order to convert the walls into advertisement hoardings. An effort is also to be made to extract from the railway companies a royalty on the advertisements in the stations. It is also proposed to reduce expenses. The first victim selected is the Bourse de Travail, an immense building of architectural merit near the new post office, but which from its large hall and chambers could be utilised as a supplementary Bourse. It was intended as an offering to conciliate the working classes, but as an institution it is a failure, although it allows of a great many appointments with salaries paid by the city. In such a crisis as the present it is politic to demonstrate that financial reforms must be submitted to in the head offices of the municipality—in the Hôtel de Ville itself. The system carried out in that establishment is marvellous. Every department is divided and subdivided, and it might easily be supposed there are more officers than men. M. *BOUVARD*, who is supreme in all that relates to architecture, has recognised that simplification is inevitable. It signifies that there must be a resignation of several officers. He also considers that the Departments of the Prefecture of Police and Public Assistance can likewise be diminished. The engineer of the Water Department is not satisfied with recommending reductions of the staff, for he proposes to become more exacting in the charges for water, and in the prevention of waste. At present the reforms are only on paper, and it remains to be seen whether the Council will have the necessary courage to make the desired experiments.

THE late Dr. *BRADLEY*, who died last week, had gained a reputation as a head-master before he was appointed to succeed his friend, *ARTHUR PENRHYN STANLEY*, as Dean of Westminster. When he came he found "a ruinous fabric and a bankrupt Chapter." It seems incredible that a building so renowned should be allowed to fall into a state denoting impending disaster. The ancient revenues were in the hands of the Ecclesiastical Commissioners, but without a special Act they could not be assigned in part to works of restoration. It was necessary also to suspend a canonry in order that the interest on the sums raised should be paid. As was to be expected, some of the works carried out under Dean *BRADLEY*'s rule of twenty-one years did not meet with the approval of all architects. But there could be no question of the spirit animating him. He had no fads of his own to gratify, and he trusted implicitly in the recommendations of his advisers. It is claimed for him that he made the services in the Abbey more popular, and indeed it was his ambition that the people of London as well as visitors should take an intelligent interest in the edifice, and realise that its architectural merit was worthy of its historic associations.

ALL curators of museums and libraries have a belief in Providence, for they sometimes overcome difficulties in a mysterious way. The Bodleian, for instance, possesses an unique copy of the Mentz Bible, which is incomplete through wanting about twenty pages. But some years after it was acquired a collection was bought in Venice, and among the fragments were the missing twenty pages, which are still kept apart as a testimony of gratitude for good fortune. A similar surprise has occurred in Florence. The famous François vase, which was considered by some authorities to be the most valuable of all in Europe, was destroyed maliciously, not by a drunken visitor like the Portland vase in the British Museum, but by one of the attendants who should have been its guardian. The numerous fragments were gathered, and then put together with that marvellous dexterity which is possessed by experts of museums. There was, however, one void which could not be filled in. An official appeal was therefore made, begging for the return of the precious fragment. In such cases there is always a risk that a finder would set a higher value on treasure-trove. Fortunately more generosity was exhibited in this instance. The fragment has been returned anonymously, and the vase will henceforth be revered like the Portland vase, for it now has the additional interest of being a sufferer, and it is to be hoped it will be preserved alike from drunken visitors and enraged officials.



TYPES OF COSTUME: AMAZONIAN, TROJAN, DACIAN.

THOMAS ROGER SMITH.

TO anyone who was acquainted with the late Professor ROGER SMITH some thirty or forty years ago, his appearance of late must have caused pain. With a man less, resolute his arthritic affliction would have been taken as a necessity for retirement from business. But ROGER SMITH was too courageous to submit, and he fought on until the close of last year, when it was no longer possible for him to maintain his ground. His spirit continued to be unbroken up to that time, and he was as well able to give directions, to sit as arbitrator or to appear as a witness as if he continued in the enjoyment of bodily health and was free from physical disability. The pathetic spectacle he presented was one which always wins respect, for it was that of a brave man struggling with misfortune and without the least diminution of his courage. But the call which could not be resisted came on Wednesday in last week, when he passed away, and his loss is sincerely and deservedly regretted.

Although he was trained in PHILIP HARDWICK'S office, and his whole professional career was passed in London, he was a Yorkshireman by birth and the son of a clergyman. The social instinct was strong with him, and as early as 1851 he became a member of the Architectural Association. It was then a very different sort of body, for the development of it has been unprecedented, but the early members were expected to be earnest for the principle of mutual improvement, and there was no better example of loyalty than ROGER SMITH. Twice he was elected to the office of President. Even in those days it was evident he was adapted to be an instructor. It could be said of him as his most marked characteristic that "gladly would he learn and gladly teach." Throughout his life he was seeking knowledge, and tasks from which many would shrink were gone through cheerfully with that object. But he was careful to keep within prescribed limits. He never feigned to be encyclopædical except in respect of building. If there was any subject which was related to his business he endeavoured to master it thoroughly. Hence it was he went through the drudgery of preparing abstracts of specifications for building materials and building appliances for the Patent Office. He travelled through many parts of Europe in order to study buildings closely. The interest with which he followed all the details of an arbitration case in which he was engaged showed that the old spirit continued to be as strong as ever with him until the end.

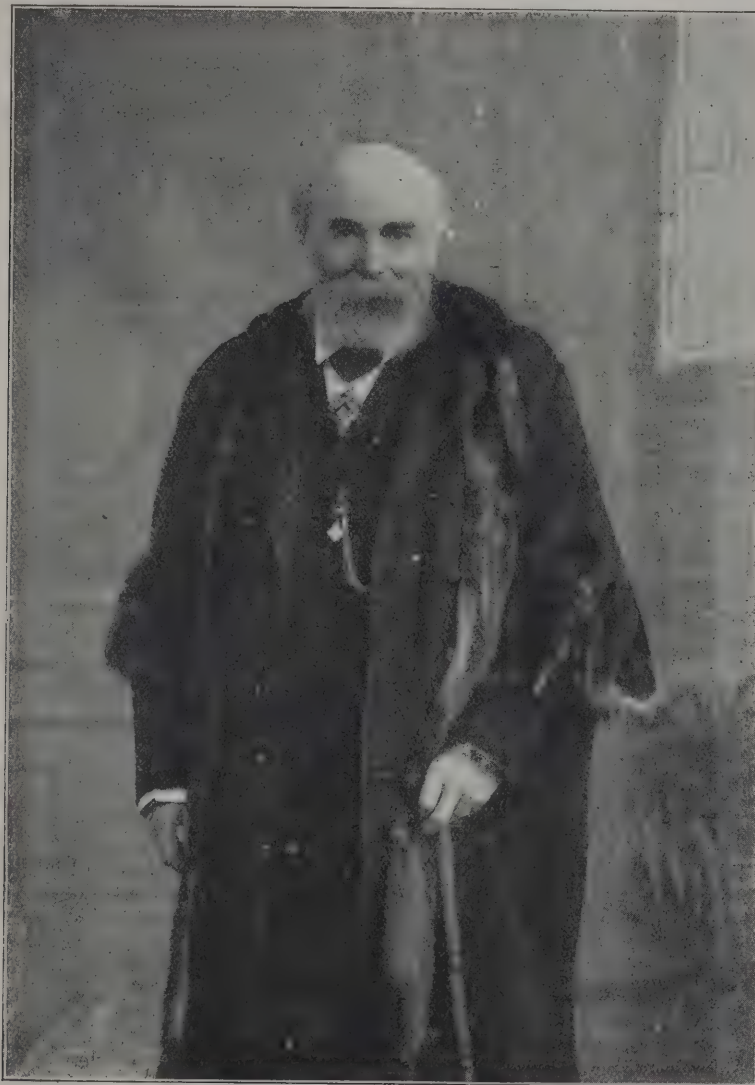
The knowledge he acquired he was ready to impart. We suppose there was not one of his contemporaries who, while practising as an architect, read an equal number of papers upon architectural subjects. The composition of them, he realised, gave definiteness to his knowledge, and was therefore a beneficial exercise for himself. They were all characteristic of his aims, and the limitations he imposed on his studies. He admired MR. RUSKIN heartily, but at a time when so many young architects imagined they had caught the spirit of that able writer when they spoke of stonework as if it were jewellery, and revelled in allusions to sapphires, diamonds, topazes and so on, ROGER SMITH'S addresses were as direct as if they had been written in the early part of the nineteenth century, and were scientific rather than pseudo-poetic in their manner of dealing with construction. The author never attempted to magnify their merits, and we are surprised he did not bring them out as chapters of some large treatise. They

would still be adapted for that purpose, and are well deserving of being collected and united. A few of his articles were utilised for the volume of WEALE'S series on "Acoustics." It represents a large amount of labour, and yet he underrated its value, saying, "It has simply been framed with a wish to afford, in a somewhat connected form, as much information relative to the laws of sound, and their application to the arrangement of buildings, as could be collected from trustworthy sources." In a later edition it was made evident that he was not afraid to seek information by a consideration of the temporary buildings used for the MOODY and SANKEY services.

It was no doubt from his readiness to teach as well as to learn that in an embarrassing emergency he accepted the onerous responsibility of bringing out *The Architect* as editor in January 1869. He was busily occupied at the time with other duties, and he could have had no self-seeking in the ordinary sense of the word when he took up the office. As he said in his opening remarks, "The editor has no desire in the conduct of this Journal to intrude himself, his works, or his name on its readers." To that intention he was faithful. His articles were not signed; his own buildings were not introduced, and in no way did he arrogate power or superiority. It was a time when critics were assumed to have "as large a charter as the winds," and the editor did not attempt to evade the common lot of victims. In the Academy exhibition which was opened a few months after his assumption of office there was a drawing by him, and the following was the candid opinion expressed on it by EDWARD GODWIN:—"The drawing No. 1,016, 'Blythwood,' by Mr. T. ROGER SMITH, has its merits and demerits so balanced that it is difficult to say much about it. If Mr. SMITH thinks barge-boards, stepped gables and plain gables coped with wrought-iron tabling are mere fancies of the Middle Ages, and not the results of local conditions, then he acts up to his thought; but if, as I believe, these three features are all local peculiarities—the result of obedience to nature, our only governor—Mr. SMITH has something to unlearn." The editor who would tolerate such free speech about his want of acquaintance with the favourite style must have had a strong sense of justice, and it is doubtful whether a parallel to so much forbearance is to be found in the annals of journalism. His equanimity was tested in other ways. The friends and fellow-labourers on whom he relied had each his ideas about the duty of ROGER SMITH in undertaking such a venture. But all had a common belief in the necessity of incurring expensiveness. From the reproduction of the finest illuminated manuscripts in the British Museum to the production of working drawings on double-elephant size sheets, projects were brought forward which would have fluttered a Chancellor of the Exchequer. But the editor accepted all the advice with good-humour, and if the schemes could never be realised no one was offended with him. Another literary venture in which he took part was the editing, in association with the present President of the Royal Academy, of the "Illustrated Handbooks of Art: History of all Ages and Countries." A volume on Classic and Early Christian architecture by the Professor and Mr. JOHN SLATER appeared. The announced companion volume, "Gothic and Renaissance," of which the authors were to be the two editors of the series, remains unprinted.

ROGER SMITH had given so many proofs of competence to instruct, there was satisfaction when he was appointed in the place of Professor HAYTER LEWIS at University College, London. He carried on what seemed to be a tradition, for his predecessors, HOSKING, DONALDSON and LEWIS, were also practising architects rather than theorists. Students who attended his classes have always acknowledged the patience of ROGER SMITH, and his interest in those who were attentive and industrious. In support of the endeavours of those who tried to raise the character of building workmen by explanations of the principles and history of construction he gave efficient aid. Indeed, it could be said that even when exertion caused him suffering, he cheerfully lectured on subjects which he had mastered. His name should be remembered as one of the most zealous and useful educationists of our time. It was, for instance, somewhat of a sacrifice of dignity to serve as

the Italian rather than the Gothic style, but he was not one of those who saw little merit in the latter. At an early period of his career he prepared the designs for the Elphinstone College and the Post Office, Bombay, and had reason to anticipate many similar commissions; but civilian architects usually found, sooner or later, that architecture was an appanage of military engineers in India. Professor SMITH's buildings are of many classes—churches, schools, warehouses, mansions, hospitals, &c. Not long since we pointed out that in the Ben Jonson Board School he was the first to introduce a central hall as an essential element. Of late years he had Mr. A. J. GALE as partner, and then his son, Mr. ELSEY SMITH, now Professor of Architecture at King's College. Professor SMITH's experience qualified him to be an expert assessor, and his uprightness was a guarantee of fair play. No man could have a more delicate sense of professional honour even in trifles.



THE LATE PROFESSOR THOMAS ROGER SMITH.

examiner of the crude efforts of students in the building construction classes of the Science and Art Department, but in that way he was enabled to realise the deficiencies of those who were to become workmen and builders, if not architects. Whenever the opportunity arose, he was enabled from his experience to suggest the desired remedies.

An architect of Professor SMITH's rank could remove some of the objections to the administration of the Building Act, and his appointment in 1875 as district surveyor was hailed with satisfaction. Lambeth was not the most desirable region for commencing operations, but in the proceedings relating to Dr. LEE's church the Professor displayed his moderation. In 1882 he was transferred to West Wandsworth. He served as one of the examiners of candidates for the surveyorship, and if his life were prolonged it was certain he would become the representative of architecture on the Tribunal of Appeal.

From his training he could hardly fail to incline towards

Professor ROGER SMITH could be accepted as the type of the modern all-round architect, if such a phrase may be allowed. If he did not possess the highest genius, he had that capacity for taking pains which is often a substitute for it. He never posed as a grandee nor suggested in any way that the majority of practitioners were his inferiors. Whenever he exercised the critic's office he was most moderate in his objections to designs which he could not admire, and we have known him to find reasons to praise work which most judges would pass over. His wide acquaintance with the circumstances of professional life had taught him to be tolerant. Many years ago it was said of him that he could not make an enemy, and although like most men he was compelled to be strict at times, those with whom he had to deal recognised that his conduct was inspired solely by duty. Those who knew him longest will have the deepest regret for the loss of a man who was a credit to his profession, a good citizen and a faithful friend.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER VII. (*continued*).

CLOSELY connected with the subject of variety and unity is the consideration of *contrast*. This is a valuable ingredient in design when used with proper care, and is, indeed, of the utmost importance for the production of



Monotony.

FIG. 53.

vigorous art. ARISTOTLE'S definition of harmony, just quoted, should be noted, but with an addendum as to the



Contrast.

FIG. 54.

use of contrast. The ancient architects were well versed in this, and used contrasting forms with the happiest effect. The Classic column with circular base and cap-moulds

and with circular shafts had a square die to the base and a square abacus to the capital; the entablature had equally effective variations. The curves of the mouldings, too, in the best work were not mono-central, and contra-flexured mouldings were also much favoured.

To crystallise the remarks that might be made at this place, consider such a setting of windows as shown in fig. 53. This confines within a small compass the treatment of a principle admitting of indefinite (or rather infinite) extension. The setting, as shown, is very anæmic, and would be improved by the use of a contrasting "heading," as shown in fig. 54. Other methods of obtaining contrast will readily suggest themselves.

In this place it will be suitable to offer some remarks on *disproportion* in buildings. Elevations admit of great variety of treatment, according as they are made to appear more or less broad or lofty; such *appearance* may be quite independent of actual dimensions, as the eye may be deceived by method of treatment. In the accompanying diagram (fig. 55) the optical tendency is to consider A of

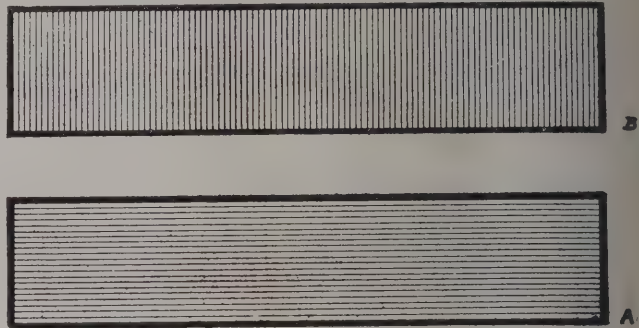


FIG. 55.

less height than B, and it needs either a very correct eye, or else some useful scepticism, to feel *assured*, without taking measurements, as to the equality in height of the two blocks.

It is patent to spectators of Greek religious edifices that their creators favoured a latitudinal effect, which may be taken, at pleasure, as a symbol of their polytheistic creed; whilst the loftier and more contracted effect of Mediæval Gothic church work will, on the same lines, serve to symbolise the loftier and more restricted ideals of the Christian religion. It will not, however, do to strain the application of these symbolismisms, as people are wont to do, for the probability is that merely accidental causes are responsible, amongst which methods of construction take a prominent position.

That very sensitive and fine organ—the eye—is capable of being deceived by the simplest expedients. If it can manage to see objects awry, it will do so in eight cases out of ten; in the *two* cases, the lucky possessors vaunt themselves on having a "very correct eye." It would be difficult to find anyone envious of POLYPHEMUS, but doubtless he was less afflicted with optical illusions than are most people.

It may be frequently noted, and more especially amongst artists, that one eye is closed on occasions when correct perception of an object is desired.

In an earlier chapter, remarks have been made as to the artistic means of correction for optical illusions, and reference is also made to the extracts from VITRUVIUS (given in *Appendix B*). Of course, it is finally an optical illusion that makes the *corrective* measures *seem* correct.

Disproportion is of rare occurrence (comparatively, be it understood) in the domestic work that falls to the lot of the average architect to design. In public buildings, however, and in palatial mansions as well as the American "skyscrapers," the point should receive due consideration. The undesired effects can be modified to a nicety, according as more or less contrast is given. As VITRUVIUS notes in the course of his writings, some results are obtained by genius only, learning being useless for the purpose; so it is under these circumstances, and it is impossible to give exact directions for the correction of ill-effects—each case must be treated on its merits.

One example brought to memory is a building that, in design, proved difficult of treatment, as it was necessarily

(from various causes) long and low—too low for dignity, and impossible (for reasons of economy) to make as high as desired; however, by the judicious use of breaks and

arcading, so as to obtain a greater proportion of vertical lines, and by appropriating a few feet extra height of walling than the rooms really justified, a tolerable result was achieved. In general terms a latitudinal effect is restful in appearance, a lofty one, fatiguing, due to the fact that the eye can travel more comfortably along its own level than *solo usque ad cælum*.

The repetition of ornament in a latitudinal direction, though tending to emphasise the breadth, is not necessarily restful in appearance; nor does the repetition of vertical features necessarily prove wearisome to the eye. In the former case so much monotony may be introduced as to cause fatigue; and in the latter case the repetition of vertical features latitudinally will naturally tend to carry the eye in that direction, and thus may counteract what might otherwise prove a distracting effect.

Chimney-stacks multiplied indefinitely (or to a large extent) are very disturbing influences, even when of the picturesque type made familiar by WOLSEY'S Palace at Hampton Court (see fig. 56). To conclude this chapter some illustrations are given of gable treatment, this being a feature that lends itself readily to the demands of unity, variety and contrast (fig. 57).

(To be continued.)

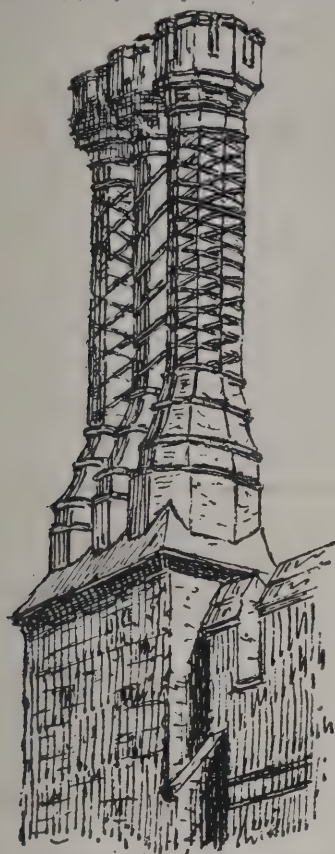


FIG. 56.—CHIMNEY STACK, HAMPTON COURT.

FIRE PROTECTION AND LEGISLATION.

BUNSEN, the historian, relates how, once in Rome he was present at the burning of a building which caused much excitement among the populace. The crowd shouted and gesticulated, but nobody dared to meddle with the flames, which, in consequence, extended until everything was consumed. The cry was *Tocca al governo*, or, in other words, it is the business of the State, not of the people. In Rome the government was of the old-fashioned paternal sort, and was expected to devote some attention to



FIG. 57.

fires, or rather, out of pity, to give compensation to sufferers. But in other countries for accidents of the kind, however serious, there was no responsibility accepted by the State. The indirect character of the Acts of Parliament relating to protection from fire in this country is enough to suggest that as fires are supposed to owe their origin to the carelessness of individuals, it is not the duty of public authorities to provide remedies against the results. It is now beginning to be perceived that such *laissez-faire* policy is not universally applicable. There is a possibility of a reaction, which from its comprehensiveness may do as much harm as good. When we find it is contemplated in New York to make regulations about the use of matches in houses, and children are to be liable to punishment for interfering with them, we may conclude that panics are not far off, and the remedy may become as undesirable as the evil.

The Society of Arts, that generally affords means for indicating the state of public opinion on many matters, at last week's meeting was occupied with a consideration of the "Existing Laws, By-laws and Regulations relating to Protection from Fire, with Criticisms and Suggestions." The Fothergill Prizes had been offered for essays on the subject, and the three which were successful were read at the meeting. The first prize was awarded to Mr. T. BRICE PHILLIPS, sanitary inspector to the Uckfield Urban Council. His success is enough to show that the interest in the question is not confined to cities, but has made its way to the smaller towns and country districts.

We have said that the statutes relating to the subject were of an indirect character. This is evident from a glance at the list given by Mr. PHILLIPS. The Acts treat of lighting and watching, waterworks, town police, Poor Law amendment, petroleum, public health, local government, factories and workshops. In only two instances is the connection with fire apparent. One is the False Alarms of Fire Act, the other the Parish Fire-engines Act. It is claimed, however, that by fourteen statutes local authorities are invested with power to provide out of public funds the necessary appliances for protection from fire, to exercise control over the erection of new buildings, as well as power to secure that such buildings are erected in a substantial manner, and that incombustible materials are used as far as is practicable. In spite of the Acts everyone acquainted with English towns is aware that in many of them the extinction of fires depends on the efforts of amateur or voluntary fire brigades. At the same time we believe with Mr. PHILLIPS that the latest Acts indicate a sure though gradual tendency to place upon local authorities more onerous duties in the matter of protection from fire. That circumstance is further shown by the increase in the amount of loans received by local authorities for fire-engines and other appliances (including fire-stations), which has varied from 29,311*l.* in 1884-85 to 161,517*l.* in 1899-1900. The outstanding loans of the local authorities under the same head show a progressive increase from 308,508*l.* in 1884-85 to 1,014,679*l.* in 1899-00.

There are also some local enactments in which the vagueness of the general statutes is amended and a definite applicability is substituted. Liverpool, for example, possesses Acts which deserve to be followed in other places. They relate to the construction of warehouses, the registration of warehousemen and porters, &c. There is one important Act by means of which all extraordinary expenses of the fire brigade incurred at fires have to be paid by the insurance companies who have issued policies covering the property attacked, and by the proprietors of uninsured property attacked. A special Act, known as the Factory and Workshop Act, which was intended to be a model in its way, has to some extent become inoperative owing to its resemblance to the old statutes, for the County Council of London discovered that an authority cannot legally insist on the construction of staircases in buildings which are subdivided. A somewhat similar obstacle arises to the operations of the Public Health Act of 1875. Urban authorities are empowered, as Mr. PHILLIPS says, to make by-laws with respect to the structure of walls, foundations, roofs and chimneys only, and this limitation precludes any further preventive measures being enforced in upper storeys. If the increasing risk from fire in the higher parts of buildings had been kept distinct from the

question of stability, it is probable that the necessity of making by-laws for the inner constructive details of upper storeys of buildings would have become more apparent, and that some minor risks, now entirely unprovided against, would have been minimised. The object of the Public Health Act is said to be the securing of stability, the prevention of fires, besides "purposes of health." Stability is obtained by ordering greater thickness for the lower walls of a building, but as there is most danger when fires break out in the upper parts, the regulation would in reason require to be reversed. Then, again, whenever incombustible materials are prescribed for use, a perfection that is almost unattainable is supposed to be within reach. Flammability seems to be a universal property. The defects in the language of the statutes relating to fire prevention reveal how little attention was given to the subject when they were passed. But as long as they remain un-amended the Acts must be respected in the courts.

It is, of course, difficult for any individual to outline a scheme of legislation which will secure greater efficiency in the prevention of fires than is now possible. Mr. PHILLIPS prudently suggests a number of subjects which should be taken into account by authorities. He advocates, in the first place, a general inquiry into fire-preventive laws, as distinct from laws as to fire extinction, and as to any modification required in the powers given to local authorities to make by-laws for the prevention of fire in buildings. Among the questions which could be taken up are the desirability of making laws and by-laws retrospective when they relate to protection from fire, the appointment of fire inspectors, the conveyance, storage and sale of inflammable goods, lamp accidents, protection from fire of theatres and places of public resort, the obtaining of contributions from insurance companies and owners towards the expenses of protecting buildings and property, the creation of a public fire department to supervise the administration of fire laws, with such subsidiary questions as the position of volunteer fire brigades, foreign measures for protection, the training of children how to act in panics and outbreaks of fire, &c. Here we have an array of projects that is enough to scare legislators who now profess to be harassed by an excess of labour.

It is a misfortune that people are disposed to undervalue the losses which arise by fire in this country. It will sometimes happen that towns and districts of cities may have enjoyed an immunity from conflagrations during several years. It is therefore concluded that with ordinary care fires are an impossibility. But when we find that during the five years, 1898-1902, the average losses in less than fifty companies amounted to 11,949,969*l.* a year, and that the average yearly expenses were 6,763,162*l.*, it becomes evident what great financial interests are at stake. There are people who consider that destruction is an advantage, like the good uncle of whom J. B. SAY, the French economist, speaks, whose practice it was to break the drinking-glasses after a meal, believing that it was only fair he should afford other men a means of living. That is a very narrow view of sociology. It is a confounding of the general with the particular. Because a fire may bring a profit to a few, the misery which arises to others is obscured and neglected.

It must be allowed, however, that the methods of calculation adopted in the determining of premiums is not favourable to the production of one means of aiding in the prevention of fires, viz., sound construction. It is no doubt for the convenience of insurance societies that a system of average rates should be accepted, and the amount charged in most cases is, if compared with the risks incurred, remarkably moderate. But property owners cannot help coming to the conclusion that a man who builds a flimsy house is wiser in his generation than the man who employs only the best materials, for while there may be an enormous discrepancy between the outlay in both instances the two are treated on the same terms in the tables of most insurance companies. An accident may arise as easily in one house as in the other, and taking all things into account the advantages seem to be in favour of the man who patronises flimsiness to as large an extent as by-laws will admit. It is that sense of seeming unfairness which is at the bottom of general indifference to security against fire. The remedy for it is not easily discovered.

No system of insurance, although it may be supposed to be derived from that in use for ships at Lloyd's, has yet been devised which will meet all the inequalities of construction, and yet all experts know that the influence of insurance is so vast, it must be reckoned as the principal factor in the majority of measures for coping with fires.

MANCHESTER SOCIETY OF ARCHITECTS.

THE sessional meeting was held on the 12th inst. The prizes were distributed by the president, Mr. Alfred Darbyshire, to the students who had been successful in the various competitions of the past year.

The names of the winners of the last competitions were announced as follows:—For the design for the cover of the new sketch book, Mr. J. Harold Gibbons; Mr. Holden's prize for a design for a free library, Mr. Harry Moss; the monthly class of design for a market hall, Mr. Harold Hill and Mr. C. H. Potter, bracketed equal.

A paper was then read by Mr. Isaac Taylor on the students' work of the past year. The drawings, some sixty in number, were hung round the room. Mr. Taylor congratulated the Society on the excellent work to be seen in the room, and urged students who did not at present enter into these competitions to give their attention to them in future. The Society gives about 40*l.* a year in prizes to be spent in books, so that, besides the useful training, here was an excellent opportunity of establishing a first-class library. A further prize of 5*l.* 5*s.* was this year offered by Mr. J. W. Beaumont for sketches and measured drawings suitable for publication in the sketch book, which it was hoped to make a first-class publication.

Turning to the sketches exhibited Mr. Taylor, whilst realising the value of artistic sketching, thought that an architect's sketch book should have far more outline diagrams, with sketches to large scale, of details and mouldings. There should be less of the photograph-like general views that students were so fond of making. The importance of measured work was also insisted on.

The lecturer then gave a short criticism on each of the drawings.

Mr. J. W. Beaumont, in proposing a vote of thanks, spoke of his great interest in the forthcoming issue of the sketch book, and pointed out that it rested with the students to make it successful.

Mr. H. B. Laycock thought that some of the conditions for the competitions should be more explicit, instancing the cottage hospital, where it was not stated whether day-rooms, operating-room or accident ward were to be provided.

Mr. Salomons also spoke, and the lecturer briefly responded.

CORONATION STANDS.

AT the Southwark County Court, London, on Monday, his Honour Judge Addison, K.C., concluded the hearing of a remitted action in which Mr. H. D. Earl Earl, an architect, of Worthing, sued Messrs. Pattenden & Co., sack and bag makers, of Bermondsey Street, S.E., to recover 50 guineas, balance of a sum of 200 guineas, fees for work done as architect for the defendants, under a contract for the erection of a stand in the churchyard of St. Clement Danes Church, Strand, for the Coronation procession. The defendants counterclaimed the sum of 65*l.* 10*s.*, being 15*l.* 10*s.*, fees paid for plans which it was alleged were wholly useless, and 50*l.* for loss sustained through the plaintiff's alleged negligence.

The plaintiff's case was, says the *Sussex Daily News*, that when Mr. Pattenden hired the churchyard on which to erect a stand he, as the result of an introduction by the Vicar, submitted plans for the erection which he had prepared beforehand. They were seen by Mr. Pattenden and his builder and accepted, and a contract was entered into to pay him 200 guineas for his services as architect, and 5 per cent. on the net profits of the letting of the seats. The plans were submitted to the Westminster Corporation, who approved them, and the work was proceeded with. The builder, however, during its progress made alterations, with the result that the rake of the tiers was considerably varied, and the number of seats was lessened, while another 200 seats were done away with by Mr. Pattenden insisting on the provision of intersecting gangways, which were unnecessary. He complained to Mr. Pattenden of the action of the builder, but all he could get from the defendant was that he (defendant) was practically in the hands of the builder through want of money, and he (plaintiff) must get the best he could out of him. Had the stand been erected according to his plans and specifications, the full number of seats could have been provided, and every occupant would have been able to have got a good view of the procession. The defendant insured against the procession not taking place, a contingency that actually occurred, and he was

paid 6,000*l.* by the insurance company, but he refused to pay the 50 guineas owing to him (plaintiff).

The plaintiff was corroborated by two district surveyors as to the practicability of his plans, and as to the uselessness of intersecting gangways.

Mr. Pattenden indignantly repudiated the suggestion that he was in the hands of the builder, and emphatically denied that the plaintiff ever complained of the builder's work or action. The gangways were absolutely necessary, and their inclusion meant a loss of 200 seats, which represented 800*l.*, taking an average price, a matter he had not bargained for when fixing the price of the seats. When the stand had been erected he (defendant) discovered that a large number of seats did not command a view of the centre of the roadway, while rows had been left out. The plaintiff put it down to the bungling of the builder, but witness pointed out that the man could not have deviated from the plans if he (plaintiff) had looked properly after the job. After the procession had been abandoned the plaintiff practically promised not to say anything about the remaining 50 guineas.

Thomas Elkington, the builder, and his foreman declared that all the alterations made were carried out after consultation with the plaintiff and with his consent, and they proved a great improvement in his original plans, although they did not entirely overcome all the defects.

Two architects gave evidence to the effect that a large number of the seats as shown on the plaintiff's plans did not command a view of the centre of the roadway.

Another witness declared that when he remarked about not being able to see the road from certain seats, the plaintiff said he had made a mistake in his plans and was worried to death, while he had not had any sleep for a fortnight through it.

After a long hearing, which occupied two whole days, his Honour said he was convinced that Mr. Earl was a very competent architect and thoroughly understood his business, but by some unfortunate mistake his plans were such that when the stand was erected, even after alterations approved by him, there were many seats which did not command a view of the roadway along which the procession would have passed. That was a most serious defect in the plans, and he considered in view of that, that the amount the plaintiff had received was sufficient. As to the counter-claim, he would strike that out and not go into the reasons for doing so. He therefore gave judgment for the defendants on the claim, with costs, and with the consent of the defendants struck out the counter-claim. Judgment was entered accordingly.

HAMPTON COURT PALACE.

IN consequence of the recent malicious damage done to the valuable tapestries in the Great Hall at Hampton Court Palace, the origin of which has not yet been traced, His Majesty's Office of Works has ordered several of the State rooms which are not immediately under the control of the officials to be closed. These rooms are the small chambers leading out of the Great Hall, where the tapestries were cut; the Prince of Wales's drawing-room, Cardinal Wolsey's closet, and another apartment in the Tapestry Gallery. These apartments are so situated that it is impossible for the attendants to exercise proper supervision over them without withdrawing themselves from other rooms under their care, and it has been thought advisable to close them for the present until the staff of attendants has been increased, a course which His Majesty's Office of Works, it is understood, have now under consideration. The decision is regarded as a wise one, as each of the rooms in question contains paintings and tapestries of almost priceless value, Cardinal Wolsey's closet containing the only painting of the famous cardinal in the Palace.

LIVERPOOL ARCHITECTURAL SOCIETY.

A MEETING of the Liverpool Architectural Society was held on Monday evening in the lecture-room of the Incorporated Law Society's offices under the presidency of Mr. Thicknesse. An interesting paper on "Ancient Churches of Wirral" was read by Mr. Laurence Hobson, who pointed out that one of the characteristics of the Wirral churches was their massive square towers. The quaintest church in this particular district was that dedicated to the Holy Cross at Woodchurch, the site of which probably once contained a wooden edifice; the most picturesque in its situation was tae Shotwick church; while from an architectural point of view St. Andrew's, Lower Bebington, was imbued with the greatest interest. At West Kirby it was likely that the church existed in Saxon times, while the Neston Church tower probably belonged to the early part of the fifteenth century. The paper, which was listened to with great attention, was excellently illustrated by limelight views, and at the conclusion a hearty vote of thanks was accorded to Mr. Hobson.

NOTES AND COMMENTS.

It is satisfactory to know that international enmities do not become an obstacle to archaeological researches. Since 1768 Corsica is French territory, but notwithstanding, the island is about to be the scene of explorations by Germans under the direction of Dr. WILHELM VON LANDAU. The island was known in antiquity, and was a settlement of the Phocæans. By the Romans it was employed as a penal settlement, for the climate was supposed to be equally fatal in summer and winter. It is evident, however, there were inhabitants in Corsica at a far remote period, for one of the objects which has inspired the German expedition is the prehistoric dolmen near Bastia, which has already yielded many flint implements. There are, too, Roman remains which deserve more careful examination than they have hitherto received. The island was occupied by Iberians and Phœnicians, and information about the latter, although abundant, could well be supplemented by evidence which it is expected will be forthcoming. Altogether much may be anticipated from German investigations, and it is creditable to the French that they have given the opportunity to their rivals to utilise so promising a region.

It may not be generally known that photography is now utilised for reproductions of the oldest manuscripts for the especial advantage of philologists and palæographers who are doubtful about the fidelity of versions which have been issued from the most renowned printing presses. M. SIJTHOFF, of Leyden, has distinguished himself by his copies of the Codex Sarravianus-Colbertinus, the Codex Oxoniensis Clarkianus, the Heidelberg "Plautus," the Venetian "Homer" and the Florentine "Tacitus." They are only parts of the texts which will be comprised in the great undertaking, "Codices Græci et Latini Photographice Depicti," which is in course of publication under the direction of the scholarly librarian of Leyden, Dr. SCATO DE VRIES. The "Terence" which is about to appear will not only present the text of the manuscript in the Ambrosian Library of Milan, but also other versions. The comedies, being limited in number, are well adapted to exemplify the variations which were introduced by copyists from time to time in ancient works, although all professed, like St. AUBIN's translation, to be "rendues tres-honnêtes en y changeant fort peu de chose." Among the authors whose works it is contemplated to reproduce we do not find any mention of VITRUVIUS. It is true the Oxford manuscript dates only from the beginning of the fourteenth century, but it is believed there is one in Spain, and it may be others elsewhere.

THE report of the directors of the Builders' Accident Insurance, Ltd., for the past year states that the company during that period received notice of 1,037 accidents. There is a slight reduction on the premium income owing to the directors declining to renew some heavy risks which were found to be unremunerative. The new business has exceeded that of the previous twelve months by nearly 25 per cent. The assets of the company amount to 28,432*l.* 2*s.* 8*d.*, of which 26,789*l.* 14*s.* is represented by investments in Consols and the following stocks:—Metropolitan Consolidated, Liverpool Corporation, West Middlesex Waterworks Company, Eastern Telegraph Company, Great Eastern Railway Company, India, and London County Council. The claims have been 10,340*l.* 4*s.* 7*d.* The company is in a satisfactory condition and is well able to meet any demands which may be made upon its funds.

THE name of M. LÉON-JEAN ROUX is not familiar to students of French architecture as the designer of important buildings; but he must somehow have been able to acquire wealth, for it is said he has bequeathed to the Académie des Beaux-Arts a sum of 800,000 francs, or over 30,000*l.* of English money. Such a gift is unprecedented. The income is to be applied to the creation of annual prizes in painting, sculpture, architecture, miniatures and illuminations, which will commemorate the names DESTOUCHES, DELARGE and ROUX. The academy already possesses several funds for similar purposes, but the capital in each case was inferior to the amount bequeathed by M. ROUX.

ILLUSTRATIONS.

GROCERS' HALL, PRINCES STREET, E.C. THE STAIRCASE.
NEW SCHOOL, OAKBANK, FOR THE KIRKNEWTON AND EAST
CALDER SCHOOL BOARD.

ST. COLUMBA CHURCH, BLACKHALL.

THIS new Established church is about to be erected on a prominent corner site on the Queensferry Road. It is designed in the Norman style, the exterior being very simply treated in a manner characteristic of Scottish Mediæval work. The main entrance is in the tower, which is large and square on plan, and is finished with an octagonal stone spirelet. The plan consists of a nave, with a semicircular apse and two side aisles, one of which contains a gallery. Part of the north aisle is increased in width to form a chapel with an apsidal termination. The semicircular domes of the apses, which form important features of the interior, it is proposed to richly decorate with mosaic or fresco. The rest of the interior will be finished in stone; the roof will be open to the ridge. The church will accommodate 900 persons. The halls and offices are grouped at the east end of the church around a garth. The large hall accommodates 345 persons.

The total cost will be between 7,000*l.* and 8,000*l.* The architect is Mr. P. MACGREGOR CHALMERS, I.A., of Glasgow. The drawing illustrating this church is by Mr. J. JEFFREY WADDELL.

DESIGN FOR A COUNTRY RESIDENCE.

PICTURESQUE IPSWICH.

IPSWICH is full of historical and topographical interest to the antiquarian. It contains a larger number of old mansions than perhaps any other town of similar magnitude in the kingdom. Much of Ipswich was built in the fifteenth and sixteenth centuries, and several buildings of that period are still standing, proving their antiquity by their Tudor red-brick mouldings and their panelled interiors. The town was surrounded by a wall and ditch, and protected by a castle, not a vestige of which now remains. The very site is a matter of uncertainty. Although the castle is gone, many rich architectural treasures remain, and the most distinguished of these is the house of Mr. SPARROWE, situated in the Old Butter Market. It was built for one GEORGE COPPING in 1567, and was sold by him to the SPARROWE family, in whose possession it has remained. The house is a unique specimen of "pargetting," or plastering. The whole of the exterior is profusely ornamented with plaster reliefs of animals, fruits and flowers. The interior contains several fine rooms rich with carving, inlaid doors, Tudor mantlepieces, carved beams, great fireplaces with chimney corners, &c. On the first floor a room extends over the whole of the front part of the house. In this richly decorated apartment hang many old paintings. In 1801 discovery was accidentally made of a fine old loft, which proved to have once been the roof of the oratory in Catholic times. According to a tradition in the SPARROWE family CHARLES II. lay hid here after the battle of Worcester. A portrait of CHARLES by VANDYKE hangs in the great room and among others by great masters is one by GAINSBOROUGH of JOHN SPARROWE, thirteen times mayor of Ipswich. Another interesting mansion is that of Christchurch. Erected originally in the third year of EDWARD VI., it has the usual characteristics of the Tudor style—built of brick, richly moulded and standing on three sides of a court. It is situated in a park of great beauty, and in this park is a bowling-green where CHARLES II. once played a game when on a visit to Viscount HEREFORD, the then owner of the estate.

As the visitor proceeds down College Street he comes upon the noble gateway known as Wolsey's Gate. The great Cardinal was a native of Ipswich. This was one of the many entrances to his college, probably a building of great magnificence, in accordance with the taste in architecture which this prelate possessed. Over the doorway are the arms of HENRY VIII. The date of this doorway was probably that of the erection of the college, 1528. The old town abounds in interesting historical curiosities, ancient inns, fine churches, in which lie many monumental brasses, and, as a specimen of obsolete methods of correction, the old ducking-stool is still to be seen with its companion, the stocks.

INSTITUTE OF BRITISH ARCHITECTS.

MEETING of the Institute of Architects was held on Monday evening last, Mr. Aston Webb, A.R.A., President, in the chair.

The Late Professor T. R. Smith.

THE PRESIDENT said he regretted it was his melancholy duty to announce the death of another very distinguished member of their body, Professor T. Roger Smith, who had been present that day. They all knew him very well and they loved him very much. He was elected an Associate in 1863, and it was not too much to say that a member of the Institute from that time took a more active part in the work that they had carried out. He was a student of architecture and a very learned and modest man.

His practice took many forms, and various branches of it engaged his attention, but whatever he did he did with intelligence. He had held nearly all the posts in the Institute, and was district surveyor for West Wandswoth. He was besides the author of several works in reference to architecture, and many of the younger members of the profession had passed through his hands as professor of architecture at the London University. In conclusion, the President gave a vote of condolence and sympathy with the relatives of the deceased.

The vote was passed in silence.

Mr. CHARLES HADFIELD read a paper entitled

Westminster Cathedral.

He stated that the idea of erecting a cathedral for the diocese of Westminster originated with Cardinal Wiseman some months before his death in February 1865. The project was taken earnestly in hand by his successor, Cardinal Manning, and in 1884 the present cathedral site, consisting of four acres, upon a portion of which had previously stood the Tothill Fields Prison, was acquired for a sum of £100,000. Cardinal Manning died in January 1892, leaving the duty of raising the edifice to his successor, Cardinal Vaughan.

The idea of erecting a great basilican church, an attempt to reproduce old St. Peter's, was abandoned as impracticable, with it the competitive system of getting a design. In 1894 Mr. J. F. Bentley, who had expressly declined to take part in any competition for the building, was asked to take the designing of the cathedral and consented. Prior to beginning the work he spent some time in Rome, and visited St. Mark's, Venice, and the group of churches on the Venetian coast which had been influenced by the Sta Sophia at Constantinople. He admitted that the buildings at Ravenna first led him to decide on the forms and treatment of what was to be in his mind. On returning to London in March 1895 he rapidly prepared the plan, with an internal area of 54,848 square feet, of a great Byzantine cathedral which, in the general lines of the design, had been long maturing in his mind. Later, a model was prepared, one forty-eighth the size, executed in Kauri pine. The foundation-stone—a Cornish granite 5 feet by 3 feet and 2 feet 8 inches—was laid on June 29, 1895. The Byzantine, instead of the Gothic style, had been decided on after much deliberation. The question of cost weighed heavily against a Gothic design. Modern appliances a Byzantine cathedral of brick would cost within three or four years with the means at command, leaving the marble and mosaic decorations to be added later, and the necessary funds were available.

They himself fully concurred in the decision. "I am not attempting a new style," he said, "that is impossible; but, as far as I am able, to develop the first phase of Christian architecture." His plan of the cathedral, Bentley maintained, was not that of the eastern church of the Justinian era, but an example of what might have been unfolded had the decadence of the Roman Empire terminated the growth of congregational requirements in the East. The plans of St. Peter's and St. Basil's, Constantinople, or of St. Vitale, at Ravenna, both of about the same age, it was evident were suggested from a liturgical rather than a congregational standpoint, while the church of St. Mark, Venice, erected by four centuries later, indicates a marked advance in the direction, showing clearly the course the development was taking.

The church is not orientated, the axis of the choir being directed to the south-south-east. This was demanded by the necessities of site and surroundings, and by considerations of lighting, &c. It was, moreover, in accordance with an ancient precedent where churches had to follow the lines of the streets and ways. An important factor in deciding the site and the foundations, crypt, &c., was the existence of a platform of concrete 9 feet thick, the foundations of the Tothill Fields Prison, which underlies a portion of the site in a diagonal line drawn from the north jamb of the great entrance portal to the south pier of the sanctuary arch.

Externally the cathedral has an extreme length of 360 feet and a width of 156 feet; the height of the nave being 117 feet, height of the façade (not including the turrets) 99 feet, height of the campanile 284 feet. Internally the dimensions are:—From the main entrance to the sanctuary, 232 feet; depth of the sanctuary, 65 feet, and of the raised choir beyond, 45 feet, making a total internal length of 342 feet; width of nave, 60 feet; width across the nave and aisles, 98 feet; and across the nave, aisles and side chapels, 148 feet; height of the main arches of the nave, 90 feet; and to the crown of the domes, 112 feet.

The architect's leading constructive idea has resulted in a great building of brickwork, set in cement mortar, covered by homogeneous concrete domes, vaults and flats, &c., without recourse to the use of steel or ironwork, and with a sparing use of oak timber in the roofs of the apsidal choir and the transepts, and of teak in the upper stage of the campanile, with a provision for the gradual completion of the interior by lining it with marble up to a height of 40 feet, and above that with decoration of mosaicwork.

Mr. Hadfield gave details of the materials used and particulars of the exhaustive series of tests to which samples of bricks and concrete were subjected by the architect prior to their selection in bulk for the work. The cement selected was "the best Goliath brand," and ground so fine that the residue on a sieve of 5,800 meshes to the square inch would not exceed 10 per cent. The brickwork of the footings was double the width of the walls above, the concrete below extending from 1 foot to 2 feet outside. Faversham stocks were used for the lining of the interior behind the future marble and mosaicwork, thin Bracknell red facings (under 2 inches thick) for the exterior, Fletton wire-cut bricks for the large piers, and the walls, Poole wire-cut bricks for the smaller piers, and hard vitrified blue Staffordshire bricks for the outside facing of the underground vaults and sacristy, and for the damp courses, set in nearly neat cement. No machine bricks have been used. English bond was adopted generally, the outer facing excepted. For internal facing stock bricks were used, being best adapted for adherence when coated with the bedding for decorative work. Portland stone from the Brown bed was selected for the external dressings; and a high plinth of fine-axed Penryn granite, in courses, set with a bold open joint, was placed at the ground level to resist the injury from traffic. Granite has been used for doorways and elsewhere with the same intent.

As regards the domical construction, the architect's idea had been at first to save much centring by using cast segments of a sphere and building them up into domes; but he afterwards abandoned this method for that of a homogeneous mass of concrete thrown on to a centring. The sanctuary dome alone is pierced, and there are twelve windows encircling it, with an ingenious system of counterforts flanking each opening. The marble monolithic columns are an important portion of the general scheme of colour decoration in the cathedral. Great care, skilful research and a large outlay have been incurred in procuring them. They have been presented by many benefactors. In St. Peter's crypt round the apex below the retro-choir they are of red Norwegian granite, with varied capitals of Hopton wood marble and Derbyshire marble bases. The columns on either hand of the nave, twenty-nine in number, are of verde antico from the Classical quarries lately reopened at Larissa in Thessaly; Greek cippolino from the island of Eubœa; Swiss cippolino from Saillon in the Rhône Valley, Languedoc; Italian breccia from Seravazza; grey granite from Norway, and the red granite which is not unlike ancient porphyry. These shafts, 13 feet long, each stand on a moulded base of Norwegian granite. The columns dividing the aisles of the Blessed Sacrament and lady-chapels from the sanctuary are of jasper and red Norwegian marble of lovely colour and figure. There are fourteen columns of pavonazzo in the sanctuary galleries.

The columns have delicately sculptured statuary capitals of Carrara marble, each varying in design, and were fixed in position after the main arches carrying the domes were completed and the superincumbent weight had taken its proper bearings. The baldachino above the high altar, on the design of which Bentley bestowed much care, will be constructed of statuary inlaid with mosaic, and it will be supported by eight superb monoliths of onyx 15 feet in length, procured from Africa after long search and inquiry.

Cast lead is used throughout, and the roofing and ridges are wrought with welshed rolls, while the finials have the individuality inseparable from Bentley's work. The windows are glazed with roundels and white translucent glass, with strong pattern leading. The steps of the circular newel staircases which give access to the crypt, galleries and roofs are made of hard artificial stone, composed of Portland cement and crushed granite. The outer covering slabs of the domes are of the same material. The flats and gutters about the domes and roofs are laid with asphalt. In the large windows Doulton terra-cotta tracery or lattices of a varied and piquant design have been made use of.

The heating is by hot air on Haden's system, to be supplemented by low-pressure steam-pipes in the galleries. Two

spacious heating chambers are provided in the basements of the Blessed Sacrament chapel and of the baptistery.

In treating of the design of the interior and exterior special attention was called to the arrangement of the nave arcading—a favourite feature with Bentley, consisting of the continuous treatment of the arcading along the full length of the nave to the sanctuary arch, without ignoring the crux arrangement of the transepts, which are thereby invested with increase of interest and mystery. This contributes to the perspective and proportion of the interior in a marked degree. The architect has also scored a success in the lighting. The tympanum of each of the main arches is pierced by a semicircular lunette of 25 feet diameter, fitted with delicate tracery, and below, between well-defined pilasters, a pair of windows is devised. The lighting is further happily emphasised by the twelve windows round the sanctuary dome. The perspective of the interior has obviously been focussed on the high altar and its covering, the baldachino, the supreme spot of sacrificial interest. Each bay of the nave holds in its lateral face the mystical number of seven arches, four on the ground level carrying the galleries, each 12 feet span, two secondary arches of 25 feet span, and the great archivolt “embracing and unifying the whole system.”

The principal or western entrance from the exterior flanked by the campanile, a composition extending 65 feet, and embracing in the great arch three doorways—the outer for the laity and the middle for the cardinal, archbishop and clergy—leads into porches attached to a spacious narthex the entire width of the church, terminating at one end with an entrance from the side street, and with the baptistery at the other.

The narthex gives access to the nave, 60 feet wide, divided into three bays of 67 feet each, covered with domes rising out of pendentives. The aisles, 15 feet wide, are separated from the nave by marble columns supporting a continuous groined arcade. From the easternmost bays of the nave transepts of unique and interesting design project with additional entrances. Two larger chapels open right and left out of the transepts, with side aisles giving access to the sanctuary and to the sacristies.

Over the sanctuary will be suspended a gilded and decorated wooden crucifix, 30 feet high, with paintings of Christ, the four evangelists and the “Mater Dolorosa”—this will be the dominant note of the whole interior. The baldachino, flanked by eight monolithic columns resting on pedestals taking a semicircular form, bears a marble canopy. The high altar is a solid block of Cornish granite, fine-axed over, 12 feet by 4 feet. On the left side is the marble archiepiscopal throne on its own dais, modelled after the ancient one in the Lateran basilica. The pulpit has been executed in Rome and is of marble, decorated with mosaics.

As regards decoration, two only of the side chapels are in a forward state of progress. In the chapel of SS. Gregory and Augustine the altar and marblework are completed and the mosaicwork is proceeding, while in the opposite chapel, that of All Souls, on the north side of the nave, the altar, with its reredos and pictures in *opus sectile*, is completed, and the finishing touches are being put to the mosaics of the vault and arches, which are from the cartoons of Mr. W. C. Symons.

Having described various works in hand or contemplated, the author drew attention to the working part of the cathedral—the sacristies, strong-room, stores, registry, &c. Working drawings of a marble flooring of great beauty and originality had been completed by the architect, a portion of which only is to be carried out.

The most striking feature of the building is the west front, with its deeply recessed entrance arch of 40 feet span enclosing the tympanum, which is to be filled with a mosaic picture. The entrance arch is 4 feet wider in its span than that of St. Mark's at Venice, and is planned in receding orders supported on columns whose entablature is carried across the entrance and beneath the three doorways, the doors for which are executed in teak, to be covered eventually with bronze plates. The upper portions of the front terminate again with domed turrets, and are flanked to the north by the campanile set back from the upper portion of the front. The latter has a delicate entasis. The upper portion is gathered from the square to an octagon crowned by a teak-framed cupola covered with lead, and terminates in the bronze archiepiscopal cross some 10 feet in height.

Mr. Hadfield concluded with a reference to the death of the architect. He had seen him the previous day at his office in the Adelphi, standing bravely at his drawing-table, and found him full of enthusiasm about the cathedral's progress. He showed him then the drawings of the great crucifix and the marble pavements. They were to spend the next day together at his home at Clapham Common; but in the evening Bentley had a paralytic seizure, and passed away in the early hours of the following morning.

Professor BERESFORD PITE, who proposed a vote of thanks for the paper, said the author had placed before them the last work of a beautiful and interesting life. Those of the pro-

fession who took heed of the progress of their art, had discerned that there was arising in their midst the work of a great powerful man. That the late Mr. Bentley was entitled to a tribute was evident since he had carried out a work in which there was not the slightest trace of the influence of the Victorian age in which he lived. How far the style of the work was justifiable was not for them to say; they must acknowledge the genius and be proud and thankful to those who brought about the completion. The ability of the architect was unknown to them, for Mr. Bentley's work as a Gothic architect had had mention in Mr. Eastlake's history of the Gothic revival. The extraordinary church at Watford showed that who had a grasp of Gothic forms and Gothic work, the cathedral at Westminster was a far cry from the church at Watford. In the work at Westminster the influence of the Gothic revival suddenly disappeared, and they found the architect had flung himself into Ravenna, of all places, for the imitation of a London cathedral. This change in his work and laying aside of tradition was a source of wonderment to those of to-day, and would be to others in later years. The style was original and without precedent, but characteristic of the age, because it proved that they could work without tradition. In conclusion, the speaker said the thought that would be pre-eminent in the minds of all intelligent architects and artistic persons was that the cathedral at Westminster was the work of a great man and the embodiment of a grand scheme.

MR. ALFRED EAST, A.R.A., seconded the vote, supported by Mr. W. J. MILLARD.

The PRESIDENT said they were all greatly indebted to Mr. Hadfield for his paper. There was no doubt the building at Westminster had caused an extraordinary amount of interest, but more especially to architects, because in church work they had to solve the problem of building an edifice for an ancient religion, and yet to conform the building to modern needs and requirements. Westminster Cathedral possessed more interest for the young architect than any other building that had been erected in recent years.

COMPETITIONS.*

(Concluded from last week.)

WITH regard to the much-debated question of the cost of producing the competition drawings, I will confine myself to the conclusion drawn in this matter by the special committee which sat to consider the subject of competitions in 1872. The report of this committee stated that the cost of producing competition drawings, irrespective of principal's time, was from $\frac{1}{4}$ to 20 per cent., or from 2*l.* to 800*l.*; and we know that there are sometimes 100 to 200 sets of drawings, each involving four to twelve strainers.

Professor Kerr recalls cases of 200 sets of designs for competitions in his day, and we most of us remember the Emanuel Church, Exeter, competition, where there were applications for the conditions, although, owing no doubt to the publicity which was given to the growing dimensions of the competition, only some 200 odd sets of designs were sent in, if my memory serves me rightly. I think I am right also in saying that the value of the building was only some 5,000*l.*, and that the cost of producing the drawings submitted in competition exceeded considerably the whole cost of the building. From this it is apparent that the competition for a building costing 9,000*l.* the drawings cost each competitor between 2*l.* and 800*l.* (my own personal estimate is 30*l.*, which seems a moderate one), so that we consider that in a competition for a building costing 9,000*l.* the cost of producing the drawings would be 1,200*l.*, which is nearly three times the sum which would be paid by the architect by way of commission to the architect for design and carrying out the works, and it not unfrequently happens that the cost of producing the drawings in competition for a building exceeds, as in the case of the Emanuel Church, Exeter, the whole cost of erecting the building itself.

I have found that the value of buildings advertised in the years 1894 and 1895 was 540,000*l.*, which is a sum of 270,000*l.* in each year, and in 1858 Mr. George Morgan found that in the previous year, a year of depression in the building trade, public competitions were advertised for buildings estimated roughly to cost 300,000*l.* I may also say that I have it on the best authority—the authority of a gentleman whose opinion would hardly question in this matter—that at least half of the architectural competitions are not advertised in the *London Papers*, so that we may decide that the value of buildings advertised in competition in one year in England amounts to no less than half a million.

The cost of producing drawings in respect of buildings, deduced from the figures I have already given

* A paper read before the Architectural Association by Mr. Cresswell on Friday evening, March 6.

000%, estimating the average competition at 9,000%, and been shown by Mr. Porter that the waste drawings pre- in competition during the twenty-five years previous to ar 1872 if laid edge to edge would pave the way from the top of this house we are now in to Grantham, and if laid ne on top of the other would make a tower 1,000 feet r than the highest mountain in the world. I may add have tested the equation to satisfy myself that it is the ngs themselves that would afford this impressive spec- and we may not cajole ourselves into a belief in archi- al competitions on the ground that this monument to our s composed of wooden strainers.

entlemen, it has been objected that the cost of producing competition drawings should not be considered as lost to ofession, as the bulk of the money passes from the pockets senior to its junior members; but to say this is to e the old economic sophistry which, on the ground that mercial prosperity relied on the circulation of money, used vocate that it would benefit the country to break all its ws once a month—or, let us say, benefit the glaziers that should break their own windows.

ne difference between profitable and unprofitable labour not be urged here, but it may be pointed out that if it vantage to the profession to produce nearly 65,000% worth aste drawings in every year, it would still more greatly it the profession if such drawings when completed were iced as an offering to our common weal, and new sets red for sacrifice in the moils of competition. The atages of competitions as traced by some would then be ed

always feel that we do not fully realise the significance of facts, and perhaps you will bear with me if I draw the arison in the form of wasted labour instead of wasted y. If we estimate the proportion of the total of 65,000% yearly on waste drawings, and which is paid away to htmen, at 58,500%, which is nine-tenths of that sum, and der the average draughtsman as paid at the rate of 2% week, we find that there are in England alone at this ent some 600 healthy persons closely employed solely in roduction of drawings the destiny of which is not in any so useful as to line the footpath from here to Grantham; it is our profession that provides and maintains these men is distinguished purpose. Competitions account for 600 numeraries in our profession—600 more architects and ntial architects than can be distributed in the legitimate ess of designing and erecting buildings.

With reference to some of these figures of mine and cor- vative figures derived from Mr. Porter's historic paper on subject at the Congress of 1871, which I made use of in my ous paper, Mr. Aston Webb, who was then present, and spoke, seemed much depressed at the depreciation of etitions implied thereby, and said that he remembered Mr. r very well, and it should be remembered that that gentle- himself very often took part in competitions, and although, ding to statistics, competitions had such disastrous results, as a competitor on a good many occasions. It was ssible to check the statistics either of Mr. Porter or of Cresswell, and, as had been said, there were such s as "lies, big lies and statistics." Now, gentlemen, ne may check my figures who cares to give a certain inconsiderable number of hours to the advertisement s and news paragraphs, and as to Mr. Webb's facile of the word "lies," I believe Mr. Porter's reputation is vulnerable to irresponsible aspersions of that sort as my is untouched by them. However, I will say no more on matter. Some people are not so sensitive or so circum- in making implications of falsehood as others. In fact, aware of a class of people wherein one man will call er a liar with the idea of conveying friendly congratula- . But what I do strongly protest against is that we should o blindly concentrated upon our own personal interests so consumed in self-laudation that we grudge to extend a deration to the subject which may show that the con- ent way for us individually is not the best way for us ctively.

once heard a young man referring to competitions as a young man's friend." What he wanted to say was, n a young man, and have just won a competition." en who win competitions have to rely upon winning etitions. It is exactly this personal, circumscribed, dicated attitude towards competitions which has kept us all eighty years and more in hopeless quandary, and surely Porter was perfectly justified in competing while yet con- cing the system under which he competed, and his ounced expressions of opinion and the evidence of his against competitions gives special value to the proposi- of his paper, and greater importance and weight to his r depreciation of the whole principle of competitions by n of his conviction being aloof from any personal pro- ies. Personally may I say that I have never entered for competition for the reason, as I believe, that I am

deficient in British sporting pluck; but I should not hesitate to do so if it seemed profitable or amusing, or I found myself in circumstances advantageous to success.

The framing of competitions and the enactment of com- petitions is, as I would insist, purely a matter of business and of commercial enterprise. Upon no other basis is their exist- ence intelligible. There is no question of philanthropic motives existing, nor of a mutual scheme for mutual benefit, that I ever heard of. The conditions of competitions as now drawn up may be, in general, very fairly described as a sham legal instrument. It is a sham form of contract wherein the obliga- tions of the competitors are clearly and exactly defined, and the obligations of the promoters set in such loose, ambiguous terms as render them open to any interpretation that subse- quent events may show to be most profitable to the promoters. The conduct of a public or limited competition is clearly a matter of contract, and it is the business of each party to see that his interests are properly protected in the terms of that contract. It is therefore weak and futile for competitors to persistently cry out and protest when they find that they have the worst of the bargain. It is usual in such cases for us to charge the promoters with having broken their word, and with having falsified their explicit undertakings; but surely redress for such injury as is here claimed lies not in the oblivion of the sympathetic columns of the professional press, but in an action in the High Court. The truth is, however, that it is very rarely that promoters of competitions go back on their precise undertakings, or falsify their explicit promises. This, I observe, is not for any fear of consequences or for conscientious scruples, but for sheer lack of any precise undertakings to go back upon, an utter dearth of any explicit promises to falsify. When an assessor's award is set aside, or when the winner of the first premium is supplanted in his commission to do the work, there are invariably protests long and loud; pathetic appeals to common honesty and fair treatment from us poor architects, who forget our greedy rivalries for the moment, and are bound in one common sympathy of discontent.

We are continually complaining that it is unfair and an indignity to the profession to expect architects to compete when no professional assessor is employed. Yet 50 per cent. of the competitions advertise no professional assessor. Instead they advertise the absence of a professional assessor. Never- theless, we respond to that invitation with our modest waggon- loads of elaborate drawings. We exclaim that it is an affront to offer a premium and to merge it in the commission. Yet we hustle each other to share in that affront, and the enthusiasm with which we respond to the invitation of the promoters might naturally be expected to further reduce the small pro- portion of twenty-two competitions in 100 which still omit to expressly stipulate that the premium shall merge in the commission.

We protest, and take frequent published occasions to flourish the fact in published printings, that the reason we compete and the only inducement to our entering into the com- petition is that we shall be commissioned to carry out our work and complete the execution of our design. We declare that the premium offered is not a provocation to compete, and we say that, with few exceptions, the premiums are inadequate to repay the cost and the trouble of producing designs and draw- ings, and, nevertheless, in spite of these forcible exclamations, I find that in the two years 1894 and 1895 that in 54 per cent. of competitions there was an express stipulation that the pro- moters did not bind themselves to accept the first design, and in 35 per cent. that they did not bind themselves to accept any of the designs, and in none of the published conditions was a promise made to accept a prize design, nor do I recall any case in which the conditions have contained any such undertaking, although I fancy there may have been a few such cases. And there is no instance, I am convinced, nor will there ever be while competitions are promoted by sound-headed men, of the guarantee being given that the assessor's award shall be bind- ing in respect of the commission. In spite of this bland indifference of our avowed and advertised principles on the subject of competitions, do we depreciate these competitions by standing apart, or are we not rather to be held accountable for the existence of such conditions by our persistent and boisterous participation in them?

The 5 per cent. commission is stipulated to include quan- tities or extraordinary expenses in 16 per cent. of competitions. The premiated drawings are to be the property of the pro- moters in 77 per cent.; the written rules and the unwritten rules of the profession are frankly ignored, and we give our approval to this state of affairs in the most emphatic manner possible, and proceed to keep this monstrous thing alive and healthy amongst us in the face of rebuffs and affronts.

The very assessors, who are selected from the pick of us to advise the promoters, themselves become parties to and elaborators of these very usages which we have never found words enough to deplore and execrate.

It has even happened that architects and members of the Institute have acted in the capacity of assessors in competi-

tions where the conditions were not in accordance with the suggestions for competitions published by the Institute; and in thirty-two sets of conditions of competition, which I took as they came to hand from the portfolio kept at the Institute library, I find that out of the twelve cases which provide for the appointment of an assessor no less than eleven stipulate that the premium shall merge in the commission, that ten state that the premiated designs and drawings are to be the property of the promoters, and that in every single case there is an express clause relieving the promoters of responsibility to accept the prize designs, and in one instance of a competition for a 5,500/- building with a first premium to merge in the commission, it is stipulated that the 5 per cent. commission shall include travelling and all expenses.

Is it not, I will not say reasonable, but the only conceivable result, that promoters of competitions should treat our wordy protests with small consideration, as evidences only of professional jealousy and professional squabbles, when our weakness, our inconsistency, and our scrambling greed is so flagrant and so palpable a denial of all that we say?

What I wish to lead up to is the conclusion that the impracticable and unfair qualities of public architectural competitions as now conducted is not to be laid to the charge of the people who promote them, but is to be entirely laid to the charge of ourselves, who have in all particulars and details made the procedure, traditions and the conduct of competitions just exactly as they are and exist in every respect and in every particular.

There is nothing unusual or difficult in our situation at the outset. We are dealing with ordinary business men of our own nationality, whose prejudices we thoroughly understand, and who are bound by the same laws as bind us. There is the fair commercial battlefield before us.

When a man or a corporate body—it does not matter which—wants a thing, it is his reasonable duty to get it at the fair market rate, and to give no more for the thing he wants than what it is worth. I cannot see why British subjects, or, indeed, any one else ought to be placed under an obligation to reconstruct the ordinary bases of business transactions because they may happen to be dealing with the profession of architects. The attitude of these people is perfectly simple and reasonable, and is all, as business men, which we have any right to expect. They make a certain offer for a certain thing, and it is their business to see that they get what they want, and whatever they get they get at our price—please remember that, gentlemen—and not at any artificial price.

They get it at the market value, neither more nor less. If they choose to make an attractive offer they can command the ideas of the leading architects of the day. If the offer is an inconsiderable one they will win only the services of incapable or unsuccessful men who value their services at a low rate, and I feel bound to confess that, as a matter of ordinary foresight, when I organise a competition, knowing that the approval and gratitude of the profession at the offer of a fair premium would possibly take the form of some 5,000 deal strainers delivered at my door, I should feel, with all the good-will in the world, not justified in offering a sum involving responsibility for such an exuberant display of gratitude.

I insist, gentlemen, that the whole matter is in our hands, and that the issue is clear and easy. We have only got to make the demand, not indeed in peevish letters to the papers, or on long-winded occasions of this description, but to make the demand with the ordinary emphasis of men who know what they want, and who mean to stand by the principles of conduct which they know the fulfilment of their wants demands of them.

So surely as we declare in this manner that we will be parties to no competitions of which the conditions are unreasonable, ambiguous or incompatible with personal or professional dignity, straightway such competitions will cease to exist.

Twenty years ago some effort was made to give some real expression to the general conviction that architects should not compete where no professional adviser was employed by the promoters. I refer to the memorial signed by 1,300 architects, who bound themselves not to compete except where a professional assessor was employed, which was presented at the Institute by Mr. George Edmund Street in 1881.

What generally is the result of that comparatively limited and local effort—I say local as affecting only a certain status of practitioners—is this: that while the Special Commission of 1872 found that a professional assessor was rarely or never employed, at the beginning of this century 50 per cent. of competitions advertised the employment of a professional assessor.

I think there is a great deal of what must appear to unprejudiced persons outside our profession as sheer foolishness and nonsense in all the outcry we make. The truth is that it is ourselves whom our quarrel is with, not the men who will sacrifice their dignity and walk in lower planes, and work for less than what we can bring ourselves to consent to. We want the thing offered, but not at the price to be paid; and yet, for

all our outcry against the moral obloquy of promoters of competitions in refusing to accept a design they do not like, I have yet to hear of any case in which the competitor who unfortunately was handed the commission ever made any difficulty, what about accepting it.

From the lofty tone we adopt in these matters we should expect the favoured architect to bow, present thanks, decline on the ground that it was a gross injustice to his professional brother who had been awarded the premium, that profession of which he was a member strongly disapproved such irregularity, and that, therefore, he must decline to accept it.

Personally, I am thankful to think that no such privilege exists in our ranks, but if our attitude was really genuine towards competitions, as we declare it to be, this is the attitude we should take individually in being met with a case of that kind. But were we genuine such cases would not arise, because we should see that the conditions were properly drawn; we should not compete unless their terms and the details of the matter were in accordance with our principles; and if any attempt was made to jockey us, we should find our remedy in a court of law. If we cannot keep off unruly competitions by other means, by all means let us take the pledge—let us join certain active society lately started, and forswear competition unless they are as we hold they should be. My own intention in that most praiseworthy society is somewhat abated by formidable propaganda for talking. We have surely enough and to spare of that; it is entirely useless unless architects abstain from competing.

The only way to secure that competitions shall be conducted as we wish them conducted is to have nothing to do with them unless they are as we approve.

Mr. H. W. WILLS, who proposed a vote of thanks to the authors of the papers, said he disagreed with all that Mr. Creswell had said. Those who decried competitions for that it was not possible to do away with the competition between man and man in architectural practice. One of the greatest sources of disappointment that architects had was when they competed for a building and were successful, promoters of the competition changed their minds and sometimes decided not to erect a building at all. The successful architect in such cases had expended much time and money working out his drawings, and there was little hope of remuneration. It would be well to reform this state of affairs and rule promoters by such a condition that gave competition to the architect. If the promoters of a competition not accept the author of the premiated design as architect, the premium should be fixed at 1½ per cent. on the estimated cost of the building. A condition of that kind would abolish the cause of the unstable competitions.

Mr. W. H. SETH-SMITH, in seconding the motion, said the future would bring no diminution in competitions. All architects could hope to do would be to regulate the system, stop the abuses. Great progress had already been made, architectural competitions were better in principle than had ever been. Although, said the speaker, he had not one of those very successful men in competitions, yet he thought that the competitions he had engaged in had been a direct benefit to himself and to his staff, and there was nothing but praise to bestow upon the system.

Messrs. A. Brumwell Thomas, W. A. Pite and Murray also spoke of the advantages of competitions to a young architect.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

A GENERAL meeting of this Society took place on the 12th inst. Mr. Butler Wilson, F.R.I.B.A., presented an interesting paper on "The Planning of Recent American Libraries" was delivered by Mr. Sydney Greenslade, who made a special tour in the States for the purpose. The speaker alluded to the great impetus given to the library movement through the generosity of Mr. Carnegie. The American architect, with unequalled opportunities, had recently produced some almost perfect plans, though new developments were always taking place. In large libraries the special room for its special collection had become a law, also the small room for special study. The "open access," as opposed to the "indicator" system, was being rapidly adopted, and naturally wrought changes in the plan, so that the borrower might readily means of selection. Librarians nowadays were certain of their requirements, so that to-day there should be few obstacles to the provision of suitable library buildings in this country. Numerous views accompanied by descriptions were given of recent examples in the States.

A discussion followed, in which Mr. T. W. Hand, the librarian, championed the cause of the "indicator" system, as opposed to that of "open access," which resulted in the perusal of the first and last few pages of works of fiction, their replacement on the shelves. A vote of thanks was accorded the lecturer on the motion of Mr. W. H. T. seconded by Mr. Robert P. Oglesby.

YORKSHIRE SURVEYORS AND ARCHITECTS.

PAPER was read by Mr. R. E. Leader at the last meeting of the Sheffield Society of Architects and Surveyors, on "Surveyors and Architects of the Past." Mr. T. Winder pre-

Mr. Leader, dealing first with surveyors, mentioned John Wilson, who, by direction of the Earl of Arundel, in 1637 made surveys of the Sheffield and Worksop estates. Who was Harrison was a question to which he had in vain sought answer, but from entries in the Wilson MSS. it seemed probable that Lord Arundel brought him and his staff of assistants from London or elsewhere. Equally shadowy were the old surveyors with whose names one occasionally met. Among these was Dennis Lee, to whom the Cutlers' Company in 1551 paid the munificent sum of 10s. 5d. "for measuring many miles is between Hallamshire and Whittington." The seventeenth-century surveyor was represented by two of 1698 and 1699, preserved in the Duke of Norfolk's office. One of them, signed "Imx Halton, descriptit," is a drawing of Hesley Park and Hesley Hall, in rough sketch, and also "Chappell furnace." In the other, the surveyor inscribed his name in printed characters as "Imx Halton." They got on to firmer standing ground when the eighteenth century opened. Then Robert Wilson, who might be regarded as the father of Sheffield surveyors, flourished industriously. There were a series of maps by him in the Duke's office—some of great interest, because they gave elevations of the half-timbered houses of the period. Besides being employed by the Town Trustees and the Duke of Norfolk, Wilson was among the many engaged by the promoters of the River Don Navigation. Contemporary with Wilson were John Hey, or Gettey (1711 to 1725), Thomas Smith (1710 to 1722) and William Kitchin (1728 to 1730).

In thinking of them he was led to remark how largely the surveying of the eighteenth century was the natural application of the mathematical knowledge of the schoolmasters of the period. He wished to speak of several other surveyors who were working in Sheffield from 1730 onwards. One of them, John Smilter, had left a striking series of drawings, the most of which were of the type familiar to them in the Noah's Ark of their childhood. From certain similarities of style he did not help suggesting that William and Joseph Dickinson (1747-67) were Smilter's pupils and successors. Mr. Walter Wilson possessed some interesting specimens of the original drawings of the Dickinsons, relating mostly to Norton and the neighbourhood. It was at about the same time that Thomas Whitbridge, author of one quaint picture of the town from the 17th century, flourished. Then there was Ralph Gosling, the youngest son of a yeoman at Stubby, near Dronfield. He was born in 1693, and his will, proved March 1758, described him as of Heeley, schoolmaster, and mentions, along with silver vessels, gold rings and pictures, his surveying instruments. The most of his contemporaries, Gosling found employment in the River Don Navigation surveys. John Eadon, another schoolmaster surveyor, was born in 1730 and was an indefatigable man, who, having educated himself in spite of early disadvantages, came to Sheffield as master of the Free Writing School about the middle of the century. He announced himself ready to survey gentlemen's estates and to furnish "maps in the same elegantly drawn," but he knew of only one specimen of his work, which was a plan of the Spread Eagle property, in Church Street. Its interest consisted less in itself than in its being an early and all too rare instance of accompanying documents with a plan of the property to which they relate. He got some satisfaction from the knowledge that a collateral ancestor of his own, for John Eadon was his great grand-uncle, was a pioneer in this direction. A surveyor named M. A. Eadon, who had a bad habit of omitting to date, sometimes even signing his plans, seemed to have been employed about 1737 by the Church burgesses in plotting out land in Pinson Crofts building. Burgess Street and its neighbours were the result. His, too, was the scheme for making Sims Croft. One of his also with occasional names such as John Needham (1747) and George Eyre (1761 and 1768). A solitary specimen signed "Buddle, 1763," and another of 1776, unsigned but evidently of the same hand, were specially noteworthy because of their elaborate sketch titles. The former, a plan of Sheffield Park, a dairy for the Duke of Norfolk, indulged in urns and weeping willows in funeral card style, and the latter had a sepia floral border, with figures showing the old-world method of conveying milk in panniers on asses' backs.

Predominant over, but contemporary with the surveyors of whom he had been speaking were the early Fairbanks, members of a notable Quaker family. The name met one everywhere, and as there were three if not four William Fairbanks in successive generations, it was necessary to step warily in attempting to distinguish father from son, and son from grand-son. As the years went on the patient and conscientious care of William Fairbank, who lived from about 1730 to 1801, brought the reward of complete mastery. He elaborated his drawings with a loving and leisurely minuteness which, con-

sidering the minuteness of the output for the Norfolk estates alone, apart from other surveying, and the fact that he was at the same time conducting a school, excited the admiration and surprise of so good a judge as Mr. Thomas Winder. Mr. Leader having dealt somewhat exhaustively with the Fairbanks, mentioned William Jessop, who in 1785 was retained to make a survey and to advise on the possibility of equalising the supply of water to the various works on the Sheffield rivers, and alluded to other less known men, including Thomas Scholefield, of Queen Street, who combined with his readiness to survey land the duties of a victualler, a combination met with again in 1822, when, in the list of land and building agents and surveyors, occurred the name of Joshua Bishop, Rising Sun, Ranmoor. Mr. Leader concluded this branch of his subject by speaking of surveyors of the beginning of the nineteenth century, including Paul Bright, who was in the Wicker from 1828 onwards; Marcus Smith, a connecting link with the Duke's office, and with the present firm of Smith-Denton & Co.; John Fowler, of Wadsley Hall, the honoured founder of the St. James's Street firm, and the father of a race of distinguished engineers; John Townend, who was trained in Messrs. Fowler & Sons' office, and Mr. Samuel Furness Holmes, who was born in 1821, in "the old Plague House" at Eyam.

Turning to what he described as "a few notes on Sheffield architects," Mr. Leader said he had not to go so far back as in the case of surveyors, for practically there were no local architects until some seventy or eighty years ago. Taking a survey of the older public buildings of Sheffield one was struck by the regularity with which, whenever anything more important than dwelling-houses, within the scope of intelligent masons, was required architects were imported from other places. The explanation was found in the geographical position of Sheffield, and the humble standing of its inhabitants. There was little scope for the talents of superior architects, and so when St. Paul's Church was to be built (1719), Mr. Platts, who erected Wortley Hall, was called in; when the parish church had to be repaired in 1777, Mr. Thomas Atkinson was brought from York; for further restorations in 1802 Mr. Charles Watson came from Wakefield, and to him also was entrusted the designing of the Waingate town hall in 1805. Mr. Leader mentioned other instances where work was given to outside men, and added that a race of native architects was at the same time arising to claim its own. Just as the old surveyors were evolved from schoolmasters, so the earlier local architects were developed from builders.

It was not until 1825 that Edward Drury & Son were designated architects as well as builders. And that too was precisely what happened in the case of the Flocktons. Thomas Flockton, carpenter and builder, Rockingham Street (1821), brought up his son to the trade. He made him a thoroughly competent workman. But he also had the sense to give the boy a better "schooling" than he himself possessed, and the result of the combination of theory and practice was seen when, in 1833, William Flockton had laid aside cap and apron, and was established as an architect in Devonshire Street. The Mount, which he put up about this time, and Wesley College erected a year or two later (1836), need not be claimed as indicating originality, or implying any deviation from well-defined types, but in appropriateness to their situation, and in the boldness with which they soared above the common level, they are remarkable for a confident ambition amounting almost to genius, and they showed that native talent could achieve results of which elaborate professional training need not be ashamed. He did not know whether the origin of Mr. Samuel Worth, in whose office the late Mr. Mitchell-Withers and Mr. J. D. Webster were pupils, was similar, but about the time of which he was speaking they were in the full swing of a movement in which men of this class were asserting themselves, and, whether by rule of thumb or by following what could be learned from text-books, were producing creditable, if imitative work. Examples of this were the Free Writing School (1827) and the General Cemetery (1836), by Worth; the Botanical Gardens entrance (1836), by B. B. Taylor; and the Cutlers' Hall (1832), by Taylor and Worth jointly.

But another great step in the evolution of the profession was already being taken. A new generation was arising equipped with a special training the builder-architects lacked. The name of John Gray Weightman first appeared in the directory of 1833. In 1837 Mr. Matthew E. Hadfield was at the Corn Exchange. Both had been pupils at the office of Woodhead & Hurst, Doncaster; both had extended their experience in London, Mr. Weightman under Sir Charles Barry and Professor Cockerill, Mr. Hadfield under Mr. P. F. Robinson, and by working at drawings for the new Houses of Parliament. These, full of enthusiasm, went into partnership in 1838, Mr. Weightman having already built the Collegiate School (now Grammar School), and Mr. Hadfield the Park Church. The elevating influence they exercised on the architectural renaissance of the town was reinforced when in 1845 the late Mr. Thomas James Flockton brought to his father's

office the fresh and larger knowledge obtained under the influence of Sir Gilbert Scott and Mr. John Johnson. He trusted he should not be considered unappreciative of the work of many others if, having glanced at a few of those who have predominating influence in Sheffield's self-assertion of its architectural capabilities, he stopped there.

Looking through the lists of fifty years ago one came upon familiar names, tempting to reminiscence—John Frith, with his curious excursion into the morasses of theological inquiry; Charles Unwin, Rooke Harrison, Thomas Frederick Cashin, Edwin Falding, George Wilson, Alfred Scargill, and their compeers. But recollections of these would, so far as he was concerned, be rather of their personal characteristics than of their architectural skill. And still more imperative was the obligation to avoid later references. One had only to look round for proof that, despite the small beginnings it had been his lot to describe, the architects and surveyors of Sheffield could hold their own against all comers in sound practical knowledge, ingenious and even bold adaptation of means to ends, mastery of design and artistic feeling. It only remained for him to congratulate their profession on the vigorous life of which that active Society was one of the manifestations, and to acknowledge the willing and courteous aid he had received wherever his wandering footsteps had led him in seeking material for that paper.

The lecture was well illustrated by old plans and maps, which were lent for the occasion by Mr. T. Walter Hall.

On the motion of Mr. E. M. Gibbs, seconded by Mr. R. W. Fowler and supported by Messrs. W. C. Fenton and T. Winder, a vote of thanks was accorded to Mr. Leader for his interesting lecture.

MANCHESTER INFIRMARY SITE.

THE special sub-committee of the Manchester Corporation appointed on February 5, 1903, to consider the subject of the infirmary site have prepared the following report:—

Consequent upon the decision of the trustees of the Royal Infirmity not to build upon the present site, a letter dated January 15, 1903, has been received from the Infirmity Board to the effect that they are desirous of selling the entire area. A copy of this letter will be found in the appendix to this report, along with the proceedings of the special committee since their appointment by the City Council on November 10, 1902.

It is therefore necessary that the City Council should approach the question under a sense of the fact that this is a final attempt to deal with the whole matter.

There cannot be a doubt that public opinion is favourable to the acquirement of the property by the Corporation upon reasonable and equitable terms, with a view to the site remaining as an open space, unencroached upon by buildings of greater magnitude than those now in existence. Owing to the anticipated relief of the rates from contributions by the Ship Canal and the tramways, the time would appear to be propitious. The sale of the King Street Library is likely to afford a not inconsiderable sum in relief of the cost of purchase by the erection of the new library on the infirmary site; and again, further relief may be anticipated by the co-operation of the art gallery committee in the provision of galleries on the top storey of the building to be erected by the free libraries committee suitable for art gallery exhibition purposes, and perfect of their kind, in substitution for the new buildings now proposed to be erected upon land already purchased at a cost of 25,000*l.*, and the cost of the erection of which would probably be more than a further 25,000*l.*—the land to be disposed of and the cost of buildings to be saved; add to this a further sum of 50,000*l.*, being the margin between the sum to be realised by the sale of the King Street site and the probable cost of the buildings for joint free library and art gallery purposes.

It would thus appear to be quite fair and within the mark to take credit for 100,000*l.* towards the purchase money. This amount would be considerably increased if the Council were to decide to dispose of the Royal Institution and to locate the art gallery entirely on the infirmary site.

Sketch plans showing (1) the suggested new building line of the improvement committee, and (2) a form of building (given solely for the purpose of indicating the amount of accommodation adequate to the needs of the free libraries and art gallery committees) are sent herewith.

The total area of the infirmary site is 19,552 square yards; the land now covered by infirmary buildings is 6,670, leaving 12,882 square yards of open space. The suggested building line of the improvement committee would give 4,694 square yards to the surrounding streets.

The building shown on the sketch plan sent with the report would cover an area not greater than 5,000 square yards, with the result that the open space would be increased by some 1,650 square yards.

Supposing a building to be erected with a central shown, covering in all 5,000 square yards, it can be demonstrated that ample accommodation can be found both the free libraries and art gallery committees without going to any great height.

A basement of 5,000 square yards (suitable in every way for storage) and a ground floor of 5,000 square yards, with a first floor of 3,500 square yards (1,750 yards), will suffice the free libraries committee; the second half of first (1,750 square yards) and the whole series of galleries (3,500 square yards) would give an amount of administrative and exhibition space equal to the prospective requirements of the art gallery.

The sum of 400,000*l.* for the purchase of the whole (including the interest of the Infirmity Trustees in the Esplanade) has been spoken of as being fair and reasonable. This sum your sub-committee recommend should be offered as they do not consider that any resort to arbitration is necessary or desirable. Your sub-committee suggest that the purchase money should be paid by instalments as follows: 100,000*l.* on the obtaining of statutory powers, 100,000*l.* on vacant possession is given, 100,000*l.* twelve months later, the remaining 100,000*l.* twelve months later again. To take into account the sums in relief from free library and art gallery rearrangements as calculated above, amounting to 100,000*l.* the eventual charge on the city after the whole of the purchase money is paid, say four years hence, including sinking fund and interest, would not exceed one penny in the pound per annum on the rates until the sinking fund liquidated the debt.

The total area of the site is 19,552 square yards, and the infirmary buildings which are to be removed occupy 6,670, leaving the open space is 12,882 square yards.

EXETER CATHEDRAL.

THE following additional correspondence respecting the proposed new windows has appeared in the *Times*. Mr. Stuart Moore writes:—

I cannot cope with the Dean of Exeter. He perverts my words, and unfairly alleges that I said what I did not say. Then he quotes his version of my statements in quotation marks. Your space will not allow of my answering his letter in detail, and it would be useless, as he rejects all evidence that does suit him; witness his letter in answer to Mr. Read. I claim in his eyes a discredited witness. His method of controversy appears to be to abuse his opponent and his witness. A well-known maxim in certain cases. I wish, however, from other points I raised, he would either produce that story window in the condition that Archdeacon Freeman described, or I laid it by and packed it so carefully in 1872, or fully aware that it has been cut to pieces and destroyed, and not to dust in the eyes of the public by saying it has been "carefully used." He must know that it has been cut to pieces, and never been restored as I offered to restore it. It is a great pity for it gave the keynote to the original glazing of the choir. Its existence was well known to the Chapter. It was described with the other recently discovered ancient glass in the 7*th* of September 29, October 3 and October 22, 1872. Freeman wrote fully about it in his "History of Exeter" in 1873, lectured on it to the Archaeological Institute in the chapter-house. Mr. Drake wrote a paper on it to the Devon Archaeological Society, and a drawing of one light of it hung in the chapter-house for a long time. The loss of it is irreparable.

Mr. Bodley objects to Peckitt's window, but admits that it marks a period of bad art, and urges that as a sufficient reason for removing it when an opportunity offers of filling the window with better work. But will it be filled with better work? I do not know who is to design it or who is to execute it. It is a rumour that it is to be done by an artist in glass of the name of Bodley. Why should not they restore the ancient glass of the choir, about which no controversy could arise, and leave Peckitt's window alone?

Mr. G. F. Bodley replies:—Mr. Moore, in his letter appears to-day, hardly states the case strongly enough. He says that I "object to Peckitt's window." I think so because of it that I heartily wish it removed and out of sight.

Sir Arthur Helps, in "Friends in Council," after speaking of the influence for good of great works of art, goes on to say: "On the other hand, a thing of ugliness is potent for evil. It deforms the taste of the thoughtless; it frets the man who knows how bad it is; it is a disgrace to the nation who raise it; an example and an occasion for more monstrosities. It must be done away with. Next to the folly of doing a thing is that of fearing to undo it."

In the case of this stained-glass window at Exeter it would be difficult to find words strong enough to express how "poisonous for evil" it is, and what a detriment to a noble interior it should be "done away with."

May I say that I am not an "artist in glass," as Mr. Moore

ns to think? The new window would be done by Messrs. lison & Grylls, under my superintendence as advising itect at the cathedral.

Mr. C. H. Read says:—The Dean of Exeter, in his letter in issue of yesterday, descends to a lower plane. He now pro is to "abuse the defendant's attorney," and apparently for proverbial reason, for his letter contains little or nothing ing to the matter in dispute.

He accuses me of four "improprieties." First, that I had ished our correspondence without giving him notice. If I e erred in this I apologise. But does the Dean regard the rity of the cathedral under his charge as a private or estic matter between him and the Society of Antiquaries? Society does not so regard the matter. It holds rather Exeter Cathedral is a heritage of the English race, and any Englishman is entitled to raise his voice to help in its

Then the Dean professes surprise that I ventured to quote bishoph Temple's own opinion of Peckitt's window, on the ority of a truthful and accurate man, Mr. Stuart Moore, made the statement in the *Times*, and my crime is especi- heinous from the fact that the Archbishop is dead. There subtlety in this that I cannot follow. Does the Dean ose that Archbishop Temple's sayings and opinions on roversal matters will not be quoted long after our time? eems to me a poor compliment to pay so distinguished a n. If I have sinned here I have done so in company of ch I am not ashamed.

But in the whole letter, full of invective as it is, what ecially moves me is the device of insinuating that I (or tly the Society of Antiquaries) desire to prevent a memorial a being raised to the late Archbishop. Here the Dean is onal to a degree that forces me to borrow from his own abulary and stigmatise it as dishonourable. I take pleasure aying that I think every effort should be made to perpetuate memory of so grand and noble a character as that of bishoph Temple, and I have taken every pains to keep his e out of this controversy. The Dean of Exeter apparently o such feeling. The greatness of Archbishop Temple is, ver, not a reason, and should not be made a reason, for roying a part of Exeter Cathedral.

The Dean's third charge is that I sneer at the motives of e who are subscribing to the new window. The sneer was mine. It had its origin in the description of Peckitt's ow as having a "sordid story," due to the motives of those ublished. My own observation on this was that close uiry into the true motives of subscribers, even in Church ers, was unwise—surely a commonplace enough bit of idly wisdom.

The Society of Antiquaries is quite satisfied with the com- ence of its expert, even though he be anonymous to the an; and I may mention that the Dean still declines to rm me in what respect the Society's resolution is inaccurate. If the Society wants advertisement, as the Dean alleges, oness that, on the other hand, I think he would have been tent without public attention being called to what he and Chapter propose to do.

So far the Dean. Mr. Bodley's letter calls for little com- nt. He can scarcely be called an impartial witness, and his er only states that Peckitt's glass is not to his taste. But it ed the taste of Peckitt's time, and who is to say that the ow Mr. Bodley will put up may not equally be condemned 50 years' time?

Stripped of all the personalities which the Dean has im- ted into the controversy, the question really is whether e exists any structural or other justification, apart from the igerous issue of good or bad taste, why the Dean and pter of Exeter desire to remove Peckitt's window. The iety says there is none. The Dean is silent.

EDINBURGH ARCHITECTURAL ASSOCIATION.

MEETING of the Edinburgh Architectural Association was held in the rooms, 117 George Street, on the 11th t., Mr. A. Hunter Crawford, president, in the chair. Mrs. msay Traquair submitted a paper on the subject "Decora-," illustrated by limelight views. First, with regard to tude of the decorator, she said, the architect came first, ing the way and creating the decorative artist. It was the ict who must give the favourable soil and atmosphere hich the decorative worker sprung to life. Decoration ould become a sort of natural growth, and was only good in roper place; taken out of that place it would be a beauti- fragment, but it was only a fragment. She spoke of line as eans towards expression, and pointed out that the Greeks ays gave prominence to the angle when they wanted ivity, and gave prominence to horizontal and vertical lines en they wanted quietness. The relations between line and our and the uses of line and colour in decoration were ched upon, and it was pointed out that a flat tint corre-

sponded with a straight line, a graduated tint with a curved line, and broken colour with an angle. She emphasised the importance of the inferior parts of decoration being designed as carefully as the principal bits, and of not being given to inferior hands, otherwise the principal parts were apt to look like pictures in more or less unconnected surroundings. Mrs. Ramsay Traquair was thanked for her lecture. On the motion of Mr. William M. Page, one of the hon. secretaries, the President was congratulated upon his election as a Fellow of the Royal Institute of British Architects.

FITZWILLIAM MUSEUM.

THE Fitzwilliam Museum Syndicate in their fifty-fourth annual report state that Mr. F. R. Earp, M.A., Fellow of King's, has resigned the office of assistant-director after a tenure of over two years. They desire to record their sense of the value of Mr. Earp's services. The number of visitors to the museum during 1902 was 44,981, and to the Museum of Classical Archaeology 3,935. Among the gifts to the museum during the year the following may be mentioned:—The Rev. W. G. Searle, M.A., Queen's College, has presented 150 coins of many dates and countries and various books, including a manuscript "Horræ," Dutch, of the fifteenth century; the Director of the National Museum, Athens, a selection of fragments of pottery from Melos; Mr. H. V. Thompson, formerly scholar of Trinity, a manuscript of the fourteenth century, formerly in the collection of Lord Ashburnham, containing the "Chronicon" of Martinus Polonus, tracts by Bernard Gui and other texts; the Rev. H. S. Cronin, B.D., Fellow of Trinity Hall, an interesting series of coins from Asia Minor; Mr. C. H. Hawes, Trinity, a collection of Oriental pottery and porcelain, also Chinese and other coins; Captain Mark Sykes, Jesus, a collection of twenty-five glass vessels of the Roman period found near Bethlehem; Mr. H. J. Dent, Fellow of King's, autographs of Benedetto Marcello, Haydn, Schumann and Moritz Hauptmann, and the corporations of upwards of forty boroughs in England specimens of Coronation and other medals struck by them in recent years. A large collection of impressions of seals belonging to the Antiquarian Society has been deposited in the museum. The principal purchases were a painted terra-cotta sarcophagus of the fifth century B.C. from Rhodes; a series of Byzantine coins; a finely-illuminated copy of the "Decretum" of Gratian, of the early part of the fourteenth century, from the collection of John Ruskin; a medical manuscript, partly in English, of the fifteenth century, with armorial illuminations; a copy of Bertacchinus de Firmo's "Repertorium Juris utriusque" (three vols., I, II., Rome (?), 1481, III., Venice, 1494), handsomely illuminated, and a large number of books illustrative of the history of art, including many photographic reproductions of the works of early painters, principally Flemish, and important monographs on single artists.



Proposed Quantity Surveyors' Association.

SIR,—Arising out of correspondence which has recently taken place upon the question of the desirability of a distinctive Association being formed for quantity surveyors, a meeting of London and provincial members of the profession was held on March 6 at the offices of Mr. F. B. Hollis, 17 Bedford Row, London, W.C., Mr. W. Hoffman Wood (Leeds) in the chair, when it was resolved to seek the co-operation of gentlemen favouring such formation.

The following were the main resolutions passed at the meeting:—

1. That there was a distinct need for an Association solely for quantity surveyors.
2. That such an Association be named "The Quantity Surveyors' Association."
3. That in the formation of the Association the value and importance of the Surveyors' Institution be fully respected and recognised, and that that body shall be courteously approached to assist in the registration of the Association, and that members of the Surveyors' Institution who are practising as quantity surveyors be invited to also join the distinctive Association.
4. That none but qualified quantity surveyors be admitted to membership.

The main objects of the proposed Association being briefly as follows, viz. :—

1. To uphold the dignity and importance of the profession, and to provide the means for quantity surveyors to meet and discuss subjects of interest and to settle cases of difficulty.

2. As a guarantee of efficiency and fair dealing as between the building owner and the builder.

3. As an additional means of insuring the confidence of architects.

4. To encourage uniformity of practice.

It was further resolved at the meeting that the founders' first annual subscription should be one guinea, which should cover entrance fees, and that after the registration of the Association it is suggested that the entrance fee should be five guineas and the annual subscription two guineas.

The promise of your influence and support will be greatly esteemed.

A post-card is enclosed, addressed to the (interim) hon. sec. of the Association, and you are courteously requested to express your views thereon, and return it to the above address as soon as convenient.

A general meeting will be called at an early date to elect a president, officers, &c., of which you will be duly notified.—

Yours faithfully,

March 1903.

F. B. HOLLIS,
Hon. Sec. and Treasurer.

[The above letter has been sent to all London and provincial quantity surveyors, in so far as their names and addresses can be obtained from directories and from the secretaries of Architectural Associations. The hon. sec. will be glad if any quantity surveyor who has been omitted will communicate with him at once at 17 Bedford Row, London, W.C.]

GENERAL.

The King and Queen visited last week the Exhibition of Pictures by Old Masters at the Royal Academy of Arts, Burlington House, in the evening. Their Majesties were received by Sir Edward Poynter, president, the members of the Council, and Mr. F. A. Eaton, secretary.

His Royal Highness the Duke of Cambridge, K.G., president of the Sanitary Institute, will preside at the annual dinner of the Institute to be held on Friday, May 15, at the Hôtel Cecil.

Mr. Rowland Plumbe, F.R.I.B.A., of 13 Fitzroy Square, W., informs us that he has taken into partnership Mr. Frank M. Harvey, who has been associated with him for a period of over twenty-one years. The practice will be continued as heretofore at the above address under the style of Rowland Plumbe & Harvey.

An Exhibition of pictures produced in the dry oil colours of M. Rafaelli, corresponding with that held in London, will be opened on Sunday in Berlin.

The Agent-General for South Australia announces that Dr. Morgan Thomas, of Adelaide, who died on March 8, has bequeathed the sum of 50,000*l.* to the Public Library, Museum and Art Gallery of South Australia.

The Heirs of the late Henry Pille have taken an action in the French courts in order to put a stop to fabrications bearing the name of the painter. In one day no less than twenty drawings were seized by the police.

The Wesleyan Chapel Committee has sanctioned a further expenditure on new chapels, Sunday schools and mission halls of 150,000*l.* The work carried on in Liverpool by the late Rev. Charles Garrett is to be extended by the erection of new mission premises estimated to cost 43,000*l.* A grant of probably 10,000*l.* will be made to this scheme from the Wesleyan Twentieth Century Fund. New mission premises are also to be erected in Hull at an outlay of 32,000*l.*

The Emperor of Austria has conferred the Cross of Commander of the Order of François-Joseph on M. Tony Robert Fleury, the historical painter, vice-president of the Society of French Artists of Paris.

The Iron and Steel Institute have resolved that the Bessemer Gold Medal for this year shall be awarded to Sir James Kitson, M.P., past president, in recognition of his great services to the iron and steel industry of Great Britain. The presentation will be made by Mr. A. Carnegie on May 7.

New Works are about to be erected at Frazerburgh, at a cost of 20,000*l.*, for the Pneumatic Tool Company of Chicago.

The Jury of the examining committee for architectural designs to be sent in to the coming exhibition of the French National Society of Fine Arts will consist of MM. Pierre Selmersheim, Sauvage, Guillemonat, with MM. Plumet and Lambert as supplementary members.

Mr. Christopher Bales, architect, died in London on the 13th inst. in his ninety-fourth year.

The University of Michigan is erecting a new engineering building at a cost of 140,000*dols.* Among the more important features of the building and its equipment will be a naval testing tank, a compressed-air room, a hydraulic laboratory, a cold-storage department and steam-engine and

electric rooms. The tank for testing ship models is 30*ft.* long, 22*ft.* wide and 10*ft.* deep. It has connected with a dry dock large enough to hold a model 10*ft.* long.

The Municipal Buildings at Aberdeen are to be reconstructed. The burgh surveyor's plan would cost 6,000*l.* carry out, while the city architect's would only cost 3,000*l.* The former received most approval.

A New Library and choir vestry to form an annex to Manchester Cathedral are now in course of construction to the designs of Mr. Basil Champneys.

Mr. John B. Pierce, a well-known architect and surveyor, died last week in Norwich. He was a pupil of Mr. J. Morant. He built several schools and churches in Norfolk and Suffolk.

The Estimate of the outlay on public works and buildings during the coming financial year is 2,557,712*l.*, an increase of 265,699*l.* over last year's amount.

A Scheme has been suggested for the erection of a Wesleyan church at Penwortham, near Preston, at a cost of 3,000*l.* The building is intended to replace the present inadequate structure, erected in 1883 as a school-chapel. When the new church is built the present premises will be continued as a Sunday school, and its seating accommodation will be between 300 and 400 persons.

A Paper will be read at the meeting of the Institution of Civil Engineers on Tuesday, by Mr. Amyas Morse, on "Protection Works of the Kaiser-i-Hind Bridge over the Sutlej, near Ferozepore."

The Manchester City Council have approved of a report of the special committee offering 400,000*l.* for the extension of the Royal Infirmary, and on Monday next the board of governors of the infirmary will consider the subject.

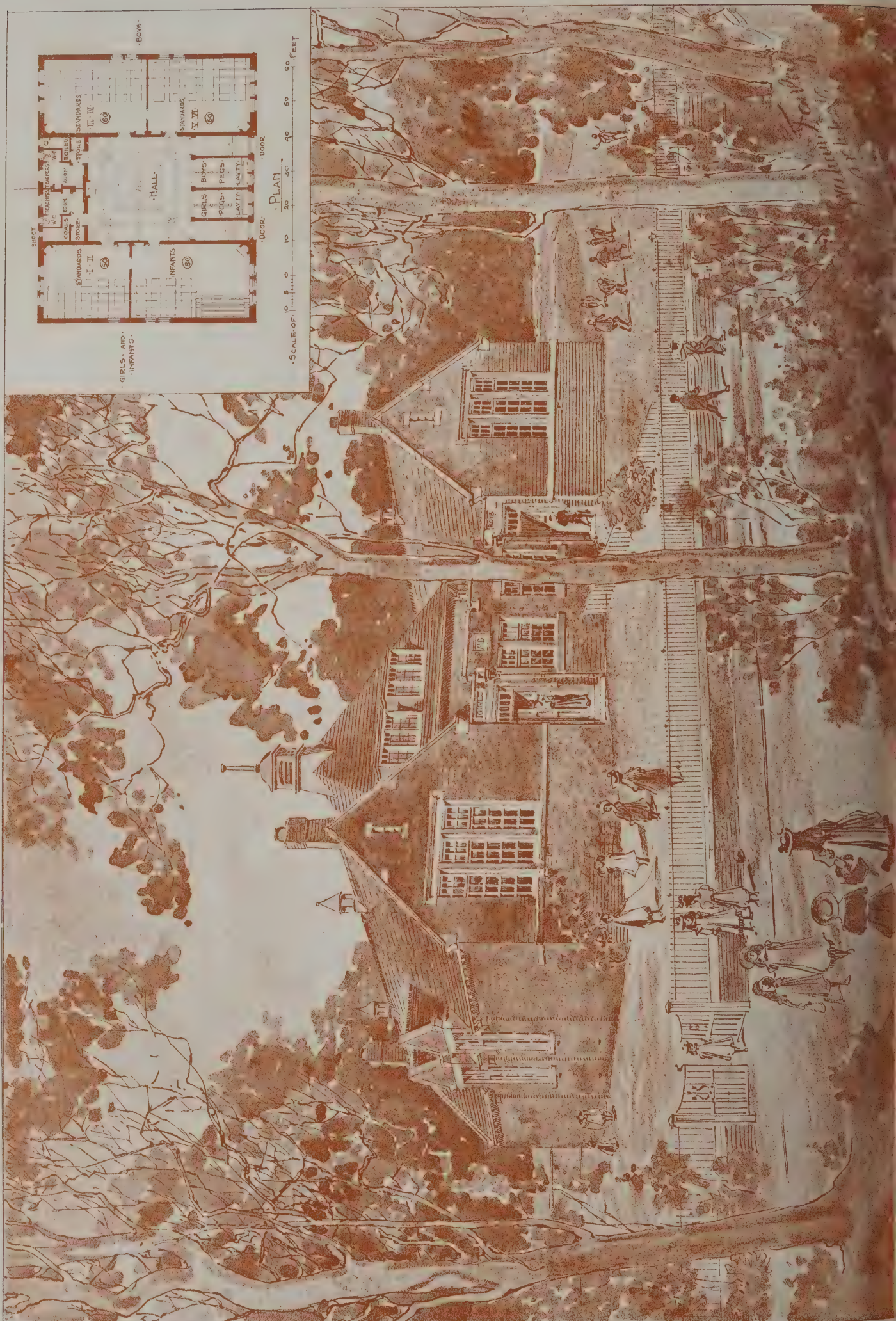
Mr. Robert Moore, architect, of Middlesbrough, has been awarded property which has been proved of the gross value of 2,005*l.* 7*s.* 5*d.*

York House, Twickenham, is shortly to be sold. It is a historic mansion, as it once belonged to Lord-Chancellor Clarendon, and is believed to have been the residence of Duke of York, afterwards James II.

The three remaining bays of the cloisters of the Priory of St Bartholomew have now been purchased, and a facade obtained for connecting them with the church by means of original monks' doorway, which, though at present bricked up, can still be traced in the wall of the south ambulatory. A historical and descriptive lecture on the church will be given to-morrow, March 21, at 3 P.M., and repeated on Saturday, March 28, at the same hour. The crypt and other portions of the church will be open for inspection without any fee, and contributions will be invited towards the cost of the new acquired cloisters.

The Manchester Corporation special committee dealing with the proposed revision of the fair contracts clause Monday received Mr. Geo. Macfarlane, president of the Manchester and Salford Association of Master Builders, and afterwards Messrs. George D. Kelley, secretary of the Trades Council, and Tom Fox, chairman of the fair contracts committee of that body. Both deputations had suggestions to make. Mr. Macfarlane submitted a draft of an additional section to the clause, whilst the representatives of labour advocated firm adhesion to the clause as at present standing, with a slight addition of words to more clearly express meaning. As a general result of the conference it is understood that the committee felt considerably assisted in its effort to arrive at a satisfactory solution. The points in dispute seemed to rest mainly on doubts as to the correct interpretation of the text. The town clerk was requested to draft a clause which shall be as far as possible void of ambiguity, and it is hoped that when next they meet the committee will be able to submit to the Council a code of working in relation to contracts that shall be agreeable to all parties.

The Treasury have sanctioned, subject to the approval of the House of Commons, the expenditure of 185,470*l.* in the financial year ending March 31, 1904, on the provision of additional accommodation in London and the country for the postal and telegraphic services. Amongst the works included in the programme are the following:—Liverpool, Mossley Hill, new sorting office, 1,020*l.*; Liverpool, Lark Lane, new sorting office, 1,850*l.*; Liverpool, Northern District Office, 9,000*l.*; Liverpool, Old Swan, new sorting office, 1,600*l.*; Liverpool, Seaford, new sorting office, 1,550*l.*; Warrington, new post office, 16,200*l.*; Wigan, post office extension, 5,200*l.*; Barrow-in-Furness, post office extension, 7,170*l.*; Bootle, new post office, 5,500*l.*; Crewe, new post office, 4,000*l.* The new post office at Preston, upon which 23,474*l.* has already been expended, is to be completed this year at a further cost of 3,000*l.* In regard to the new post office at Burnley, 8,000*l.* to be spent on it in the coming financial year, but it is not expected to be completed until the following; its total estimated cost will be 11,250*l.*





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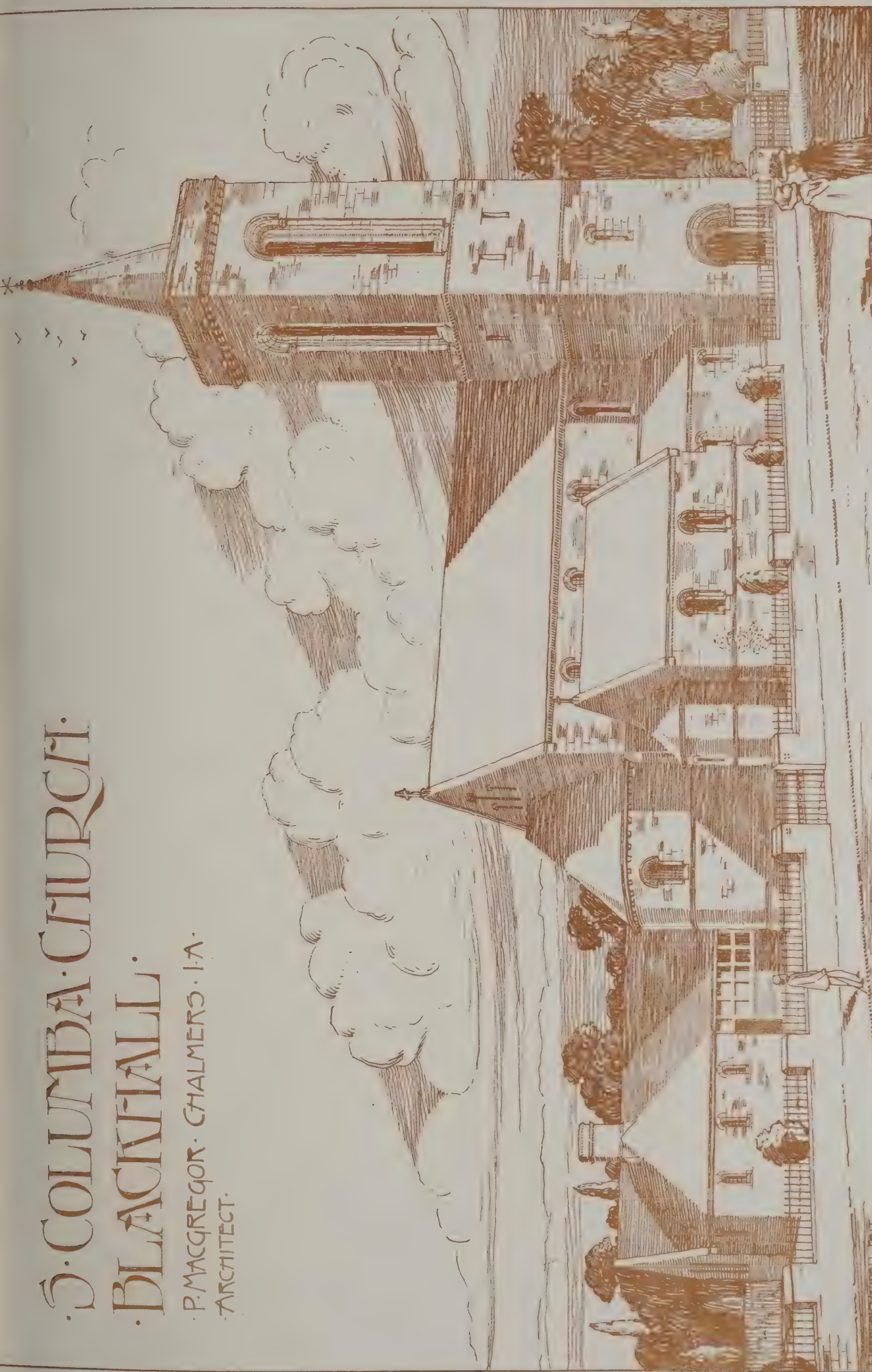
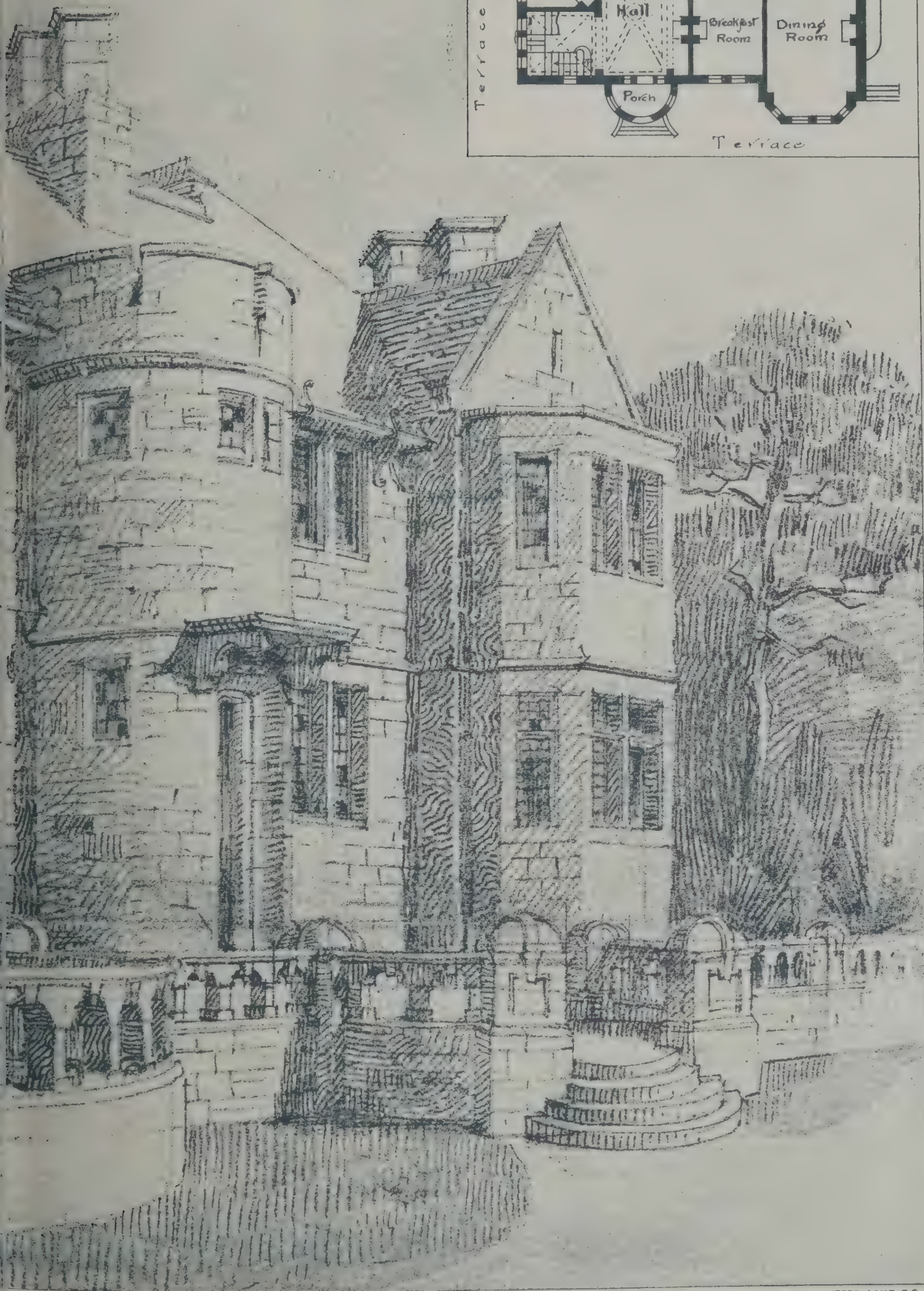
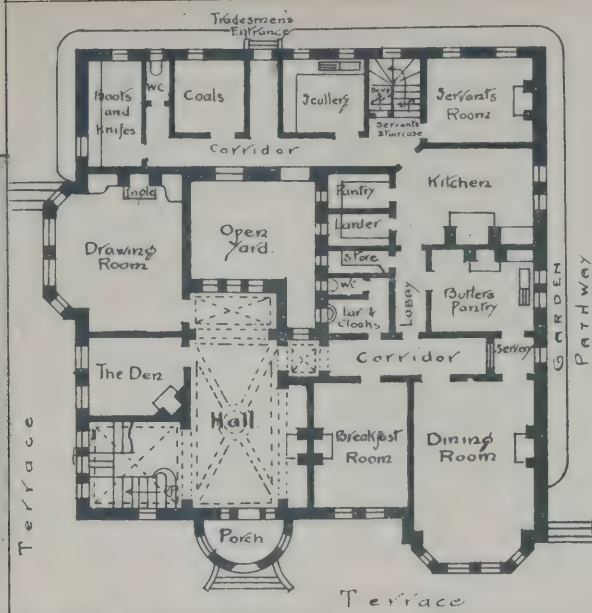


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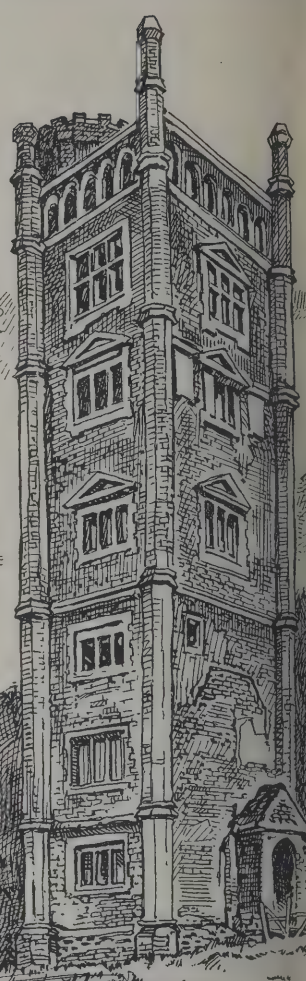




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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding 5,000l. Premiums of 60l., 25l. and 15l. will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

CASTLEFORD, YORKS.—March 31.—Designs are invited for free library. Premiums 15l. and 10l. respectively. Mr. H. I. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—April 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60l. and 30l. are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—March 31.—Designs in competition are invited for extension of the town hall. Premiums of 300l., 200l. and 100l. are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000l. Premiums of 75l., 50l. and 25l. respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100l., 50l. and 25l. will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

YEOVIL.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ALNWICK.—March 31.—For erection of a 150-quarter malt-house, adjoining the Tweed Dock and North-Eastern Railway sidings at Tweedmouth, Berwick-on-Tweed. Messrs. Brewill & Bailey, architects, 44 Parliament Street, Nottingham.

BARKING.—April 3.—For construction of a temporary bridge and road, concrete, stone and brick abutments, &c., for a new bridge over the river Roding, the formation and paving of roads and footpaths in connection therewith, in the urban district of Barking. Mr. J. Percy Sheldon, chief surveyor, County Offices, Chelmsford.

BIRKENHEAD.—March 28.—For rebuilding of the upper stages of the tower of the town hall in Hamilton Square, Birkenhead. Mr. Henry Hartley, architect, 8 Harrington Street, Liverpool.

BRADFORD.—March 25.—For erection of a new cart shed at Harris Street staith. Mr. Frederick Stevens, town clerk, Town Hall, Bradford.

BRIGHOUSE.—March 26.—For erection of a chancel, &c., to St. Martin's Church. Mr. C. Hodgson Fowler, architect, The College, Durham.

BRIGHTON.—March 24.—For erection of a band-room at the Warren Farm schools. Mr. B. Burfield, clerk to the Guardians, Parochial Offices, Brighton.

BRISTOL.—March 30.—For enlargement of Chester Park schools, Fishponds. Mr. W. V. Gough, architect, 24 Bridge Street, Bristol.

BRISTOL.—March 30.—For erection of a girls' school and domestic subjects' centre at Windmill Hill, Bedminster, Bristol. Messrs. H. J. Jones & Son, architects, Bridge Street, Bristol.

CANTERBURY.—March 30.—For fixing wood and glass screens in the committee-rooms in the municipal offices, Guildhall Street. Mr. Arthur C. Turley, city surveyor, Guildhall Street, Canterbury.

CATERHAM.—March 25.—For erection of (1) sanitary annexes to ward blocks; (2) laundrymaids' quarters, at Caterham Asylum, Caterham, Surrey. Mr. T. Duncombe Mann, Metropolitan Asylums Board, Embankment.

CAYTON.—For erection of a Wesleyan church and school at Cayton, near Scarborough. Messrs. Danby & Simpson, architects, 10 Park Row, Leeds.

CHATHILL.—March 24.—For additions and alterations to property in Taylor Street, Sea Houses. Mr. James Ewing, Sea Houses, Chathill.

CHESTER.—March 26.—For erection of lavatories in the public market. Particulars may be obtained at the office of the City Surveyor, Town Hall.

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CLAYTON.—April 1.—For erection of a nurses' home at the workhouse, Clayton, Yorks. Mr. Sam Spencer, architect, Old Bank Chambers, Great Horton.

CLECKHEATON.—March 31.—For erection of wire works, engine and boiler-houses, offices, and 40 yards chimney-shaft at Exchange Works, Cleckheaton. Messrs. Reuben Castle & Son, London City and Midland Bank Chambers, Cleckheaton.

COCKERMOUTH.—March 25.—For alterations to St. Joseph's school, Cockermouth. Mr. James Howes, architect, Working-ton.

CONNOR DOWNS.—March 23.—For erection of a dwelling-house at Connor Downs, near Hayle, Cornwall. Mr. O. Willoughby, Connor Downs, near Hayle.

DEWSBURY.—March 25.—For erection of conveniences, &c., at the Brownhill National schools. Messrs. Holtom & Fox, architects, Corporation Street, Dewsbury.

DIDCOT.—March 25.—For erection of a small Wesleyan chapel, school, &c., at Didcot. The Rev. W. P. Ellis, Grove, Wantage.

EARLSHEATON.—March 23.—For erection of two houses on Low Road, Earlsheaton, Yorks. Mr. Abraham Tong, architect, Headland House, Earlsheaton.

ELLAND.—March 28.—For erection of villas in Victoria Road, Elland, Yorks. Messrs. Chas. F. Horsfall & Son, architects, Lord Street Chambers, Halifax.

GRAVESEND.—March 25.—For erection of an infectious diseases hospital at Whitehall Road, Cobham, near Gravesend. Mr. E. Godfrey Page, architect, 4 and 5 Warwick Court, Gray's Inn, W.C.

GREEN HAMMERTON.—For erection of a Wesleyan chapel and school at Green Hammerton, Yorks. Messrs. Danby & Simpson, architects, 10 Park Row, Leeds.

GUILDFORD.—March 23.—For erection of two small offices and sanitary convenience at the cattle market in Woodbridge Road. Mr. C. G. Mason, borough surveyor, Tuns-Gate.

GUILDFORD.—April 6.—For new flood gates, together with the erection of new buildings over same, and over turbine forebay at the waterworks, Millmead. Mr. C. G. Mason, borough surveyor, Tuns Gate.

HALIFAX.—March 26.—For erection of dwelling-house at Bell Croft, Southowram. Mr. Edwin Taylor, architect, 15 Church Street, Halifax.

HALIFAX.—March 28.—For extensions to Shroggs Wire Works, Halifax. Mr. Lister Coates, architect, Yorkshire Bank Chambers, Waterhouse Street, Halifax.

HALIFAX.—March 30.—For additions to the Parkinson Lane school. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HALIFAX.—April 7.—For extensive additions to Kingston Confectionery Works, Queen's Road, Halifax. Mr. Medley Hall, architect, 1 Harrison Road, Halifax.

HARROGATE.—For extension of new home of the Harrogate branch of the Young Women's Christian Association. Messrs. Whitehead & Smetham, architects, Albert Chambers, Harrogate.

HEBBURN.—March 31.—For erection of shelter in the Hebburn Park. Plan and specification may be seen at the Surveyor's Office, Hebburn.

HONLEY.—March 26.—For erection of six dwelling-houses, outbuildings and boundary walls in Bradshaw Road, Honley, near Huddersfield. Messrs. John Kirk & Sons, architects, Huddersfield.

HUNSTANTON.—March 24.—For erection of shelters on the Esplanade, New Hunstanton, and erection of a bandstand on the Esplanade. Mr. Louis F. Eagleton, architect, King Street, King's Lynn.

ILFORD AND EAST HAM.—April 3.—For construction of concrete, stone and brick abutments for a new bridge over the river Roding, the erection of a brick and concrete retaining wall, and the formation and paving of roads and footpaths in connection therewith, in the urban districts of Ilford and East Ham. Mr. Percy J. Sheldon, chief surveyor, County Offices, Chelmsford.

ILFORD.—March 24.—For erection of a crematorium at the City of London cemetery, Little Ilford, Essex. Clerk of the City of London Burial Board, Guildhall, E.C.

IRELAND.—March 23.—For additions and alterations to Listoke House, Drogheda. Mr. Frederick Shaw architect, Drogheda.

IRELAND.—March 23.—For erection of a kiln, bins and other works, at Drogheda Brewery. Mr. Frederick Shaw architect, Drogheda.

IRELAND.—March 23.—For erection of a public convenience in Rathmines. Mr. F. G. Hicks, 35B Kildare Street, Dublin.

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IRELAND.—March 26.—For alterations to kitchen and the erection of a new service-room, &c., at the Down District Lunatic Asylum buildings. Messrs. Graeme-Watt & Tulloch, architects, 77A Victoria Street, Belfast.

IRELAND.—March 26.—For erection of a new Crown post office at Clones, Monaghan. Messrs. W. H. Stephens & Son, 3 Donegall Square, Belfast.

JERICHO.—For erection of a dwelling-house at Jericho, near Bury, Lancs. Mr. D. Hardman, architect, Agur Street, Bury.

KEIGHLEY.—March 23.—For supply and delivery of a number of joiners' benches for Ingrow school, and for supply and delivery of a quantity of joiners' tools for the same school. Mr. H. Midgley, clerk to School Board.

KEITH.—March 24.—For erection of (1) duty-free warehouse, (2) brewer's house at Strathmill Distillery, Keith. Mr. Charles C. Doig, architect, Elgin.

LAMBETH.—April 2.—For construction of an overground convenience for ladies and children at Vauxhall Park, South Lambeth Road. Mr. Henry Edwards, C.E., borough engineer, Lambeth Town Hall, Kennington Green, S.E.

LANCASTER.—March 23.—For erection of four cottages in Golgotha Road, Lancaster. Mr. J. Parkinson, architect, Church Street, Lancaster.

LANCASTER.—March 25.—For erection of an emergency airbase, &c., at the Lancaster Union workhouse. Mr. J. Parkinson, architect, 67 Church Street, Lancaster.

LEICESTER.—March 26.—For erection of a sewage pumping station, chimney-shaft, sumps, weigh office and other buildings and works in connection therewith. Mr. E. George Lawbey, borough engineer, Town Hall, Leicester.

LIVERPOOL.—March 31.—For erection of a sorting office Wavertree, Liverpool. All particulars may be obtained at M. Office of Works, &c., Storey's Gate, S.W.

LYDD.—April 7.—For repair of the roof and two upper stages of Lydd Church tower. Rev. A. Hardy, Lydd.

MACCLESFIELD.—April 18.—For erection of the superstructure of the new infirmary annexe for 206 patients at the Riverside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

MANCHESTER.—March 24.—For construction of a retaining wall, &c., at Auburn Street, London Road. Particulars may be

had on application at the City Surveyor's office, Town Hall, Manchester.

MIDDLESBROUGH.—For erection of the proposed Catholic church at South Bank. Messrs. Brodrick, Lowther & Walker, architects, 77 Lowgate, Hull.

MORPETH.—April 3.—For erection of buildings for ten constables and a drill shed at the police headquarters, Morpeth. Mr. J. A. Bean, county surveyor, The Moothall, Newcastle-upon-Tyne.

NELSON.—March 30.—For Baptist school chapel in Bradshaw and Entwistle Streets. Mr. Harry Whittaker, architect, 21 Market Square, Nelson.

NETHERNE.—April 14.—For excavating and levelling site and foundation works for new asylum at Netherne, Surrey. Messrs. George T. Hine & Co., architects, 35 Parliament Street, Westminster, S.W.

NORTH BURTON.—March 23.—For pulling-down and rebuilding the Star inn, North Burton, Yorks. Mr. David Petch, architect, Victoria Chambers, Huntriss Row, Scar borough.

NOTTINGHAM.—For alterations to business premises on Derby Road. Mr. Frank H. Collyer, architect, 9 Bridlesmith Gate, Nottingham.

PATRICROFT.—March 24.—For additions to the Guardians' offices. Messrs. Hurrell & Taylor, Brazennose Street, Manchester.

PETWORTH.—March 28.—For erection of a residence and stabling at Buckfold, Petworth, Sussex. Mr. William Buck, Horsham.

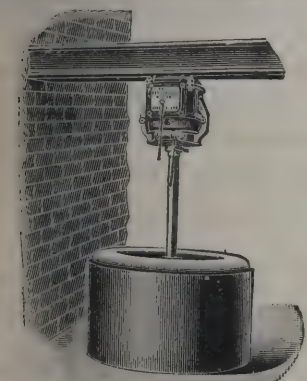
PORTSMOUTH.—March 31.—For erection of workshops and offices at Gladys Avenue, North End, Portsmouth. Mr. E. Rotter, Pearl Buildings, Commercial Road, Portsmouth.

RICHMOND.—March 31.—For erection of a mortuary, post-mortem room, &c., at Paradise Road. Mr. J. H. Brierley, borough surveyor, Town Hall, Richmond.

SCOTLAND.—March 23.—For erection of a central police office in St. Andrew's Square and St. Andrew's Street, Glasgow. Mr. J. Lindsay, clerk, City Chambers, Glasgow.

SCOTLAND.—March 24.—For erection of a new higher-grade department within the academy grounds at Alva. Messrs. Kerr & McCulloch, architects, 30 Mar Street, Alloa.

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SCOTLAND.—March 30.—For construction of the roofing of the extension of Glasgow Central station, for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

SCOTLAND.—April 4.—For erection of the church of Our Lady of Loretto and presbytery attached, in Newbigging, Musselburgh, near Edinburgh. Mr. Alfred Edward Purdie, architect, Meadow Grange, Blean, near Canterbury.

SHEFFIELD.—March 31.—For erection of a boundary wall about 683 feet long, and a governor house 37 feet by 27 feet, both of brick and stone, at the Neepsend station, the Sheffield United Gaslight Company. Mr. Hanbury Thomas, general manager and secretary, Commercial Street, Sheffield.

SHELF.—March 27.—For erection of a detached house and stabling at Upper Witchfield, Shelf, Yorks. Messrs. Walsh & Nicholas, architects, Museum Chambers, Halifax.

SHREWSBURY.—April 3.—For erection of a nurses' home on the workhouse premises, situate at Cross Houses, near Shrewsbury; construction of fire-escape staircases, bridges, &c. Mr. A. B. Deakin, architect, Pride Hill, Shrewsbury.

SLOUGH.—April 9.—For erection of a school building in the Queen's Road, Stoke Road, Slough. Messrs. Lee & Farr, architects, Slough.

TAUNTON.—March 24.—For erection of a farmhouse at Brewers Water, Crowcombe, Taunton. Mr. George G. Strawbridge, Alma Street, Taunton.

WALES.—March 24.—For erection of a school for boys at Georgetown, Tredegar, to include boundary and retaining walls, outbuildings, playgrounds, &c., and for alterations and additions to the existing schools. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—March 25.—For erection of twenty-five dwelling-houses at Fleur-de-Lys, Pengam. Mr. Geo. Kenshole, architect, Station Road, Bargoed.

WALES.—March 30.—For rebuilding 51 High Street, Merthyr. Mr. John Morgan, 53 Thomas Street, Merthyr.

WALES.—April 5.—For erection of two playsheds at the Graigefnparc Board school. Mr. C. S. Thomas, architect, 63 Wind Street, Swansea.

WALTHAMSTOW.—March 24.—For erection of a timber refreshment kiosk at Lloyd Park. Mr. G. W. Holmes, engineer, Town Hall, Walthamstow.

WALWORTH.—April 2.—For alterations and decorative repairs to Nos. 194, 196, 198 and 200, Boyson Road, S.E., for the purpose of converting the same into a reception home for children. Mr. G. D. Stevenson, architect, 13 and 14 King Street, Cheapside, E.C.

WARMINSTER.—March 25.—For covering-in the market house. Plans and specification can be seen at Longleat estate office.

WATFORD.—For additions and alterations to the latrine accommodation at the Callow Land girls and infants' schools in Leavesden Road. Mr. W. H. Syme, architect, 4 High Street, Watford.

WATFORD.—March 25.—For additions to the electric-light station. Mr. D. Waterhouse, surveyor, 14 High Street.

WEALDSTONE.—March 24.—For erection of a children's shelter in the recreation-ground. Mr. H. Walker, surveyor, Council Offices, Wealdstone.

WHITLEY.—March 28.—For construction of a concrete retaining wall and steps and approach to the beach, with man-holes, &c., in Whitley Bay, Northumberland. Mr. J. P. Spencer, architect, 30 Howard Street, North Shields.

WINCHESTER.—March 25.—For erection of three cottages at Houghton, Winchester. Mr. Thomas Stopher, surveyor, 57 High Street, Winchester.

WORKINGTON.—March 30.—For restoration of St. John's Church, Workington. Mr. James Howes, architect, 106 Harrington Road, Workington.

WREXHAM.—March 23.—For erection of a wrought-iron shed in the clinker yard, Willow Road. Mr. Thomas Bury town clerk, Wrexham.

YEADON.—March 23.—For extension of Leafield mills, Yeadon, Yorks. Mr. Harold Chippendale, architect, Guiseley near Leeds.

THE Edinburgh District Lunacy Board met on Monday, Councillor Richard Clark presiding, and considered various questions of detail in connection with the erection of the new asylum. A letter was submitted from the General Board of Lunacy approving of plans, specifications and estimates of four villas to be erected at Bangour. It was stated that the total cost of the buildings, &c., was 16,007*l.* 1*s.* 4*d.*, and that work might be at once proceeded with. The contract has been secured by Messrs. Bain & Co, Lochrin Ironworks, Coatbridge.

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TENDERS.

ALRESFORD.

For erection of a house on Town House Estate, Alresford, Hants. Mr H. YOLLAND BOREHAM, architect, 75 Finsbury Pavement, London.

Jenkins & Sons, Ltd.	£980	0	0
F. W. Harris	970	0	0
J. Harris	855	0	0
A. A. Gale	850	0	0
McWilliam & Son	832	0	0
Eddolls	832	0	0
Golding & Ansell	830	0	0
AVERY, Winchester (accepted)	709	15	0

ASHBY-DE-LA-ZOUCH.

For painting and decorating the Wesleyan chapel and school. Mr. ARTHUR GEORGE DALZELL, architect, Halifax. C. MARCH, Leicester (accepted) £95 0 0

BATH.

For alterations and additions to premises, Union Street. Mr. H. J. WILLCOX, architect.

Hayward & Wooster	£3,497	0	0
Webb	3,445	0	0
Wibley	3,405	0	0
Chancellor	3,385	0	0
Erwood & Morris	3,368	0	0
Long & Sons	3,233	0	0

BIRKENHEAD.

For street works in Lansdowne Road, between Tollemache Road and Vulcan Street, Tatton Road and Mounsey Road. Mr. CHARLES BROWNRIDGE, borough surveyor.

Accepted tenders.

Lansdowne Road.

W. Maddocks & Co., Corporation Road, Birkenhead	£1,516	19	2
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Tatton Road.

C. Horrocks, 113 Greenwich Road, Walton, Liverpool	198	17	7
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Mounsey Road.

C. Horrocks	164	8	2
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BIRMINGHAM.

For laying of a tramway at Saltley and Curdworth. Mr. J. D. WATSON, engineer.

Saltley.

J. & F. Howard	£406	5	0
R. Hudson	339	11	9
Orenstein & Koppel (German make)	316	2	10
J. Fowler & Co.	309	4	3
Dick, Kerr & Co.	296	5	6
KERR, STUART & Co. (accepted)	290	2	6
W. G. Bagnall, Ltd.	289	8	0

Curdworth.

J. & F. Howard	471	8	6
J. Fowler & Co.	368	10	0
Dick, Kerr & Co.	345	4	6
R. Hudson	337	17	0
Kerr, Stuart & Co.	290	7	6
W. G. BAGNALL, LTD. (accepted)	278	0	0
Orenstein & Koppel (German make)	259	8	10

BLACKBURN.

For reconstruction of the children's ward at the Blackburn and East Lancashire infirmary. Messrs. SIMPSON & DUCK-WORTH, architects, Richmond Chambers, Blackburn.

R. Shorrocks	£1,680	0	0
T. P. Wilson & Sons	1,593	0	0
W. Edmundson	1,590	0	0
Ginger & Cooper	1,581	14	0
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J. Boland	1,570	0	0
J. Fecitt & Sons	1,550	0	0
T. Higson & Sons	1,539	0	0
W. J. W. Cronshaw	1,538	4	0
J. Sharples	1,522	5	0
W. LIVESEY, Nova Scotia Sawmills, Blackburn (accepted)	1,455	8	7

BRADFORD.

For erection of a new tramcar depot at Saltaire.

Accepted tenders.

Jackson Bros., Manningham, Bradford, mason.
R. H. Dewhirst, Providence Street, Bradford, ironfounder.
S. Rushworth, Shipley, near Bradford, plumber.
J. Smithies, Great Horton, Bradford, slater.
Hobson & Haigh, Shipley, near Bradford, painter.

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Estler Bros., Ltd., 25 Laurence Pountney Lane, E.C., section insulators.

British Insulated & Helsby Cables, Ltd., Lennox House, Norfolk Street, Strand, W.C., trolley wire.

For alterations at the free public library, Darley Street.

Accepted tenders.

W. Booth, Fair Road, Wibsey, Bradford, mason and concreter. Rycroft & Co., Rutland Street, Bradford, joiner.

For painting and cleaning at the City Hospital, Leeds Road. J. LYNN, Manningham Lane (*accepted*).

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For erection of the power station and offices at the new electricity generating station at Southwick. Mr. MAY, surveyor.

Pedrette & Co.	£29,987	1	10
R. Cook & Son	25,947	0	0
Martin & Co.	25,826	0	0
Potter Bros.	25,499	0	0
Box & Turner	24,492	0	0
Rowland Bros.	23,989	0	0
Pearless, Dennis & Co.	23,448	0	0
J. Parsons & Sons	23,261	0	0
J. Shillito & Co.	22,500	0	0
J. Longley & Co.	22,449	0	0
W. A. Field & Co.	20,300	0	0

CANTERBURY.

For erection of an infants' school and offices and alterations to the Board school, Chartham. Mr. G. SMITH, architect
34 Station Road, Canterbury.

Myall & Upson	£2,350	0	0
F. R. Biggleston	2,250	0	0
Gann & Co.	2,199	0	0
G. Browning	2,130	0	0
G. H. Denne & Co.	2,125	0	0
L. Dickens	2,103	5	
T. Terry	2,120	8	
H. J. Smith	2,099	0	0
Keeler	2,081	0	0
A. J. Brewster	2,070	0	0
W. J. Adcock	1,992	0	0
E. HARLOW, Chartham (<i>accepted</i>)	1,923	0	0

CLACTON-ON-SEA.

For sewerage works in St. Osyth Road. Mr. A. R. ROBINSON, engineer.

Iles	£3,170	0	0
J. Jackson	3,169	0	0
Bradshaw & Co.	3,155	0	0
Coxhead	3,097	0	0
Potter & Co.	3,005	0	0
Rayner	2,950	0	0
Ambrose & Co.	2,933	0	0
FAIRCLOUGH, Clacton (<i>accepted</i>)	2,432	0	0

CROYDON.

For additions to offices, &c., at the electricity works, Factory Lane.

Townsend & Coles	£2,072	19	
W. H. Baldwin	2,069	13	
T. Pearce	2,062	0	
R. Jones & Son	2,043	0	
S. Page & Son	2,019	0	
E. J. Saunders	1,997	0	
W. Gowman	1,846	0	
C. Jackson	1,798	0	
F. Athey	1,797	0	
T. Vaughan & Sons	1,780	0	
FOSTER BROS., Suffolk Road, South Norwood (<i>accepted</i>)	1,622	15	

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DOVER.

For completing the construction of Avenue Road. Mr HENRY E. STILGOE, engineer, Maison Dieu House, Dover.
E. Stokes £135 0 0
G. MUNRO, Heathfield Avenue, Dover (accepted) 106 0 0

ENFIELD.

For street works in Chesterfield Road, Enfield Lock. Mr. RICHARD COLLINS, surveyor.
T. Adams £1,190 0 0
W. Peters 1,061 0 0
C. Bloomfield 1,054 0 0
G. J. Anderson 1,025 0 0
E. J. Betts 985 0 0
M. S. KETTERINGHAM, Waltham Cross (accepted) 950 0 0

HANDSWORTH.

For additions and alterations to the Birchfield branch library, Handsworth, Staffs.
Extensions to branch library.
Hulbert & Ladbury £459 2 0
D. Roberts 434 0 0
T. Elvins 415 0 0
G. Webb 362 0 0
W. C. Channing 346 0 0
J. Archer 344 0 0
E. GARFIELD, 30 Birchfield Road, Aston, Birmingham (accepted) 331 0 0
W. Jackson 300 0 0
Extensions to assembly-room.
Hulbert & Ladbury 498 13 0
T. Elvins 480 0 0
W. Jackson 435 0 0
G. Webb 429 10 0
J. Archer 414 0 0
D. Roberts 414 0 0
W. C. Channing 414 0 0
E. GARFIELD, 30 Birchfield Road, Aston, Birmingham (accepted) 398 0 0
HOVE.
For erection of boundary walling, shedding stores, workshops, yardman's house, &c., at the Corporation dépôt in Sackville Road. Mr. H. H. SCOTT, borough surveyor.
W. BROWN & SON, Ditchling Rise, Brighton (accepted) £3,797 0 0

HENDON.

For making-up private streets, &c. Mr. W. S. SLATER GRIMLEY, surveyor.

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C. W. Killingback & Co. 602 18 3
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J. Meston 543 13 9

The Burroughs.

C. W. Killingback & Co. 644 19 6
W. Griffith & Co., Ltd. 578 1 3
J. Meston 566 2 6
R. Ballard, Ltd. 521 1 6
B. Nowell & Co. 487 16 0
T. ADAMS (accepted) 479 0 10

IRELAND.

For supply of one 12-ton roller and three 10-ton rollers, for the Armagh County Council. Mr. R. H. DORMAN, county surveyor.

Accepted tenders.

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Fowler & Co., Leeds, one 12-ton roller 450 0 0

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For construction of a new cast-iron sewage outfall at Chayne, about 310 lineal yards in length, and main trunk sewers leading thereto. Mr. O. M. PROUSE, engineer.

Martin, Wells & Co.	£52,626	0	0
F. W. Trimm	45,199	0	0
Pethick Bros.	42,057	0	0
A. Kellett	22,730	13	3
R. H. Neal	21,208	0	0
E. Ellis & Son	20,747	0	6
E. R. Lester	20,020	0	0
Britton & Pickett	18,624	0	9
J. & T. Binns	18,482	0	0
B. COOKE & Co., 16 Victoria Street, Westminster (accepted)	17,300	0	0
G. Rutter	17,023	1	8
Barnes, Chaplin & Co.	16,810	5	0

KENSINGTON.

For alteration and enlargement of boiler and engine-houses and the erection of a chimney-shaft at the workhouse in the Marloes Road. Mr. ERNEST FLINT, architect, 80 Coleman Street, E.C.

W. Neil & Co.	£2,300	0	0
Fraser & Sons	2,283	0	0
Windsor & Co.	2,236	15	0
C. Ansell	2,167	0	0
C. Dearing & Son	2,155	0	0
J. Jarvis & Sons	2,150	0	0
W. Webber	2,130	0	0
W. J. Renshaw	2,065	0	0
Chambers Bros.	2,052	0	0
T. Robinson	2,025	0	0
J. W. Gray & Co.	1,989	0	0
J. O. Richardson	1,969	0	0
T. Pearse	1,966	0	0
W. Wallis & Co.	1,899	0	0
Foster Bros.	1,875	0	0
C. R. Price	1,857	0	0

LEEDS.

For erection of urinals and conveniences at the Harehills recreation-ground.

J. RICHARDSON, Chapeltown (accepted)	£143	0	0
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LISCARD.

For erection of a chimney and main flue at the electric supply works, Seaview Road, Liscard, Cheshire.

DRYLAND & PRESTON, Littleborough, Manchester (accepted)	£3,533	0	0
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LIVERPOOL.

For erection of schools.

Accepted tenders.

I. Dilworth, Sherlock Street school	£18,920	0	0
R. Wearing & Sons, Tiber Street school	18,551	0	0
Whitnall & Gregory, Broadgreen Road temporary school	1,877	0	0

LONDON.

For street and sewage works on the Ransbury Estate, Clapham Road, S.W. Mr. W. HUNT, surveyor, Norfolk Street, Strand, W.C.

T. Swaker	£1,185	0	0
Peill & Son	1,156	0	0
Wimpey & Co.	1,149	7	0
J. Jackson	1,139	0	0
S. Kavanagh & Co.	1,123	0	0
H. WOODHAM & SON, Catford (accepted)	1,114	0	0

MAIDENHEAD.

For painting and decorating portions of the Guildhall buildings. Mr. PERCY JOHNS, borough surveyor.

E. Jelly	£223	8	0
F. J. Bloomfield	217	0	0
G. Watson	196	0	0
G. E. WHITEMAN, Maidenhead (accepted)	195	0	0

MALDON.

For supply of cast-iron pipes. Mr. THOS. R. SWALES, borough engineer.

A. G. CLOAKE, London, £5 8s. per ton (accepted).

PLYMOUTH.

For supply of benches, cupboards, laundry tables, &c, to the Salisbury Road and Regent Street woodwork centres.

F. G. Sluman	£36	5	0
G. A. Worth	31	18	6
J. H. AXWORTHY, Plymouth (accepted)	29	18	6

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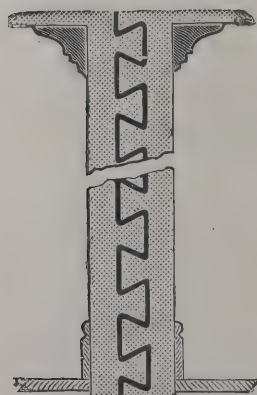
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J. Hurst	£12,686	5	2
W. G. White	9,823	14	6
A. Stark	9,668	6	8
Holme & King	9,343	3	2
A. Graham & Sons	9,200	0	0
S. Johnson	8,949	0	2
G. Freeman & Sons	8,653	11	0
W. WINNARD, Wallgate, Wigan (accepted)	8,602	14	1
W. Jones & Co.	8,009	13	1

PORTSMOUTH.

For supply and erection of centrifugal pumps, electrical motors, cast-iron tanks, pipes and sundry ironwork.

Vosper & Co., Ltd.	£1,950	0	0
H. & W. Davis & Sons	1,635	0	0
Sir Hiram Maxim Electrical Engineering Co., Ltd.	1,595	0	0
AITON & Co. (accepted)	1,559	0	0

SCOTLAND.

For erection of Stornoway municipal and town hall buildings, &c. Mr. J. ROBERTSON, architect, Inverness.

Accepted tenders.

McLean, Dingwall, mason	£4,420	0	0
R. Machennan, Fortrose, carpenter	2,880	0	0
A. MacIvar, Stornoway, plumber	750	0	0
Turnbull & Son, Portree, plasterer	610	0	0
D. MacKenzie, Stornoway, painter	474	0	0
Taylor, Aidconnel Terrace East, Inverness, slater	297	0	0

For erection of a public school in Huntly, Aberdeen. Mr. R. G. WILSON, architect, 181A Union Street, Aberdeen.

Accepted tenders.

R. Mitchell, builder			
J. McKay, carpenter			
A. Adam & Co., slater			
G. McKay, plasterer			
J. Wilson, plumber			
A. Robertson, painter			

SHOREDITCH.

For alterations to the kitchen at the infirmary, Hoxton Street, N., for the Guardians.

B. E. Nightingale	£2,850	0	0
G. Newton	2,775	0	0
Dearing & Son	2,753	0	0
Minter	2,735	0	0
W. S. Beaton	2,608	16	4
Schooley & Son	2,587	10	0
J. IVORY, Great Cambridge Street, N.E. (accepted)	2,515	0	0
T. Pearce	2,410	0	0

TIPTON.

For erection of schools in Park Lane.

HARVEY, West Bromwich (accepted)	£10,750	0	0
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TROWBRIDGE.

For erection of an isolation hospital for thirty patients at Trowbridge, Wilts. Mr. J. HUGH GOODMAN, architect, Town Hall Chambers, Reading. Quantities by Messrs. HENRY COOPER & SONS, surveyors, Reading.

R. Wilkins & Sons	£10,483	4	6	£40	0	0
Wort & Way	9,910	14	1	31	17	3
E. Chancellor & Sons	9,464	0	0	58	0	0
Henry Ash	9,426	0	0	146	0	0
W. J. Bloxham	9,342	6	11	115	7	0
Wills & Sons	9,134	0	0	35	c	0
Henry Pittard & Son	9,115	10	0	35	0	0
J. & M. Patrick	9,050	0	0	57	0	0
Jenkins & Sons, Ltd.	8,977	0	0	49	0	0
Wakeham Bros.	8,967	0	0	51	0	0
J. G. Fincher & Co.	8,957	14	7	62	1	6
R. Butcher & Son	8,878	17	0	21	0	0
E. C. Hughes	8,779	6	8	43	13	0
H. Hoskings	8,376	0	0	44	0	0
Hayward & Wooster	7,997	0	0	33	0	0
McCarthy E. Fitt	7,905	0	0	73	0	0
Jacob Long & Sons	7,848	0	0	40	0	0
A. J. Colborn	7,823	17	11	63	3	4
Edward Linzey	7,772	1	9	75	2	5
Stephens, Bastow & Co., Ltd.	7,574	0	0	54	0	0
GEORGE MOORE, Trowbridge (accepted)	6,934	3	0	49	11	0

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TRADE NOTES.

THE heating of Truro Cathedral has been successfully carried out by Mr. John Grundy, of London, by means of his latest improved type of combined heating apparatus.

MESSRS. JOHN ALLEN & SONS, LTD., of Kilburn, have been appointed by Royal Warrant building contractors to His Majesty the King.

LITTLE BYTHAM CHURCH, Grantham, has recently been warmed by Messrs. John King, Ltd., engineers, Liverpool, employing their latest improved hot-water heating apparatus.

MESSRS. ANDREW HANDYSIDE & CO., LTD., of Derby and London, makers of steel bridges, roofs, buildings, and structures, have received the contract for the supply of their special type of combined wood and steel roof principal in connection with the new electric-lighting station at Ipswich.

A NEW tower with clock showing the time upon four illuminated dials, 6 feet 6 inches each in diameter, and striking the full Cambridge quarter chimes and hours on a set of heavy bells, has lately been presented to Lindley, Huddersfield, by Mr. James Nield Sykes, J.P., at a cost of 5,000*l.* The clock, chimes and bells were supplied by Messrs. Wm. Potts & Sons, clock manufacturers, Leeds and Newcastle.

THE occasion of the visit of Their Majesties the King and Queen to the "Wild West," at Olympia, afforded an opportunity for something like a *tour de force* on the part of the well-known furnishing firm of Messrs. Oetzmann & Co., of Hampstead Road, who were called upon to furnish and decorate, at exceptionally short notice, a special temporary Royal box, on the ground floor of the great building. Pretty furniture and draperies were specially requisitioned, and the result was both luxurious and charming. Messrs Oetzmann are also responsible for the permanent Royal box at the popular show, which is so attractive with its dainty eighteenth-century French furniture and artistic decorative details.

WE are informed by Messrs. Goodwin, Barsby & Co., engineers and ironfounders, of St. Margaret's Ironworks, Watling Street, Leicester, that they have obtained from the Nottingham Corporation, through the city surveyor, Mr. Arthur Brown, M.Inst.C.E., the order for a set of fine crushing rolls to deal with river gravel. The work is to crush pebbles which have passed about 1½-inch mesh down to about ⅛-inch and less. The larger crushed material is used for filling-in between setts, and the finer crushed material ¼-inch and less is used for

sanding streets and tar-paving. The machine was put in under a guarantee to crush 3 tons an hour under this specification, but Messrs. Goodwin, Barsby & Co. have been able to get as much as 5 tons an hour through it.

VARIETIES.

A NEW school which has been erected by Dunfermline Burgh School Board in the Pittencreeff district of the burgh, was formally opened on Monday.

MR. A. E. PRIDMORE is the architect for the new Poor Law school at Kentish Town, London, N.W., about to be erected.

THE extension of the Chelsea workhouse, which has become necessary, is to be carried out. The architects are Messrs. Lansdell & Harrison, of Basinghall Street, London.

ELECTRIC NOTES.

THE Bath City Council, sitting as an urban sanitary authority, on Tuesday came to important decisions concerning the future of its electric-lighting undertaking. Having been advised to spend 50,000*l.* in reconstruction and extension of their works, the Council received an offer from the Bath Electric Tramways Company to lease the lighting undertaking for thirty-two years, and this was referred to the committee for consideration. On Tuesday they reported, advising the Council not to entertain any further proposals for the disposal by lease or otherwise of the undertaking. The report of the committee was carried. The Council then proceeded to the consideration of a recommendation by the committee to expend 25,000*l.* this year on necessary works as part of the scheme of reconstruction and extension costing 50,000*l.* first recommended by the consulting engineer (Mr. Manville), this report being also adopted.

A PAPER on surface-contact systems for electric tramways, of exceptional interest to Birmingham engineers, was read on the 11th inst. at the Midland Institute, before the local Association of Civil Engineers, by M. Victor Bornand, an engineer who until lately was engaged in designing and carrying out surface-contact tramway systems in Paris. At the outset M. Bornand claimed that surface-contact systems should have preference to overhead-wire systems on primary

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ILLUSTRATIONS.

- GROCEERS' HALL, PRINCES STREET, E.C.: THE STAIRCASE.
- NEW SCHOOL, OAKBANK, FOR THE KIRKNEWTON AND EAST CALDER SCHOOL BOARD.
- ST. COLUMBA CHURCH, BLACKHALL.
- DESIGN FOR A COUNTRY RESIDENCE.
- PICTURESQUE IPSWICH.

sthetic grounds. He also urged that overhead-wire systems
ferred a great impediment to the free movement of fire-escapes,
d furthermore, that they were necessarily of considerable
nger, very much more so, in fact, than the latest surface-
ntact systems of the present day. After going very fully into
e technicalities of the subject, M. Bornand concluded by
awing attention to the many unfounded reports which
peared with respect to alleged unsatisfactory working of
rface-contact systems, and gave the interesting information
at such systems should never cost more than 10 per cent. to
per cent. over and above the cost of trolley-wire systems.
r. Greatorex (borough engineer of West Bromwich) objected
at studs in a street were, in his opinion, more objectionable
an overhead equipment. Dr. Morris, of the University, said
at most towns had agreed that surface-contact systems were
eferable to overhead systems, but up to the present time the
erhead system had proved to be the cheapest in first equip-
ent and working. Should the surface-contact line now in
eration prove satisfactory, he hoped that in Birmingham the
es about to be laid down would be of that system, at any
ce in the centre of the city.

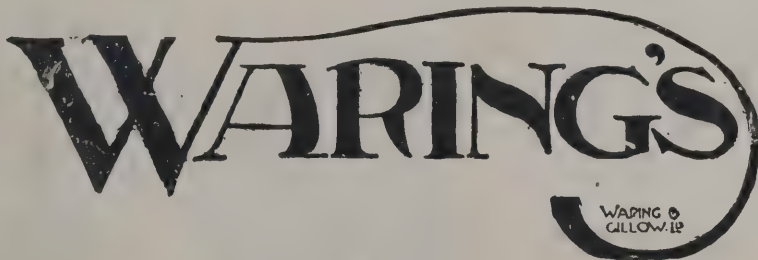
NEW CATALOGUES.

E have received from Messrs. George Farmiloe & Sons,
imited, of St. John Street, West Smithfield, London, their
w catalogue No. 9, which deals principally with sanitary
atters, although at the end prices, sizes, &c., are given for
ate, plain, embossed and stained glass. The catalogue has
en carefully compiled, the illustrations are well printed on
od paper, and what is more important the dimensions and

prices are plainly stated. All the leading sanitary firms'
specialties are illustrated, such as Doulton's, Jennings's,
Hellyer's, Shanks's, &c. The size of the work is such that
use may be made of it. Too often a catalogue is of such
dimensions that it is unwieldy, and an architect or builder
finds it impossible, much as he would like to, to give it office
room. This is not the case with Messrs. Farmiloe's catalogue.
It is really a work of reference, and one which any of our
readers interested in such matters would find of real service.
We have also received from Messrs. Farmiloe a sample of their
new pattern rolled plate glass to which they have given the
distinctive name of "Oceanic." The design is very effective
and pleasing, being a combination of seashore objects, such as
sea-weed, cockle-shells, star-fish, &c.

THE new catalogue of electric, hydraulic and hand-power
lifts manufactured by Messrs. Wm. Augs. Gibson, Limited, of
28 Fleet Street, London, and Provanside Works, Glasgow, is
an admirable example of what high-class printing in combina-
tion with photography can do for the manufacturer. The lifts
comprise every up-to-date patented contrivance to insure
efficiency and safety. And these range from the simple dinner-
lift, to lifts of the most elaborate and costly design. It is not
possible to go into questions of powers, controllers, pressures
and valves, all of which are points of great importance to
engineers having to advise upon these modern requirements—
shall we say indispensable?—to tall buildings. To all who are
interested in these matters we can but recommend them to
secure a catalogue and read what Gibson's, Limited, have to
say upon the subject. There is but one more point we need
refer to, but it is one which affects a large number of those
who are constantly using lifts. With such as are not absorbed
with the business on hand, there is often a latent feeling of
timidity that something may perchance go wrong. This
Messrs. Gibson wisely provide for by sundry contrivances.
Thus, at the end of their descriptions we read, in several
instances, "This lift is fitted with our steel safety catches,
which are so constructed that in the event of the ropes stretch-
ing or breaking, the car remains suspended." Surely, if some
such arrangement is known to secure absolute safety, it should
be made compulsory.

THE scheme has been sanctioned for the erection of a
new church by the Tennyson Road congregation at Preston,
at an expenditure of 5,500*l*.



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BUILDING AND BUILDERS.

ST. ANDREW'S STREET Baptist church, Cambridge, is to be entirely rebuilt, partly on the foundations of the old building. The tender of Messrs. Kerridge & Shaw, of Sturton Street, Cambridge, has been accepted by the committee at 7,458/., and the work has just commenced. The architects are Messrs. George Baines, F.R.I.B.A., & R. Palmer Baines, 5 Clement's Inn, Strand, London, W.C.

At the second annual meeting of the Liverpool Building Materials Association, which was held on Monday last, the officers and committee for the current year were elected as follows:—President, Mr. James E. Beard; vice-presidents, Messrs. J. Evans and W. H. Brown; treasurer, Mr. Frank Jones; committee, Messrs. Edwards, Dowler, Wilkinson, Parr, Croker, Ashcroft, Rowlands, Walker and Barlow.

The ceremony of laying the foundation-stones of a new English Wesleyan chapel at Llangollen took place on the 27th ult. The building is designed in the Gothic decorative style, and will consist of nave, transepts and chancel. The roof will be an open one of pitch-pine, and there will be a spire rising to a height of 80 feet. The windows will be filled with leaded lights. The pulpit will be of oak, and there will be accommodation for about 250 people. The cost is estimated at 2,800/.

A SCHEME is on foot for connecting Montreal and Longueuil, Quebec, by means of a tunnel under the St. Lawrence. Plans have been submitted to the Department of Railways providing for a double track tunnel from the south shore to the heart of Montreal, where a central station will be located. The structure will be of concrete and stone masonry lined with enamel brick, and will have a width of 27 feet and a height of 21 feet. The gradients will be 13 to 2 per cent., and the greatest depth will be 15 feet below the mean level of the river.

A VERY interesting example of the Cottancin system of steel-cored brick and steel-cored cement construction is now being completed in the form of a large storage tank for Messrs. James Simpson & Co., Ltd., at Newark-on-Trent. This tank is 115 feet long by 26 feet wide by 12 feet deep; the bottom is formed of a series of steel-cored brick shallow caissons on the Cottancin system, with surface of steel-cored cement tied down to the core of the brick caissons. The containing walls, 12 feet deep, are constructed of steel-cored brick 4½ inches thick only,

reinforced by horizontal and vertical ribs of the same material 9 inches by 4½ inches widely spaced. The steel core of the walls is tied, interwoven with the cores of the caisson bottom thus forming a whole of wonderful strength, for the wall on one side, which is 115 feet long and 4½ inches thick only by 12 feet deep without any buttresses on the inside of the tank has to support the pressure of over 12 feet of unstable and waterlogged soil, and the vibration caused by a heavy good railway running parallel to the tank at a few feet distance and at a higher level. This small but interesting piece of work is attracting considerable attention, and is the first application of the Cottancin system of construction to reservoir work in Great Britain. The Cottancin construction in England has just made contract for the construction of a series of caisson foundation on this system for boilers for a pumping-station for H.M. Office of Works.

URALITE FOR ROOFING.

WE have several times had occasion to draw our readers' attention to the manifold uses of Uralite as a building material. Not the least of these is its suitability as a roofing material, in which connection it is claimed that so far as strength is concerned it is equal to the best slate or tiled roof, while it is, we believe, lighter than any other roofing material in use.

It is fireproof and non-conducting, and keeps buildings cool in summer and warm in winter. It is verminproof, and in the colonies successfully resists the attacks of white ants, &c., whilst it neither expands nor contracts under differences of temperature.

It has already been adopted in this country for roofing workshops, breweries, mills, factories and dwelling-houses.

It would appear that the style of roof illustrated is a step in the right direction, as in case of gales there is less chance of the wind driving rain underneath the roof than is the case with either slates, tiles or galvanised iron, and the makers inform us that even where the material has to be used in the shape of slates or tiles in the smaller sizes they can be so well fixed that a good tight roof is obtained.

The illustration, however, shows that, fixed in colonial fashion, there are few joints—a great advantage in roofing—and the appearance is attractive.

Roofing can be obtained in either white, grey or red colour. The material is an exceedingly efficient fire protector, and has been adopted by the London Hospital and other similar

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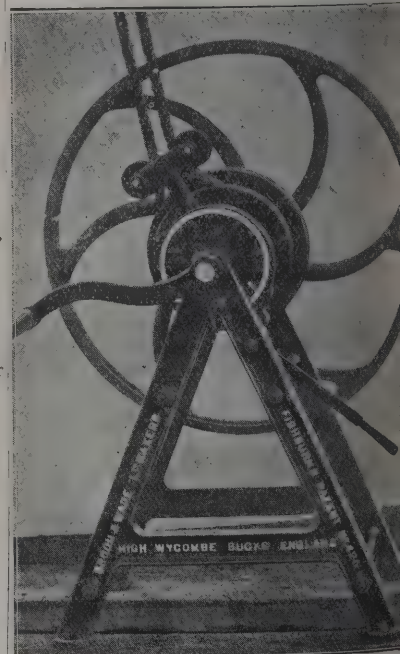
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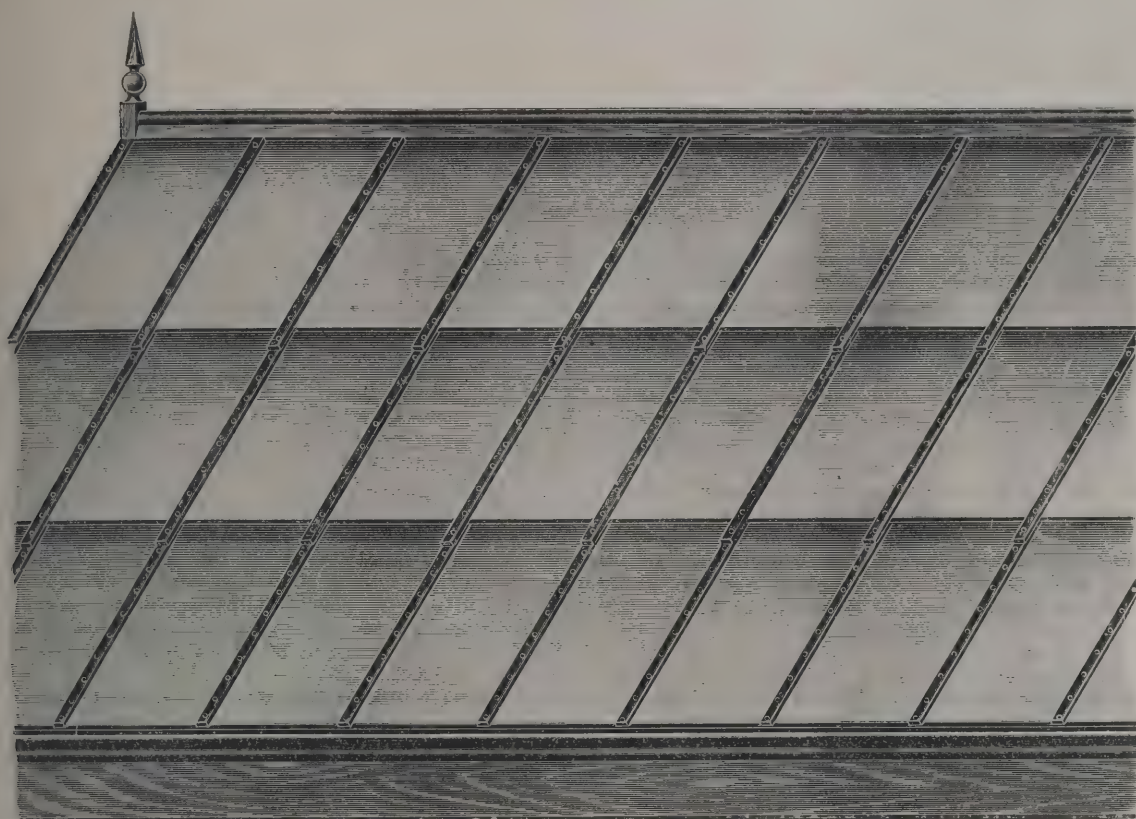
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stitutions to replace matchboarding, it being quite impossible to produce a flame out of Uralite. As a refrigerating plant material it has been largely used at the London and India docks. The address of the manufacturers is 50 Cannon Street, London, E.C.

ANAGLYPTA AND SALAMANDER DECORATIONS.

THE catalogue for 1903 relating to Anaglypta and Salamander decorations, although the plates are simply in black and white, and are mainly photographic reproductions of actual examples, merits to be taken as evidence of the progress which surface



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design has made in this country. Apart from the use for which it is intended, it might with advantage be utilised in art schools to enable students to realise how high a standard is required in industrial work. The name is given of the designer in nearly every case, a practice which deserves imitation, and consequently the freshness of all the specimens is understood. Among the artists who have exercised their skill in Anaglypta decoration are Mr. Voysey, Mr. Owen W. Davis, Mr. Haité, Mr. Sheffield, Mr. Rainger, Mr. Jonquet, Mr. A. Silver, Mr. Kennerley, Mr. Aumonier, Mr. Kimpton, Mr. Moller, Mr. Lamb, &c. They have worked in honourable rivalry, and the results are to be seen in decorations which are adapted to all the varieties of styles now adopted for building. For it is well to understand that the designs are not of the indiscriminate kind which can be utilised for many purposes. Anaglypta is essentially an architectural auxiliary, and all the designs present something of the architectesque in their treatment. Whether employed as panels, dados, friezes, strings, borders, fillings for walls of rooms or halls, ceilings, staircases, it will be found that in each case appropriateness to use as well as beauty have been recognised. In order to give additional effect special mouldings in wood have been prepared for those who prefer them to Anaglypta mouldings. Wood pendants and other aids are also to be obtained. The catalogue is not merely a book of beauty; it contains ample instructions about the application and fixing of the material as well as for making it as effective as possible by the aid of colour. Another advantage is the introduction of sketch plans which will enable the architect to realise how any design which he prefers will work out when repeated or combined with other patterns. By the ingenious arrangement much labour will be saved in architects' offices. The number of elements for margins of various kinds will also become an aid, especially in the adoption of Anaglypta for ceiling decorations. In fact, the utility of the catalogue, which is no mere register of designs, will at once be apparent to every architect. The sizes of panels and other parts are also given, as well as prices. The employment of Anaglypta is, in fact, facilitated by the practical experience seen in the arrangement of the catalogue, and in that way as in others it deserves to be taken as a model by many manufacturers. It should always be remembered that there are many claims on an architect's attention, and he has no time to spare in arriving at inferences when information is not clearly put before him.

One piece in particular may be referred to. This is a

Louis XV. ceiling, having curves so delicate in their contour it would be difficult to realise them in any other material. From the number of drawings given there would not be the least difficulty in preparing a general plan that would be sufficient to enable any client to realise its appearance.

PREVENTING GRANT OF CERTIFICATE.

A REMARKABLE case was heard by Mr. Justice Darling at Warwickshire Assizes, which was already before the court and was referred back from the High Court. According to the *Birmingham Daily Post* the plaintiff, Mr. Charles Hopbush, of Berkswell, sought to recover 143*l.* from Mr. Stanbury Eardley, solicitor, of Birmingham, which he alleged to be due on a building contract. The defence was that no architect certificate had been given for the sum claimed, and the plaintiff's reply was that the architect had been prevented from giving a certificate by the interposition of the defendant. The building in question was a cottage at Fen End, Berkswell. Mr. Stanger, K.C., and Mr. H. McCardie appeared for the plaintiff, and Mr. Hugo Young, K.C., and Mr. Norris Foster for the defendant.

In opening the case Mr. Stanger explained that it had been before Mr. Commissioner Forbes, and was referred to Lord Justices Romer and Matthew, who decided that as a question of misconduct was raised it was desirable that it should come before a jury. The allegation by the plaintiff was that the defendant interfered with the architect, Mr. Scruton, in such a way as to cause him to abdicate his functions as an architect. The contract for the work was for 255*l.*, and the architect gave a certificate for the first half of the amount, which was paid. After that Mr. Eardley more and more took the matter out of Mr. Scruton's hands, and indeed the architect did not go on with the building for a long period before he was asked to give the final certificate. That certificate was not given, and the reason suggested by Mr. Stanger was that the architect was afraid Mr. Eardley would bring an action against him if he gave the certificate. In support of this contention Mr. Stanger read extracts from a bulky volume of correspondence, in which repeated applications to the architect for a certificate were made by the statement that "a few things were required to be done by Mr. Eardley." Several appointments to meet the defendant and the architect on the ground were made but not kept. The plaintiff suggested that the giving of the certificate should rest with the architect and not with the owner, but he agreed to do

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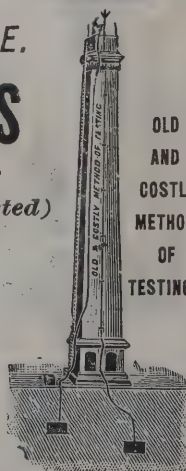
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anything that was in the specification. But some of the defendant's requirements were inconsistent with the specification and could not be done. He did all that could reasonably be required. Mr. Scruton in one of his letters said he thought Mr. Eardley should give way in regard to an æsthetic defect in the porch, but suggested that the plaintiff should see the defendant about it. This, Mr. Stanger said, seemed to suggest that Mr. Eardley had inspired fear in the breast of the architect, and he would rather not see him.

The Judge: You say he was afraid of Mr. Eardley; not that he conspired with Mr. Eardley?

Mr. Stanger: I say that he abdicated his function as an architect. He refused to grant the certificate, although the work had been done to his satisfaction.

Mr. Young: One of the things not done to his satisfaction was the "bond."

The Judge: The "bond"?

Mr. Hugo Young: I mean the binding of the new work to the old.

The Judge: I thought you were referring to "The Merchant of Venice."

A discussion followed as to what Mr. Scruton meant when he wrote to the plaintiff, "When you have done this work I shall be in a position to push for your certificate."

Mr. Young thought it showed that the architect desired to induce the owner to waive his undoubted right to have certain defects remedied.

Mr. Stanger: I thank my friend for his ingenious and amusing interpretation, but I think it meant that Mr. Eardley would not allow him to give the certificate that the builder was entitled to, and that he would endeavour to induce him to give up this foolish, uncompromising attitude.

The Judge: I see now what "push" means. Each was pushing the other to the front when it was a question of going to see Mr. Eardley.

Mr. Stanger said the architect's refusal to give a certificate was dictated by the defendant, and was written because the architect was afraid it would be unpleasant for him if he gave a certificate. He asked the jury to return a verdict to that effect, leaving the precise amount to be fixed by someone who should go into the details.

The plaintiff went into the witness-box and stated that when he asked Mr. Scruton why he would not give a certificate he said, "Because of Mr. Eardley's interference." Mr. Pettit, of Foster & Co., solicitors for the plaintiff, said he asked the

architect a similar question, and Mr. Scruton told him that without Mr. Eardley's consent he could not give a certificate, as he was afraid that if he did so an action would be brought against him.

Mr. F. W. Hipkiss, an architect, said Mr. Scruton told him he was afraid of Mr. Eardley, who had threatened him with an action.

Mr. Hugo Young opened the defence by contending that there was no case to go to the jury. He quoted authorities to show that the condition precedent to the contract could not be set aside under any circumstances.

The Judge: I have the advantage of a judgment on this case. Surely if the defendant said to the architect, "If you give a certificate I will shoot you," that circumstance would justify the Court in setting aside the condition precedent.

Mr. Young then put the architect, Mr. Scruton, in the witness-box, and examined him with a view to showing that there was reasonable ground for withholding the certificate. The witness said the shortness of one arm of the roof of the porch, and the fact that the quarterings were an inch thick instead of $1\frac{1}{4}$ inch were æsthetic defects which might have been passed over. Where the defendant asked for a door frame there was no door, so he did not see that the frame was necessary. The crack in the wall was a serious defect. He did not notice any of these defects till Mr. Eardley pointed them out. Then he saw that the brickwork was not bonded in the way specified in the contract. He had a "legal fear" of Mr. Eardley, for he knew that if he gave a certificate while these defects existed Mr. Eardley could bring an action against him.

Mr. Eardley in his evidence stated that the cottage was not habitable for a gentleman. When the wind blew it rocked, and when rain fell it was flooded. Asked why he went to live in such an uninhabitable house, he said he had a child who was almost dying, and he was ordered to take it into the country.

Mr. Stanger: I believe that the child did not die even in this cottage.

Mr. Hugo Young: It only wanted the open-air treatment. Experts were called on both sides to say whether they thought the contract had been properly carried out.

Eventually his lordship put the following question to the jury:—"Did Mr. Scruton refuse to give a final certificate in consequence of the requirement by the defendant that things should be done by the plaintiff beyond what he was bound to do under the contract, and did he in fear of the defendant

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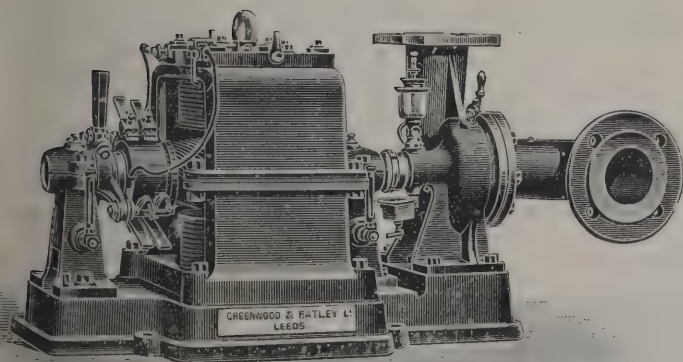
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refuse to give his final certificate, believing that the plaintiff was legally entitled to it?"

After retiring for a few moments the jury answered, "Yes."

Mr. Stanger then asked his lordship to put further questions to the jury, but this the judge refused to do.

HOUSING IN GLASGOW.

EVIDENCE was given by Mr. Thos. Binnie, a valuer with forty-five years' experience, before the Glasgow Corporation Housing Commission. According to the *Herald*, there were, he said, six reasons for the recent rise of rents in Glasgow. These were:—(1) A great rise in the wages of all operatives connected with the building trade; (2) a considerable rise in the cost of materials used in building; (3) the enforcement of building regulations to make buildings more substantial, and also more healthy; (4) an improvement in the size and character of houses of the smaller class; (5) the great increase in the burden of taxation placed upon property; (6) the increased cost of the upkeep of property. The rise in wages was from 66 to 100 per cent. between 1860 and 1902, and the average was 81 per cent. It was his experience that as wages had advanced less work was done per hour; therefore, so far as building was concerned, workmen were raising rents against themselves. On the whole, he estimated that the average increased cost overhead of building ordinary tenement-houses had not been less than 50 per cent. during the past forty years. Cost had been increased in consequence of houses being built more carefully under strict supervision. So far as we are making the buildings more substantial than we did before, we are going quite in the wrong direction. Any ordinary tenement built now will within 100 years be regarded as quite out of date. The really insanitary houses are those which have been built too strongly; they have lasted too long. Whenever ground becomes very valuable it pays the owner to take down these old insanitary houses and substitute business premises for them. Building regulations, so far as they prescribe thickness of joists, &c., are vexatious. These are things that should be left to the builder. No builder will put up a house unless it is sufficiently substantial. What is known in the trade as a 35-foot tenement contains 12,801 cubic feet, whereas in older tenements the same class of house would only contain 10,404.

The increase of accommodation in the new tenement was as 104 to 128, everything being equal except the size of the apartments.

Builders nowadays frequently proceeded in this way. They bought a large bit of ground at perhaps so low a price as 4s. a yard. They built a tenement on it, and when selling the property created a feu-duty which represented not 4s. a yard, but 1*l*. They sold that at a large number of years' purchase, but disposed of the building at cost price, or under cost. He knew of a case in which a profit of 8,800*l*. was made on the feu-duties, while the tenements were sold at 5,500*l*. less than the cost. The result was quite a moderate profit to the builder. The feu-duties were always a safe investment because of the security given by the buildings. It made no difference to the tenants whatever. He had ascertained from his old books the rates of rental in thirteen properties in different parts of the city in 1860. The lowest rent was 4*l*. and the highest 13*l*. Measuring these tenements over the walls and reducing the rents got on the first floor to a rate per square foot, he found that the average rent was 4 122*d*. per square foot. In 1870 the average rental for similar houses had risen to 4 45*d*. Last year the average rental in thirty-four properties was 5 225*d*. These were new properties with all modern conveniences. The lowest rent was 6*l*. 10*s*. and the highest was 16*l*. The increase between 1860 and 1902 was thus 26½ per cent. The increase between 1870 and 1902 was 17½ per cent. He considered it remarkable that the rise of rent had been so little, having regard to the increase in wages and cost of building. He accounted for it by the reduction in the rate of interest, and also from the fact that the builder was content with a smaller return than formerly. The return from property now was not more than two-thirds what it was when he began business. He knew no trade in which wages had risen so rapidly or to such an extent as in the building trade.

Money was lent on brick buildings in Glasgow. The Corporation in many of their buildings had only stone in front, all other walls being brick. Other builders had erected houses of the same class, and had borrowed money on them at the ordinary rate of interest. There was no increase of interest in respect of buildings of brick. There were many old buildings in Glasgow wholly of brick, and money was borrowed on them. He did not think concrete was cheaper than brick. His objection to concrete was that they were mainly dependent on

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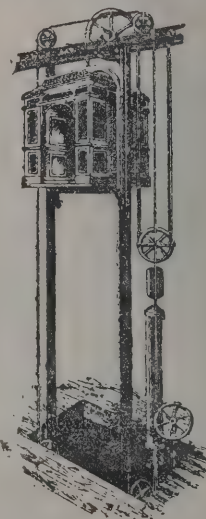
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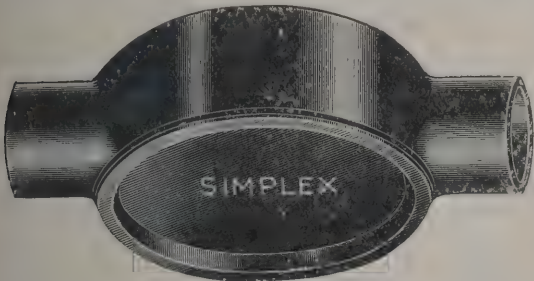
Telegraph, "Hortulanus, London." Telephone No. 872

the constant care of the workmen in the quality of the work. A careless workman might spoil a job in a very few hours. He was aware of the proposal in Liverpool to use clinker and cement instead of brick, but that was in the experimental stage. There were a number of buildings in the West of Scotland of concrete—at Clydebank, at Hamilton and at Govan—but he did not think these experiments were successful. Concrete had of late been coming into favour for railway work, and possibly it might come into favour in connection with houses.

A stone tenement, well finished, could be built at about 4d. per cubic foot. In this climate people could not live in a house with the external walls only 9 inches thick. The late master of works—Mr. Whyte—and he had a conversation on that matter, and they arrived at the conclusion that, while the thickness of the walls might be reduced somewhat, it would be too cold to reduce them to 9 inches.

SIMPLEX STEEL CONDUITS.

THE 1903 Price List of Interior Electric Conduits, &c., just issued by the Simplex Steel Conduit Co., Ltd., of Birmingham, Manchester, and 20 Bucklersbury, London, is a handsome and compendious volume attractively leather-bound, and of a size and shape which render it very convenient for carrying in the

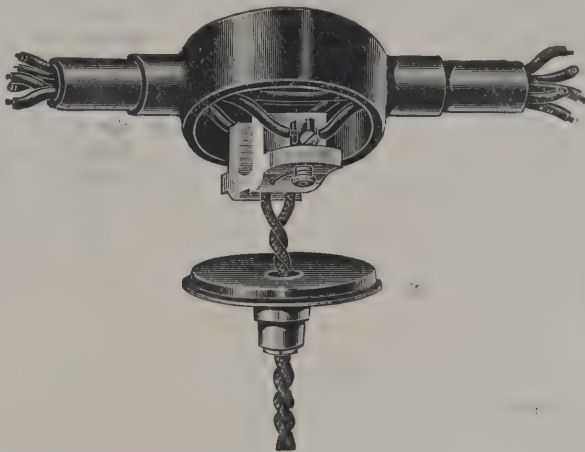


socket. It is copiously illustrated. Among the important improvements which the firm have recently introduced is their patent spring lid, which they are now fitting to most circular boxes, inspection bends, tee pieces, &c. These lids are

stamped from sheet steel, an $\frac{1}{8}$ -inch lip being formed round the circumference, which is made to fit accurately and spring tight into the top of the box previously prepared to receive it; firm pressure only is required to make a perfectly watertight and secure fastening, which can readily be removed for inspection purposes by the use of a small tool made for this purpose. Boxes fitted with this improved lid have the following advantages:—

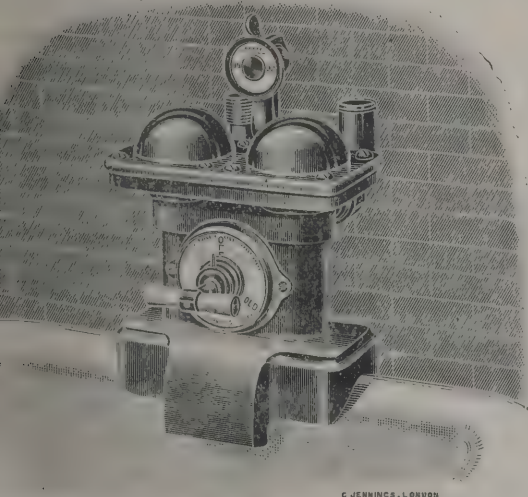
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through the centre arch in the bridge, which is of equivalent area to the conduit itself. Full descriptions are furnished of these and various other of the firm's specialties, such as their screw socket system, which enables their ordinary light-gauge conduits to be screwed with ease and safety, a late and most important development, allowing the system to be readily earthed throughout. Their porcelain interiors for con-

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nections inside boxes—a large number of these have been made for circular and rectangular boxes. The electroliers and brackets with turned and scroll ornaments are artistically arranged, while wiring notes in profusion are added to the after part of the book, which will be found of the greatest service to electrical engineers and others.

PROVISION AGAINST FIRE.

IN the City of London Court, on Monday, before Judge Rentoul, K.C., an action was brought by Mr. Charles W. Hutton, Penywern Road, Earl's Court, against Mr. F. G. Ensor, of Newgate Street, to recover 700*l.* for providing a fire-proof staircase. It seemed that the plaintiff was the holder of the residue of a lease granted in 1811 for ninety-nine years, at a rent of 233*l.* per annum, of premises now held by the defendant, who paid the plaintiff 850*l.* a year for them. As the defendant employed more than forty workpeople on the premises the plaintiff had been called upon by the London County Council to provide a fireproof staircase so that the workers could get away speedily in the event of an outbreak of fire. The plaintiff had had to pay 1,140*l.* for the cost of the staircase, and he now sought to have the defendant held liable for 700*l.* of that sum. The defendant urged that the plaintiff had sold the premises, and therefore he had no right to the relief asked for. The plaintiff admitted the sale, but added that at the completion he had to suffer a deduction of 700*l.* Judge Rentoul, K.C., thought that the justice of the matter would be met by judgment being given for 350*l.* and costs.

NATIONAL REGISTRATION OF PLUMBERS.

THE Council for Manchester District of the National Registration of Plumbers report that during the year 1902 fifty-eight applications for registration were considered by them. Thirty-one applicants—seven employers and twenty-four journeymen—fulfilled the conditions formulated at the Birmingham conference in 1900, and were accepted for registration without examination. The remainder, a master and twenty-six journeymen, were referred to the examiners. At an examination which was held in Manchester in May, seventeen obtained full certificates. Out of a prize fund raised by volun-

tary subscription the Council are this year providing prizes, consisting of books, to be competed for by plumbing students who are bona-fide plumbers' apprentices, and whose age does not exceed eighteen years, attending the technical schools at Manchester, Salford, Altrincham, Ashton-under-Lyne, Bolton, Bury, Chorley, Middleton, Oldham, Ramsbottom, Rochdale, Stockport and Todmorden.

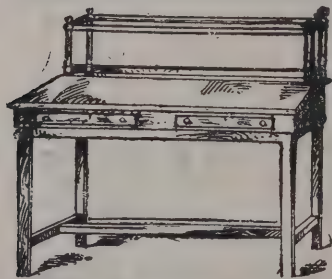
After the formal business of the annual meeting of the Council, which was held on the 14th inst., a paper was read by Mr. J. Radcliffe, principal of the sanitary engineering department, Manchester, on "Various Methods of Preventing Scamped Plumbers' Work." Later the Council had a musical evening.

A Bill for the Registration of Plumbers has passed the House of Lords and the first reading in the House of Commons. The Manchester Council are at present engaged in obtaining signatures of plumbers to a petition to the House of Commons advocating the support of members to its second reading.

THE AUCTIONEERS' INSTITUTE.

THE last ordinary meeting of the session of the Auctioneers' Institute of the United Kingdom was held on the evening of the 13th inst. at Hamilton House, Victoria Embankment, under the presidency of Mr. John Hepper, of Leeds. There was a large attendance, and amongst those present were Dr. Heber Hart, Messrs. W. Bennett Rogers, W. R. Peck, A. W. Brackett, H. D. Buckland, J. Boyton, J. H. Lepper, W. R. Johnson, E. Pennington, F. Swain, P. H. Horton, P. Hodson, C. D. Levy, G. Pearce and C. Harris (secretary).

The President said they had met that evening to discuss what he thought was a subject of vital importance to their profession, and that was, "What should be the educational curriculum for auctioneers?" The committee of their Kent, Surrey and Sussex branch had set the provincial branches the excellent example of offering prizes for the best three essays upon the subject from the members of their branch, and it was proposed that the gentlemen who had won the prizes for their essays, which had been adjudicated upon by Dr. Heber Hart, should read them to that meeting. The prize winners were Mr. W. R. Johnson (Kingston-on-Thames), first; Mr. E. Pennington (Richmond), second; and Mr. P. H. Horton (Godalming), third.



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The authors then read their essays, which were all of great merit. Mr. Johnson in his discourse laid particular stress upon the fact that the once popular idea that an auctioneer did not require any special education or qualification for the exercise of his profession was rapidly vanishing, and said that to all who gave consideration to the subject, it was evident that perhaps in no other profession was a diverse knowledge necessary, so varied were the matters which had to be dealt with. It might be said there was scarcely a subject which it would not be useful for him to have a knowledge of. It was, however, obvious that no one man could have such a comprehensive knowledge, and consequently it was necessary to specialise and to divide auctioneers into various classes—classes in which, technically speaking, an entirely different education was required. A youth having received a sound preliminary education, and passed one of the examinations qualifying for admission as student in the Auctioneers and Surveyors' Institutions, should then be articled to an auctioneer in good practice in the special class of business for which he had a preference. But the mere passing of these examinations could never make a man a competent auctioneer; that could only be attained by practical experience. In addition to that, a man to be successful required certain personal attributes—those of a pleasant and business-like manner, a considerable amount of tact which might be interpreted as "daring, and saying the right thing at the right time."

The President then distributed the prizes, and an interesting discussion of the various papers followed.

Mr. James Boyton, in proposing a vote of thanks to the chairman, said that, as a member of the Council, he was pleased to tell them that at the Council meeting held during the afternoon the number of new members elected had swelled the membership of the Institute to over 1,500.

BELFAST HARBOUR.

The Belfast Harbour Commissioners have decided on a new plan, which will have an immense effect on the shipbuilding industry and on the development of the port. The urgent necessity for a great graving dock for Belfast first came into prominence when the Atlantic Combine became an accomplished fact, and although the Harbour Commissioners had committed themselves to the construction of the work, decisive

action in the matter was deferred until the present time. Sir Daniel Dixon, Lord Mayor, pointed out that the Commissioners had yet to receive letters from the shipbuilding firms of Harland & Wolff and Workman, Clark & Co. in regard to the leases, and that both firms were willing to complete the leases. Belfast, his Lordship added, had now a great name for shipbuilding, and the present docks were inadequate to the present requirements. It must also be remembered that Belfast was getting a great deal of work from the Admiralty, and hoped to get more. Alderman S. Lawther said when the new graving dock was constructed Belfast would be above all other shipbuilding ports in the kingdom. The Commissioners then unanimously decided to proceed with the work on the completion of the shipbuilders' leases. The new dock will be 750 feet long, 96 feet wide at the entrance and 100 feet wide at the bottom. The depth will be 32 feet from the blocks to ordinary high-water level, and some 4 feet 6 inches will be allowed for the blocks. There will be a fitting-out jetty 600 feet long. The estimated cost of the entire work is 299,000*l*.

TECHNICAL INSTRUCTION IN HOLLAND.*

THE admirable *ambachts*, or trade day schools, are due entirely to local or private initiative. The first was established at Amsterdam in 1861, and they now number twenty. They have always been subject to Government supervision, but a special inspector was not appointed for them until four years ago. Their present popularity is such that proportionately they receive more State aid than the secondary schools. In addition to the regular Government subsidy, a special grant is made to the sparsely-populated province of Drenthe, where it has been found preferable to apprentice promising lads to competent workmen, rather than to found a distinct school. This plan was originated by a local Society for the advancement of education and has answered remarkably well.

The course at the schools usually covers three years, and is continuous throughout the year. The scheme of studies naturally depends to some extent upon the industrial character of the district, but as a rule it includes drawing, geometrical drawing, physics, mathematics, mechanics and wood and metal-

* From a paper by Mr. J. C. Mead, read at a meeting of the Society of Arts.

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work, all taught technically and in relation to particular trades. In some cases instruction is also provided in masonry, furniture and instrument-making, painting and house decoration. The results are undoubtedly excellent. For a short time artisans were somewhat jealous of the trade instruction, but to-day there is an increasing demand amongst them for boys who have completed the school course. It is intended that pupils should come direct from the primary school, and this is the general custom. A few occasionally attend after leaving the higher burgher schools or the gymnasia. At three towns no fees are charged; elsewhere they vary from 8s. 4d. to 16s. 8d. per annum, but free places may always be had. All apparatus is found, and prizes are at times given, but on the whole it is considered inexpedient to encourage excessive competition. Those who follow the entire course almost always receive gifts of apparatus on leaving.

The total income of the twenty schools from private and public sources amounted in 1900 to 27,497l. 15s. The school at Arnhem may be taken as a fair example of what is done in a town of moderate size. The number of scholars in 1901 was 322, distributed as follows:—140 smiths, 95 carpenters, 37 furniture-makers, 32 painters and 18 masons. The instruction is given daily from 8 A.M. till 12, and from 2 to 6 P.M., except on Saturday, when there is a half-holiday. Wide-spread interest is evidently taken in the school, to judge from the numerous gifts of money and appliances to improve the instruction. An annual exhibition of the work is held in March; much of this is permanently on view, and many of the specimens, especially in furniture and decorative art, are first-rate, both in quality and design. The Commercial School, which was opened at Amsterdam in 1869, is attached to a higher burgher school with a three years' course. The object is to supply that technical training which is as essential for the distributor as it is for the producer, and which must have a foundation of wide general knowledge if it is to be efficient. The course lasts two years, and is well adapted for the future merchant or clerk. The value of this specialised instruction, following immediately after the three years in the secondary school, must be superior to what can be given in evening classes, where the lads are often too uneducated to profit by it. There is abundant evidence that this Amsterdam school, like other similar institutions in Holland, has won the confidence of the mercantile community, and it is wholly free from the artificiality of the Business Colleges of the United States.

TRANSVAAL FORESTRY.

AN address was lately delivered by Mr. D. E. Hutchins, the Cape conservator of forests, before the Transvaal Section of the South African Association at Johannesburg on "Transvaal Forestry." He stated that before the war there was a yearly average of close on 500,000l. worth of timber imported through Cape and Natal ports, and 140,000l. worth through Delagoa Bay, the larger part of this going through to the Transvaal; 500,000l. worth of timber came through Cape ports during 1901. Of this the greater portion was soft wood used in house building, and most of the balance hardwood sleepers. Return of timber imported into the Transvaal, 1897 and 1898:—1897: Manufactured, 258,741l.; unmanufactured 178,145l.; total, 436,886l. 1898: Manufactured, 217,447l.; unmanufactured, 130,013l.; total, 347,460l. During the last 21 years the Cape Administration had spent over 250,000l. on forestry. Timber was a necessity in a civilised country. Civilised man could no more do without timber than without air and water. It was not at all unlikely that the Transvaal during the next few years would require 500,000l. worth yearly of unmanufactured timber or lumber. Was this to be brought 6,000 or 7,000 miles by sea from Australia or Europe? Obviously the Transvaal could grow much of its own supply at good profit. The Transvaal forestry possibilities can no more be allowed to lie idle than its mines. The Transvaal has a forest-producing power which is many times that of Europe, and every month that is lost in putting this forest-producing power into action is a dead loss to the country. What is required at once is the demarcation of the forest reserves, that is to say the areas which will form the future national forests of the country, and the setting aside of funds, say, 100,000l. yearly to afford those reserves. After giving further details, the lecturer concluded as follows:—"Forestry should be regarded not as a branch of agriculture to be assisted by a benevolent government, but as a great public work of pressing necessity. We have seen how, on the most moderate computation, most kinds of timber can be grown at a profit of 400 per cent., and the present high price of timber reduced by two-thirds. The good soils and fertility of the Transvaal are proverbial in South Africa. Foresters' measurements show how powerful is the vegetative process in the Transvaal and how vast the wealth of its potential forests. The coal deposits are evidence of the rich vegetation of the past. And let us not forget the ennobling effect of forests, their fostering the love of the beautiful."

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in nature. Your coal is grimy, your gold is in the gloomy mines, but your forests should be the pastime and glory of your people, the health and wealth of your children."

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

At a meeting of the Council, held on the 4th inst. at Dawson Street, Dublin, Mr. John H. Ryan, president, in the chair, a quantity of routine business was transacted. A general meeting of the Institution was afterwards held, when Mr. H. Norman Leask, Assoc. Mem., read an interesting paper on "The Destruction of Towns Refuse and some of the Principles Involved in the Construction of Refuse Destructors." After discussing various insanitary methods of dealing with towns refuse, he pointed out that in the United Kingdom there are still some 800 towns of over 2,000 inhabitants without any means of disposing of the refuse beyond that of "tipping." Destruction of refuse by fire was adopted by the ancients, as shown by Biblical records and classical works. Fire was still employed in uncivilised countries, and, indeed, in several English towns the "everlasting fires" were still in operation on their outskirts, burning refuse in the open. The first authentic attempts to destroy refuse in a furnace dated back to about forty years ago, but were not successful owing to the fact that the furnaces employed were faulty in design. After discussing various destructors which had been introduced from time to time, he pointed out that there were practically only three systems in use to-day which tended to reduce the cost of labour below that of handling the refuse with forks and shovels. The first was patented by Messrs. Bulnois and Broide and adopted by Messrs. Manlove & Alliott, the second was that carried out by Messrs. Horsfall, of Leeds, and the third was that adopted by Messrs. Heenan & Froude, of Manchester. The modern forms of furnace were next discussed, and the lecturer concluded from various tables, which he submitted to the meeting, that the nearer the laws regulating combustion were adhered to the better the results would be. He then discussed at some length the construction of destructors, and explained the various uses to which "residuals" are put, amongst them being the manufacture of mortar, tiles, bricks, &c. Taking all things into consideration, it was, he argued, possible to erect a refuse

destructor which would be as good a sanitary medium as a well-planned sewage scheme. Further, if careful selection were made of the various types, it would be possible to erect a destructor that would not prove an additional burden to the ratepayers, but would represent a possible saving. To attain this desired end the heat value of the refuse must be utilised for some such useful purpose as pumping sewage or water or for the generation of electrical energy for traction purposes, and the "residuals" must be dealt with in a manner suitable to the demands of the locality.

PROPOSED ASYLUM AT HORTON.

THE asylums committee of the London County Council report that the number of lunatics for whom the county is responsible to find accommodation was on January 1, 1903, 16,961 (7,159 males and 9,802 females). The number of beds now provided in the London asylums is 16,379 (calculating on normal accommodation), 1,400 being in temporary buildings. There is, therefore, at the present moment considerable deficiency of accommodation after allowing for some 198 patients who have been transferred since the fire at the Colney Hatch Asylum to the Metropolitan Asylums Board's asylums. The average annual increase of lunatics in the county of London since 1890 is 527, but the average for the last five years is 576. An estimated yearly increase of 550 may therefore be taken as a reasonably approximate figure to be expected, in which case in four years additional accommodation for between 2,000 and 3,000 patients is required without taking into consideration the putting out of use of the temporary buildings. With regard to these latter the Commissioners in Lunacy are urging us to take steps to effect a discontinuance of their use at the earliest possible moment.

In these circumstances the committee recommend (a) that the Council, in accordance with section 239 of the Lunacy Act, 1890, do authorise the asylums committee to proceed with the erection of a new asylum on the Horton estate; (b) that the estimate of 97,210*l.* submitted by the finance committee be approved, and that an expenditure up to that amount be authorised for the following works in connection with the erection of such asylum, viz: foundations, 55,710*l.*; roads, 10,000*l.*; architect and quantity surveyors, 13,000*l.*; additions to the central station for the supply of electric current, 10,000*l.*; sinking well, 8,500*l.*

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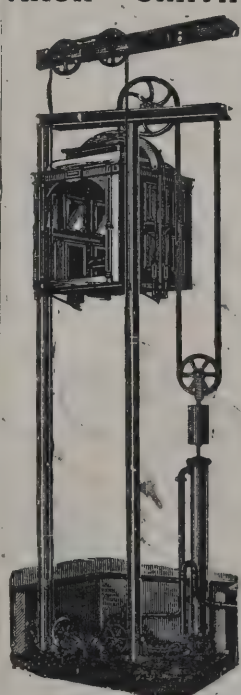
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THE INSTITUTION OF CIVIL ENGINEERS.

At the ordinary meeting on Tuesday, March 10, Mr. J. C. Hawkshaw, M.A., president, in the chair, the papers read were "Recent Irrigation in the Punjab," by S. Preston, C.I.E., Assoc. M.Inst. C.E., and "The Irrigation Weir across the Bhadar River, Kathiawar," by J. J. B. Benson, Assoc. M.Inst. C.E.

The first paper described the Chenab Canal in the Punjab, and its development from a small inundation scheme to irrigate a portion of the Rechna Doab into a large perennial canal which would eventually command the entire tract between the Ravi and Chenab rivers. This was one of the latest irrigation schemes in India, and its chief feature was that it was mainly for the cultivation, by means of imported settlers, of an immense tract of Crown waste land, for which special arrangements were necessary, as the liability of Government to these settlers was greater than to irrigators in old communities. It was shown that in the latter case advice and assistance only were required, the villagers themselves constructing and maintaining the watercourses. In the former case it was necessary to assure a certain percentage of irrigation to each new settler in every crop. The manner in which the waste land had been blocked out and levelled so as to obtain an accurate contour map was explained, and a specimen of an irrigation map was given showing how a channel was constructed by Government to the commencing point of every holding. A description was given of the various works carried out by the canal engineer for the development of the tract and its transformation into a settled community, and a comparison was made between his work and that of a railway engineer.

The principles applied in aligning and grading all the channels of this vast system and of the calculation of their capacities throughout were described.

The responsibilities of the engineer for the maintenance of the works, the distribution of the water and the assessment of the Government demand were referred to, and reasons were given why it was considered necessary that the last two, which might be considered outside the ordinary duties of an engineer, should be entrusted to him instead of to a civil revenue officer.

The system of water distribution, both in the Government channels and the village watercourses, was described in detail, as well as the method of assessing the demand, and of settling any disputes regarding the amount of the claims formulated.

The duty of the water and the manner in which it was calculated, both for the whole canal and for the distributaries, were stated, while reference was made to the precautions taken against over-irrigation and consequent damage to the soil, owing to the anxiety of the cultivators to amass riches quickly.

The difficulties and anxieties of the engineers responsible for the distribution of the immense volumes dealt with in a canal of the kind described were referred to, and the paper concluded with a statement of the cost and financial prospects of the Chenab Canal.

The second paper described the construction of a weir intended to complete the reclamation and irrigation of about 80 square miles of low-lying land at the delta of the Bhadar river, which discharged into the Indian Ocean.

The present shore line appeared to have risen, enclosing shallow lakes, which had silted up by the deposit of mud brought down by river floods; but although floods continued to deposit silt on these low lands, the surface-level had not risen appreciably in modern times, owing to the salt rendering the soil so friable that in hot weather it was blown off the land in the form of dust by the high winds.

A dam 1,800 feet in length, constructed in 1895, had excluded the sea from the greater part of the Rann, and the weir described completed the reclamation, by permanently retaining the silt and preventing the formation of the dust.

The tidal part of the estuary extended for 14 miles from the sea, and the weir was situated about 1½ mile from the sea, where the river was about 600 feet wide. The weir was of very open character and offered but little resistance to the passage of floods; it was, in fact, a bridge having a floor or sill which was temporarily raised by wooden shutters to hold up the river water. The sill was only 2 feet above lowest spring-tide level. The weir consisted of 20 openings, each 24 feet in width, closed with shutters 8 feet in height, and one lock 20 feet in width and 11 feet depth over the sill. The arches were 25 feet in clear span and 10 feet in width. The whole of the lock abutment and the pier foundations were built on wells sunk to the rock; and owing to the difficulty of sinking square wells in clay and the unsuitability of circular wells, square masonry wells with rounded corners had been adopted. The method of sinking the wells was referred to and details of the sluices were given. The working of the weir was also described, and the paper was accompanied by tables of rainfall data and particulars of the cost of the works.



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PRICE LIST AND ESTIMATES ON APPLICATION.
LANTERN SLIDES ON HIRE.



The Architect.

THE WEEK.

THE decision given by Mr. Justice LAWRENCE on Tuesday in *F. & E. DAVEY v. The Corporation of Gravesend* should be regarded as a warning by employers who wish to take the law into their own hands and summarily put an end to a contract. The plaintiffs agreed to build electric-lighting works for 7,094*l.* The conditions were exacting, for if the contractor failed in the due execution or performance of any part of his contract, then the Corporation were to have a liberty to determine the future performance of the contract by the contractor, and in that event the amount then already paid by the Corporation to the contractor should be deemed to be the full value of the works executed by the contractor, and no further sum should be payable by the Corporation to the contractor, whether for contract work or extra work; and the Corporation were to be at liberty to take possession of the plant and materials upon the works and use them for the purpose of completing the works, and all expense incurred by the Corporation in or about the completion of the contract should be deducted from any sum remaining in their hands or payable by them in respect of the works already executed; and that any disputes with regard to the execution of the works or materials used were to be submitted to and decided by the engineer. The engineer who prepared the designs was Mr. TRENTHAM. While the chimney-shaft was in progress dissatisfaction was expressed by the defendants. Mr. CRICKMAY, architect, was invited to report, and he said that much of the work was not according to the specification, while the chimney-shaft was not on proper foundations. The plaintiffs agreed to rebuild the chimney-shaft at an extra cost of 25*l.* Mr. TRENTHAM drew a certificate for 1,500*l.*, which was lodged with the town clerk. A few days afterwards he informed the contractors that the certificate would be retained, and then prohibited the execution of any new work until that complained of was set right. Subsequently Messrs. DAVEY were told that the Corporation had decided to stop the operations. At that time there was a balance of 2,300*l.* due to them, in addition to plant and materials left on the ground. They brought the action to recover 2,544*l.* as damages for breach of contract and seizure of plant. The defendants put in a counterclaim of 735*l.* for the extra cost of completing the works. There was the usual difference between the evidence of the witnesses. But it was agreed that the contractors should have been called on to remedy defects before they were forced to stop. Mr. Justice LAWRENCE commented on the absence of the engineer, for it was a question whether he did not allow the use of the materials complained of. In law the plaintiffs were, his Lordship said, entitled to the 1,500*l.*, with an allowance for tools and materials. The jury gave a verdict for the plaintiffs with 2,544*l.* damages, and a stay of execution was refused. Evidently what impressed the jury was the sudden stoppage of the works.

A FORTNIGHT ago, in referring to the Aldrington sewage case and the rivalry between Hove and Brighton, we expressed the hope that it would not lead to waste of money on useless works or law costs. The representatives of Brighton on the Intercepting and Outfall Sewers Board have come to the conclusion to have another and more costly contest, and this time in the House of Lords. The decision of Mr. Justice KEKEWICH was in favour of Brighton's views that Aldrington should not be considered a part of Hove or be allowed to use the common sewer. The Court of Appeal came to an opposite opinion. Mr. CRIPPS, K.C., and Mr. BOXALL, K.C., two of the counsel engaged on the Brighton side, have stated that in their opinion Mr. Justice KEKEWICH was correct in his interpretation of the Act of 1870 and the West Sussex, Brighton, Hove and Aldrington Order of 1893: that the decision of the Court of Appeal upon this judgment was erroneous, and that an appeal in the House of Lords would be successful. That opinion was enough to revive the drooping spirits of the Brighton members. A special meeting was held on Tuesday, when it was decided that an appeal be

presented to the House of Lords against the judgment of the Court of Appeal, and that the Clerk do, on behalf of the Board, enter into a recognisance of 500*l.* and make a deposit of 200*l.* as security for costs, as required by the Standing Orders of the House of Lords, and that he do retain counsel, solicitors and agents, and take all other steps necessary to prosecute the appeal. The Brighton people maintain that the execution of the works required would be injurious to the town as a holiday resort. As usual, there are a great many people who express their conviction that the judgment of the Court of Appeal will be set aside in the House of Lords. Would it not be better to realise that when the agreement was entered into the representatives of Brighton were not prophetically inspired and were unable to anticipate the progress of Hove? The outfall sewers have not the capacity to serve for an unexpected demand, and it would be more economical to permit engineers rather than lawyers to decide what is the best course for adoption under the difficult circumstances.

It was resolved by the Board of Management of the Manchester Infirmary on Monday last to accept the offer of the Corporation to purchase the infirmary site for 400,000*l.* The new infirmary will be built on what is known as the Stanley Grove site, which is to be acquired as well as any other property considered expedient. Plans will have to be obtained for the new infirmary. It yet remains for the decisions of the Board of Management to be approved by the trustees, who will meet for that purpose on April 3. There is, however, no anticipation of any difference of opinion, for the bodies have an equal interest in the success of the infirmary. The site now occupied is the most important in all Manchester, and should be utilised for a group of buildings worthy of the city. The designs will, no doubt, be secured as on former occasions through competition, and there is no question that when the announcement is made schemes will arrive from all parts of the country.

MR. STEWART HENBEST CAPPER, who for seven years has been professor of architecture in the McGill University of Montreal, was fortunate in being selected for a similar office in Owens College, which means that eventually he will be professor in Manchester University. The new professor is a Scotsman, and was a pupil of the High School, Edinburgh. Afterwards he studied in the university of Heidelberg. He is an M.A. of Edinburgh University, and he gained his degree with honours in Classical literature, winning also the Pitt Scholarship. From 1879 to 1884 he acted as private tutor and private secretary in the household of Sir ROBERT MORIER, the British Minister at Lisbon, and subsequently at Madrid. Having determined to follow architecture as a profession, he entered the *atelier* of M. PASCAL in Paris, and became a pupil of the Ecole des Beaux-Arts. On his return to Edinburgh he engaged in the practice of architecture. He gave lectures on the art in some of the towns, and held the office of examiner in archæology and the history of art for his university. He passed the examination necessary for election as Associate of the Institute in 1891. Professor CAPPER is in his forty-third year, and will enter upon his duties in Manchester in the coming autumn. His inaugural address in Montreal was published in vol. 56 of *The Architect*.

It was rumoured that the Campanile at Venice was not to be rebuilt owing to some difference between the municipality and the Italian Government. The report was inexact. By a recent agreement the appointment of Signor LUCCI BELTRAMI as architect to have charge of the important undertaking has received the approval of the Italian Minister. The municipality will contribute half a million of francs towards the expenses of the work, including the Loggia as well as the Campanile. A similar sum will be granted by the State, and a Bill with that object will be introduced in the Italian Parliament. It is considered likely that it will be necessary to expend money on some other buildings. Venice has undertaken to provide 300,000 francs for that purpose, and an equivalent amount will be given by the Government. Signor GAETANO MORELLI has been appointed Director of Venetian Monuments.



TYPES OF COSTUME: GRECIAN AND ROMAN.

THE ELIZABETHAN TERCENTENARY.

THE reign of Queen ELIZABETH came to an end on March 24, 1603. The Royal Geographical Society has utilised the opportunity afforded by the anniversary in order to demonstrate the extent of the knowledge of the globe's surface, which was one of the aspirations of that age. The position then attained by geographical science is suggested by ZUCCHERO's portrait of the queen, in which Her Majesty is represented standing on a map of England. What better symbol of authority could be devised? There is also a portrait of Sir WALTER RALEIGH by the same artist, having a map of Cadiz at the back. Much else could be referred to besides maps and atlases to reveal the gratification of Englishmen in the sixteenth century at finding there was so large a field open to their enterprise. On a globe made at the cost of WILLIAM SANDERSON, a fishmonger, the spirit of the time is expressed in the following lines:—

Lo, at my charge thou seest the ever-whirling sphere,
The endless reaches of the land and sea in sight appear,
For countries' good, for worlde's behoof, for learning's further-
ance,

Whereby our virtuous Englishmen their actions may advance,
To visit forraine lands where farthest coasts do lye,
I have these worlde thus formed, and to worlde's good apply.

The geographers, although we must respect their enterprise, should not, however, be allowed to monopolise the occasion. The reign of ELIZABETH was remarkable for the appearance of literature in a form that might be compared to the birth of ATHENE as a developed goddess, and also for artistic efforts which are still producing their effects. When the Abbé Du Bos in the eighteenth century endeavoured to explain the mystery of the low state of the arts in England in his time, he pointed out as an anomaly that the munificence of ELIZABETH during her long reign of forty four years was extended to every variety of virtù. The name of ELIZABETH is associated with vandalism by archæologists, and there is no doubt that as Head of the Church she issued injunctions and proclamations by which a great many Mediæval paintings and statues were destroyed regardless of their value in the history of English art. But the well-known story related by STRYPE of the conversation between ELIZABETH and Dr. SYMSON, the Dean of Her Majesty's Chapel, is enough to demonstrate that her own likings as an individual were in favour of examples of Christian art. The Dean obtained engravings and drawings which he introduced in a prayer-book, thus anticipating the illustrated Books of Common Prayer. He intended it for a New Year's gift to the queen. But on opening the book she "frowned and blushed;" then she abused the Dean for daring to suppose there could be any difference between her private inclinations and her public acts. Dr. SYMSON did not make sufficient allowance for a woman's variability. That, of course, was a misfortune, for historical painting, which was then confined to scriptural or legendary scenes, was proscribed, although there was a probability that it must have shared with poetry and other arts in the Renaissance of that golden age.

The painters who flourished at her court prove that ELIZABETH, although she might dislike representations of

saints, was very pleased to have as many portraits of herself as would do her justice, or, in other words, would represent her as a most beautiful woman. A royal proclamation was issued ordering that no attempts were to be made to exhibit her royal features without some sort of official approval and retouching. The queen would not sit to any but "special cunning painters." In other words, there was an aiming at an ideal which was advantageous to art. LUCAS DE HEERE, the son of an architect at Ghent, made a portrait of ELIZABETH in a rich costume and coming out of a palace with two female attendants. JUNO, PALLAS and MINERVA are introduced as retreating before so much majesty; JUNO throws away her imperial sceptre and VENUS her roses, while CUPID drops his bow and arrows and clings to his mother. That description enables us to realise the royal ideas of art. CORNELIUS KETEL also painted a portrait of ELIZABETH. ZUCCHERO depicted the queen in what was supposed to be a Persian costume, standing in a forest, with a stag behind her, while on the branches of one of the trees are tablets with mottoes and verses. MARC GERRARD of Bruges, another of the favourite artists, was more of a realist. One of his works represented the queen in a sedan on her way to Hunsdon House, Hertfordshire. In this picture the Earl of LEICESTER, Lord HUNSDON and Lord Treasurer BURLEIGH are shown. In one of DE HEERE's works the queen is seen with the sword of justice at her feet; in another she carries a fan with coloured feathers with a richly enamelled jewel by her side. NICHOLAS HILLIARD, her jeweller and goldsmith, was often permitted to paint her portrait, and must have introduced his own productions in abundance. ISAAC OLIVER was a pupil of HILLIARD, and, like him, was mainly in favour for his miniatures.

It is remarkable that JOHN SHUTE, who is the author of the earliest English book on architecture, "The first and chief groundes of architecture used in all the auncient and famous monyments, with a farther and more ample discourse upon the same than hitherto hath been set out by any other," is also reputed to have been one of the painters in miniature. He dedicated his book to ELIZABETH, and stated that he was sent to Italy in 1550 by the Duke of NORTHUMBERLAND and studied under the best architects. He would thus serve as a connecting link, if one were needed, between the arts of painting and architecture. It is not recorded, however, whether he prepared designs for any English building. ELIZABETH's surveyor, ROBERT ADAMS, was another architectural worthy, but it has yet to be ascertained if he designed any structures. The most famous of the architects whose names have come down to us was JOHN THORPE. He is believed to have been employed also in Paris by royalty. His name was "totally forgotten" when WALPOLE began his book, and it was revealed by the folio of plans belonging to Lord WARWICK. WALPOLE characterises THORPE's stately mansions as belonging to "that bastard style which intervened between Gothic and Grecian architecture, or which perhaps was the style that had been invented for the houses of the nobility, when they first ventured on the settlement of the kingdom after the termination of the quarrel between the Roses, to abandon their fortified dungeons and consult convenience and

magnificence; for I am persuaded that what we call Gothic architecture was confined solely to religious buildings, and never entered into the decoration of private houses." The consulting of convenience and magnificence to which WALPOLE refers must have been demanded by the condescension of Queen ELIZABETH in visiting the houses of so many of her subjects. Lady MACBETH expressed the sentiment of loyalty of the time when as hostess she received King DUNCAN:—

Your servants ever

Have theirs, themselves and what is theirs, in compt
To make their audit at your highness' pleasure,
Still to return your own.

The "progresses" of the queen were not intended solely as means of entertainment through novel scenes. While distant towards the nobles and courtiers, she sought the goodwill of the inferior gentry, and the visits to country houses enabled ELIZABETH by showing condescension to increase her popularity. At the same time she expected to be received in public with far more ceremony than awaited the meek DUNCAN at Dunsinane. It pleased her to be taken as a goddess rather than a queen. We referred above to a picture of the sovereign in which CUPID dropped his bow and arrow. A corresponding scene really took place in Norwich. A group of gods were supposed to have left Olympus in order to dignify the procession. At the command of the Mayor CUPID left them in order to present a golden arrow to ELIZABETH, as she could make it pierce the most obdurate heart. According to HOLINSHED the royal vestal, who had then lived in the world over half a century, received the gift very thankfully. Flattery of that sort was not confined to words. It would be necessary to have every house which had the honour of affording shelter to such a sovereign made as glorious as could be done by gold. At Hawstead there was a great stone figure of HERCULES set up in connection with a fountain, and on the pedestal was the date 1578. It is supposed to have been only one of the mythological embellishments.

It was no doubt to afford a space for the assembly of a crowd that in the building and remodelling of mansions various offices were removed to a distance from the main building in order that there might be a large courtyard. In SCOTT'S "Kenilworth," and in TIECK'S charming "Dichterleben," we have pictures of the gatherings on those occasions which are substantially accurate.

What BACON says about building expresses the spirit of the Elizabethan age. The general arrangement he divides into two parts, one for feasts and triumphs, the other for dwellings. He would have a goodly room above stairs at least 40 feet high, and under it a room for a dressing or preparing place at times of triumph. In various other ways we see the aiming at magnificence. Those suggestions were no doubt published after ELIZABETH'S death, but they are more related to her reign than to her successor's. Besides, we derive better information from them than from any of the topographers about the marvellous change which took place in building during that time. In one place BACON says:—"The opulency of the place such, as if you have respect, to take one sign for many, to the number of fair houses that have been built since her reign. As AUGUSTUS said 'that he had received the city of brick and left it of marble,' so she may say she received it a realm of cottages, and hath made it a realm of palaces." In another of his writings he declares:—"There was never the like number of fair and stately houses as have been built and set up from the ground since Her Majesty's reign, insomuch that there have been reckoned in one shire that is not great to the number of thirty-three, which have been all new built within that time, and whereof the meanest was never built for two thousand pounds. There was never the like pleasures of goodly gardens and orchards, walks, pools and parks, as do adorn almost every mansion house. There was never the like number of beautiful and costly tombs and monuments which are erected in sundry churches in honourable memory of the dead."

It is amusing to find that ELIZABETH'S objections to sculpture and paintings in churches was misinterpreted by some of her subjects, who believed she wished to substitute graven or painted images of herself. One story told by BACON is worth repeating. He says:—"The gate of London,

called Lud Gate, being in decay, was pulled down and built anew; and on one side was set up the image of King LUD and his two sons, who, according to the name, was thought to be the founder of that gate, and on the other side the image of Her Majesty, in whose time it was re-edified; whereupon they published that Her Majesty, after all the images of the saints was long beaten down, had now at last set up her own image up on the principal gate of London to be adored, and that all men were forced to do reverence to it as they passed by and a watch there placed for the purpose." Through absurd delusions of that kind sculptors have had to suffer for three centuries in England.

Although ELIZABETH was a factor in the erection of buildings, and her name has been given to a style, she cannot be considered as one of the great patrons of architecture. Only at Windsor Castle are there works which can be credited to the queen. Building could not minister to her vanity like painting. Besides, she found it necessary to be economical, and in spite of all her efforts could not escape financial embarrassments. Sculpture was not favoured unless we recognise goldsmiths' work by that name.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER VIII.

CONSIDERATION OF ROOFS, SECTIONS, AND MODIFICATIONS IN PLAN.

IT has been well urged on various occasions that the roofing should be considered at an early stage, for unsatisfactory results are liable to occur otherwise.

Where for each successive point dealt with, claim is made for its early consideration, if, on a superficial view, this seems weak in any respect, it points nevertheless to the necessity for the architect to attend simultaneously (or as nearly so as possible) to all phases of the design, and to refrain consequently from attempting to settle any one detail conclusively until all the others have been adequately considered.

Before proceeding it is as well to utter a warning against all forms of affectation and pedantry, whilst insisting on the ethics of design. It is easy to formulate precepts, to urge the claims of truth in all its nakedness, and to condemn expediency as beyond redemption; and it is equally easy in so doing to overstep the boundary between good sense and affectation. Anything approaching falsity of expression, pseudo-symmetry or sham, is to be shunned of course; but, amongst other falsities, false prophets are met with, and it is necessary to beware of such as overdo their prophetic warnings.

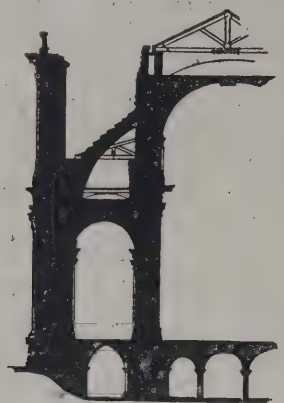
The above remarks, though made at this advanced stage, have guided the writer *ab initio*, and should similarly guide others, in order to exercise a restraining influence in places where it may be thought that principles are being over-strictly insisted upon. The subject-matter of this chapter may now be considered.

So far as regards the upper portion of the elevation, the outline of the roofing should exercise an influence. For instance, where a "span" roof is carried through without "hipping," a gable forms a natural and pleasing, though not a necessary, termination; not, however, any gable, but one whose sides are inclined at an angle equal to that of the roof: that is to be screened. Again, a natural termination for a wall screening a flat roof would be a parapet, either solid or pierced, and for this reason, that such a roof might possibly form a promenade, or at least an outlook, where security must be assured, without obstruction of view. Hipped ends and the lengths of "span" roofs provide facilities for the introduction of "dormer" windows, whose contours are sufficiently numerous.

Whilst there cannot be any rigid scale fixed for parapet walls, and whilst, at the same time, a few extra feet of height may be tolerated when a better proportion is desired for the façade, yet there must not be any paltering with the treatment; a parapet wall should look its character, and such an expedient as that adopted by Sir CHRISTOPHER WREN for St. Paul's Cathedral is to be condemned utterly; it is shown in section in fig. 58. It is difficult to conceive any adequate

excuse, not for making the wall of such a height, but for treating it as a second storey. WREN has his apologists for this and other matters, and where, as in the case of his treatment of the western towers of Westminster Abbey, an apology should be needless (as the objections are of an affected nature), in the case of St. Paul's Cathedral an apology would be futile.

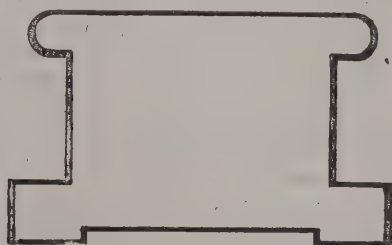
Everything else being equal, the roofing should help to emphasise the plan, instead of trying to disguise it; and



Sham Design in St Paul's Cathedral, London,
(from Quill's Encyclopedia)

FIG. 58.

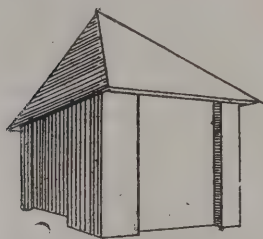
this is not a mere theoretical argument, but one having direct bearing on a larger proportion of the buildings executed than might be imagined. With such a plan as shown in fig. 59, there are various methods of justifiable treatment,



Hypothetical Outline of Plan.

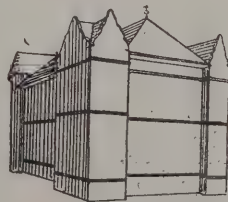
FIG. 59.

and some that are to be deprecated. To take one instance. The method shown in fig. 60 would be aesthetically incorrect and wanting in emphasis; if, instead of such treatment, the roof took the form shown in fig. 61, the plan would be emphasised, and the pavilion roofs would add dignity to the elevations.



Roof out of Sympathy with Plan.

FIG. 60.



Roof Emphasising Plan.

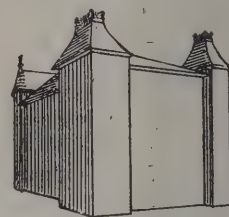
FIG. 61.

Again, the design shown in fig. 62 would be another method of treatment equally justifiable, and fully as pleasing in its nature as the last, though lacking some of the dignity.

The importance of this point in respect to roof consideration lies in the probability that the mere plan would not require these wing blocks, but that they would be introduced so as to justify a certain roof desired; this, at least, should be the case.

A certain plan may possibly suggest, in the first place, some definite section of roofing; but this will probably admit of modifications to suit the elevations should it be necessary, in order to avoid what may be termed *untidy roofing*, using this adjective merely in an æsthetic sense.

Flat roofs (not merely flat-pitched) may at times be advantageously introduced for part or parts of a building; but in the main they are not to be recommended, except where they may prove useful for fire escape purposes. From a utilitarian (as distinguished from an æsthetic) point of view there is more to be said in their favour, but to enlarge upon this would be out of place here.

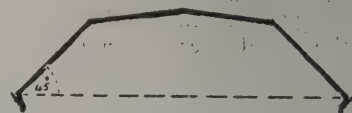


Roof Emphasising Plan.

FIG. 62.

Mansard (or curb) roofs are effective in a majority of cases, and have the threefold advantage of gaining good headway for attics, throwing the water well off into the guttering, and producing a good appearance. Semi-circular and hemispherical sections are apt to look tame.

This quality of *tameness* is a pitfall that is easily fallen into, and should be avoided; angles of pitch giving 30 and 45 degrees are better set aside for ordinary span roofs; but for roofs such as in fig. 63, these angles are not



Where an angle of 45° is not tame

FIG. 63.

open to this criticism, at least, not to the same extent. It is not, of course, to be supposed that these and similar elementary angles (as they may be termed) are objectionable and tame *per se*; it is merely that experiment has shown them to be so in effect in a majority of cases.

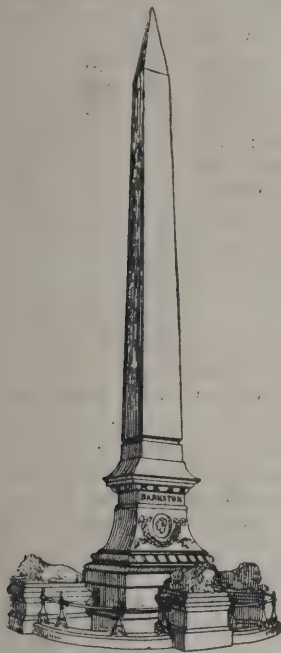
But matters are on a different basis when the sphere or the circle is under consideration, for these possess an inherent *tameness*, due to an absence of variety, of visual contrast. Whether it is or is not a defect of nature need not be debated here; but the fact is that mankind is all the better for, and life less humdrum through, the agency of resistance, friction and contrast. This treatise not being a dissertation on natural philosophy, even a brief statement on the value of the forces of friction and resistance is debarred. Not so as regards contrast; this is the salt of design, and as such must be used with deliberation and discretion.

The figure that expresses the maximum of *tameness* is, not unnaturally, the one that shows the minimum of variety; that is, the sphere; and in gradation are to be ranked the cube and the equilateral pyramid. In a series of final ornaments, the "ball and base" treatment, such as the late EDWARD BARRY used in Victoria Street, London, proves wearisome in its extended repetition, and though possibly open to minor criticisms, "obelisk" finials would have looked better. This is at least only another phase of monotony, which is elsewhere dealt with.

A propos of obelisks, an illustration is here given (fig. 64) showing an effective use made of this form; similarly the monument erected in memory of SPEKE in Kensington Gardens, London, is pleasing in its simplicity and fitness.

When engaging on a scheme, it is proper to develop the plans, in the first place, so that all *essentials* of comfort and propriety shall be secured, irrespective of the effect on the elevations. With regard to the disposal of windows in the important façades, they may be omitted as far as possible from consideration in plans, until the design of the elevation is taken in hand; it is, however, a great improvement, as elsewhere noted, to give simultaneous consideration to plans and elevations. Section and plans must be developed side by side, and if the general scope of the

elevations is borne in mind from the commencement, any an modifications, rendered advisable for the benefit the elevations aesthetically, may be introduced during the solution of the scheme.



Memorial to Colonel Barksdon. E.A. HOFFMANN, Architect.

FIG. 64.

When the various storeys of a building have *through* levels in each case, the production of the elevations is simplified; but when the floors prove erratic, the *expression* should be given to this quality, and the various levels should be emphasised, instead of any attempt being made to introduce uninterrupted horizontal ruling.

(To be continued.)

NEW BOOKS.

IN the search for architectural examples of "The Georgian Period" in the United States it would be strange if the district of Georgia remained unexplored. We have recently followed the course of inquiry as far as Charleston. In the twelfth and concluding part of the American work (London: B. T. BATSFORD) the descriptions and illustrations begin with buildings in Savannah, which was founded in 1733 by General OGLETHORPE. Readers of BOSWELL'S "Life" will remember the General, for he was one of the few men to whom JOHNSON willingly acknowledged gratitude. He served against the Turks under Prince EUGENE, and from his ability no one could object to his looking down on MARLBOROUGH as a commander. He failed in Scotland and his military career was then at an end. It is of him the story is related that when a Wurtemberg prince cast a little wine in his face, OGLETHORPE, treating the insult as a jest, said in French, "That is a good joke, but we do it much better in England," and threw a full glass at the prince's features. An Irish duellist would have lunged the decanter. There is not much to be seen in Savannah which dates from OGLETHORPE'S time, for the city suffered from fire at the close of the eighteenth century. There are, however, numerous residences erected by an English architect named JAY. One, built in 1815, is constructed of "tabby," which is described as "a species of concrete or artificial stone composed largely of pounded oyster-shells." In the Savannah region there is much to recall England. The planters evidently believed there could be no dignity without columns, and they used them, both on exteriors and interiors, most liberally. They appear to have been indifferent to proportions, for the columns extend to unusual heights with little regard to their diameters. The names of some of the designers have been preserved. JAMES HOBAN, who won the competition for GEORGE WASHINGTON'S mansion, and afterwards con-

tinued in the Government service, was a native of Kilkenny, and was taught in Dublin. But the majority of them remain unknown. Their fate is taken as a subject for a little sermon to their successors:—

The architects of the present day are so possessed with the belief in their own unimpeachable value in and to the world of art that they seem blind to the fact that in this country there were architects before them; that these well-proportioned and delicately detailed mansions, which men and women of feeling now delight in, are the certain evidence of the existence of architects quite as truly artists as any of the architects of to-day whose income may be ten times as great. The fact that these honoured buildings are, generally speaking, the work of nameless men is but a reminder that, for all his braggadocio, the fashionable architect of the hour will himself be unknown to posterity and his name never associated with some possibly good and delicate piece of work of his that may have endured the wear and tear of ages.

It is remarkable that in spite of the stately examples before them the Americans should have become indifferent to architecture, and during the greater part of the nineteenth century erected houses suggestive of the transient position of most of the owners. With so much mechanical ingenuity it was allowable to imagine that an age of millionaires was looming, and until the happy time arrived temporary buildings must suffice. Then when the Georgian style was found to have architectural possibilities there was no such collection of examples available as Mr. W. R. WARE has provided. He is justified in saying, "For the lack of it, and through the imperfect understanding of the style which naturally grew out of this lack, the country has been endowed with a vast quantity of buildings, intended to express the spirit of 'Old Colonial' work, which, because of their ill-considered proportions and vulgar over-dressing with applied ornament, are too often mere caricatures of the style." It is sometimes supposed to be wise to keep the best wine until the end of the feast, and a like arrangement has been adopted in "The Georgian Period." The final division of the work contains a larger number of characteristic examples than its predecessors. The whole series will be invaluable for all in this country who are endeavouring to realise a similar problem to that of the colonial architects by employing Classic forms to meet modern needs in house-building.

Mr. WARE has also compiled the first part of a work which would have gladdened the architects of the Georgian period. It is apparent they were often obliged to follow inferior models of the orders. The "American Vignola" (London: B. T. BATSFORD) gives forms and proportions which mainly correspond with those published by VIGNOLA in 1563. They have been, however, adapted to the convenience of modern students. There is no confusing array of dimensions for the smallest details. The principal proportions only are figured, and all the others are philanthropically ignored. The book originated in the influence of the late R. M. HUNT. Mr. WARE says:—"I well remember the day when, as I was carefully drawing out a Doric capital according to the measurements given in my 'Vignola,' Mr. HUNT took the pencil out of my hand, and setting aside the whole apparatus of modules and minutes, showed me how to divide the height of my capital into thirds, and those into thirds, and those again into thirds, thus getting the sixths, ninths, eighteenth, twenty-sevenths and fifty-fourths of a diameter which the rules required, without employing any larger divisor than two or three." The book is well suited for the needs of students and will help to perpetuate the Classic tradition of proportion.

The fourth divisional part completing the first volume of "The Modern Carpenter, Joiner and Cabinet Maker," edited by Mr. G. L. SUTCLIFFE (The Gresham Publishing Company), has been completed. The work is folio size, and the large type and clear diagrams are at once suggestive of information that is valuable. No student having even ordinary interest in carpentry could slur over pages presented in so impressive a form. RUSKIN at one time considered his smallest books should be paid for at the rate of a guinea each, for he maintained that very cheap books are not prized by students, and there can be no doubt that a high character of production is an incentive to careful reading. In the part just issued Mr. SUTCLIFFE describes the theory

of stresses and strains as applied to wooden structures, the properties of timber, and the methods of forming joists and compound beams. The valuable investigations of Mr. FERNOW, of the United States Forestry Department, have been utilised, as well as tests by UNWIN, KIRKALDY, HODGKINSON and others. The subjects are treated with skill, and no more than a modest acquaintance with mathematics is required in order to understand the reasoning.

The third volume of Mr. RANKIN KENNEDY'S masterly treatise on "Electrical Installations" deals with "the several prime movers employed to convert heat energy into electrical energy, the heat-engine combined with a dynamo-electric machine being at present the only commercial generator of electric pressures." We are not able to see the tremendous force unless occasional sparks will serve. But of the elaborateness of the engines employed for its utilisation, there can be no question. On that account the practical electrical engineer is more and more monopolising the science. Mr. RANKIN KENNEDY concludes by affirming that research "has of late attracted fewer workers than it used to do before electrical engineering became a commercial profession. It is still going on, chiefly in Germany. Scientific research does not pay the searcher. There are many problems awaiting attack in electrical work, most of which can only be solved by patient scientific work without much prospect of monetary reward—the greatest problem of all being the direct generation of electric pressure from the fuel in which the energy is locked up." The third volume treats of storage of energy, and also of prime movers, including steam turbines, gas-engines and steam-engines, while the third part is occupied with electric generators and motors. The comprehensiveness of the book is manifest, and when it is stated there are over 200 illustrations of engines of various kinds, it will be evident that even a single volume of the work can become almost an expositor of modern practice. The author does not, however, propose to treat of engines to the fullest extent, for he says:—"The ordinary run of contracting electrical engineering—beyond the large municipal, tramway, railway and distribution in bulk systems, in which the larger powers are employed—consists of isolated plants in country houses, ships, mines and large factories, where the units are very rarely over 200 k.w. The large plants are in the practice of only a few firms, who are not likely to consult works of this nature in regard to engines and dynamos; we shall therefore only briefly refer to plants over 200 k.w. output." This restriction is likely to make the book more generally useful, for there is less likelihood of an engineer being deterred by descriptions of undertakings of a class which it may be long before he can obtain the chance of carrying out. Mr. KENNEDY is an inventor, and he has an eye for the weak as well as the good points in machines, but he is honest and outspoken, and his criticisms can be accepted with confidence.

Whatever may be the defects of the departments of construction belonging to the War Office, there is no doubt that the estimating and valuing of all elements of building, have been brought by the surveyors almost to the rank of a science. This is mainly owing to the elaborate schedules, which are as good a guide to the relative value of materials and labour as can be found. Since they are revised periodically, it is an advantage for an official to be able to point out from his own experience whether they are fractionally too high or too low. Annotated schedules are therefore remarkable documents, and a volume of them is a very valuable aid not only to a surveyor and contractor, but to architects who are not afraid of having it known that they take an interest in details of prices. Mr. J. T. REA'S "How to Estimate" (B. T. BATSFORD) is such a volume as a War Office surveyor would be expected to compile. But the author is careful to inform his readers that he "has endeavoured to approach London values," and that lately there is a constant fluctuation in the markets. In fact, all contractors who attempt varied tendering must possess data on which, through experience or some other cause, they place implicit reliance. In that way some of the differences between tenders can be explained, much else being attributable to the diverse methods of imagining difficulties as contingencies. Mr. REA has brought together a surprising quantity of genuine prices.

They might be obtained from price-books, manufacturers and builders; but what must have been more difficult discover was the time occupied in various classes of work. Unfortunately quantity is becoming as variable as price. Mr. REA says he found in the West Indies that economy of execution wholly depended on strict supervision of the negro. Strictness can be only partially attempted in this country, although it is much needed. Mr. REA'S book brought out at a moderate figure, and from its excellence entitled to a wide circulation.

"English Timber and its Economical Conversion," "Acorn" (London: WILLIAM RIDER & SON, LTD.), small in size, but it contains more practical information about timber than is found in some large volumes. The author does not confine his attention to the saw-mill. He describes the different classes of trees employed in the English markets, and gives suggestions to buyers. The pages are therefore not only serviceable for timber merchants, but for owners of plantations. It is needless to say that architects and builders will also find much that is suggestive.

GEORGE DANCE, R.A., and HENRY HOLLAND advise Sir JOHN SOANE to measure for builders, and from the amount of knowledge which he thereby gained he afterwards declared measuring to be the stepping-stone to professional knowledge as an architect. Other practitioners have taken an opposite view, for they consider surveying too analytical to be favourable to design. It is not even a member of the profession who is in a position to determine what he will do and what he will avoid, and the architect must be courageous who would declare his incompetency to take out quantities. The demand for instruction is shown by the late Professor BANISTER FLETCHER'S text-book on quantities having reached a seventh edition. It has been revised and enlarged by Mr. H. PHILLIPS FLETCHER, so that it now forms the most bulky of the excellent series of manuals produced by the same author and published by Mr. B. T. BATSFORD. There are several illustrations, and there is a new chapter on "Grouping." In spite of the competition the book upholds its reputation as a standard authority.

We have already given an abstract of the essay by I. ARTHUR LATHAM and Mr. A. W. WEST, which won the first prize in the competition for essays on "The Erection of a Sanatorium for the Treatment of Tuberculosis in England." There were 180 essays submitted. The essay has now appeared as a handsome volume issued by Messrs. BAILLIÈRE, TINDALL & COX. It would be superfluous to say anything about the merits of a work which gained so remarkable a victory. It can be recommended to architects who may be connected with the building of hospitals, and in all that relates to construction the information is precise.

CAMBRIAN ARCHÆOLOGICAL ASSOCIATION

THE Cambrian Archaeological Association has decided to hold its next annual meetings at Portmadoc, the environs of which are invested with exceptional interest to the antiquarian, there being the attractions of Beddgelert, Harlech Castle, Criccieth Castle, several very ancient churches, and plethora of cromlechs, tumuli, inscribed stones and other prehistoric remains. Mr. John E. Greaves, the Lord-Lieutenant of Carnarvonshire, has accepted the office of chairman to the reception committee, and Mr. Thomas E. Morris, of the North Wales circuit, and Mr. Charles E. Breeze have undertaken the duties of local secretaries.

At the first meeting of the reception committee at Portmadoc on the 20th inst., Mr. Greaves presiding, it was stated that the Association, which purposes making its visit in the third week in August, last visited the Vale of Madoc in 1860. The districts it was now proposed to inspect were Penmor Llanystumdwy and Criccieth on the first day; Harlech and Llanfair (the Roman steps), the second day; Treceiri, where excavations are now proceeding, the third day; and Beddgelert on the fourth and last day. The arrangements also provide that the president, Mr. R. H. Wood, of Rugby and Trawsfynydd, will deliver his inaugural address on the first night, and at the subsequent public meetings or during the excursions papers will be read probably by Professor Anwyl, Professor J. E. Lloyd, Professor John Rhys, Professor Keynes Meyer and Professor Boyd-Dawkins.

GLASGOW ARCHÆOLOGICAL SOCIETY.

MEETING of the Glasgow Archæological Society was held on the 17th inst., Mr. George Neilson, LL.D., presiding. Mr. Charles Taylor read a paper on "The Society of Friends in Glasgow and their Burial-Grounds." The Friends' meeting-house, he said, was situated in Stirling Square, North Albion Street. Worship was observed here from 1777 till they removed in 1815 to their present place of worship in Portland Street. From the beginning of the movement till 1815 the Friends had separate burial-places of their own. The Glasgow one was in Stirling Square, but was disused at the end of the eighteenth century, and the proceeds went to assist the erection of a meeting-house for the Friends in Edinburgh. Prior to the close of this burial-place in Glasgow were presented with another in Partick, this was used for 146 years, the last interment being in 1777. Another burial-place was at Shawtonhill, in the parish of Glassford, Lanarkshire, which was purchased in 1675, and was in use till recently, and still remained the property of the Friends. Another was at Gartshore, near Kirkintilloch, and was in use from 1674 to 1884. In recent years the remains of deceased Friends in Glasgow had been interred in the public cemeteries.

ROYAL SCOTTISH ACADEMY.

MEETING of the Royal Scottish Academy was held on the 18th inst. for the purpose of electing two associates— a painter and an architect. Mr. James Guthrie, president, was in the chair. The following were the nominations:—

Painters.—John Lochhead, West Kilbride, Ayrshire; Robert Brough, 259 Union Street, Aberdeen; D. Y. Cameron, 11, Stirling Street, Glasgow; John Bowie, 36 Torphichen Street, Edinburgh; George Stratton Ferrier, 41 Heriot Row, Edinburgh; Arch. Kay, 12 Berkeley Terrace, Glasgow; John A. Ford, 4 Picardy Place, Edinburgh; Thomas Blacklock, 108 George Street, Edinburgh; William M. Frazer, 6 Abercromby Place, Edinburgh; James Riddel, Caerketton, Colinton; R. Huddingstone Herdman, St. Bernard's Tower, Bruntsfield Crescent; J. Campbell Mitchell, Corstorphine; Mason Hunter, North Charlotte Street, Edinburgh; R. M. G. Coventry, 6 W. George Street, Glasgow; W. Skeoch Cumming, Queen Street, Edinburgh; John Henderson, 207 W. Campbell Street, Glasgow; George Pirie, Wardend, Torrance; George Smith, 47 Lauder Road, Edinburgh; Stuart Park, 8 Main Street, Glasgow; David Gauld, 46 Gordon Street, Glasgow; William Kennedy, 104 W. George Street, Glasgow; James E. Christie, 81 St. Vincent Street, Glasgow; Henry J. Gibson, 108 George Street, Edinburgh; James Kay, 35 Melville Street, Glasgow; Patrick Downie, Clyde View, Skelton; James Heron, 1 Warrender Park Crescent, Edinburgh.

Architects.—T. Duncan Rhind, 4 Duke Street, Edinburgh; James Miller, Glasgow; R. S. Lorimer, 1 Bruntsfield Crescent, Edinburgh; J. Macintyre Henry, 7 South Charlotte Street, Edinburgh; James B. Dunn, 42 Frederick Street, Edinburgh; James Ross, 42 Saxe-Coburg Place, Edinburgh; John A. Campbell, 44 West George Street, Glasgow; Alexander N. Robertson, 136 Wellington Street, Glasgow; T. S. Robertson, Dundee; T. L. Watson, 166 Bath Street, Glasgow.

As the result of the voting Mr. John Bowie, Edinburgh, and Mr. R. S. Lorimer, Edinburgh, were preferred for the honours. The final vote in the election of the painter associate was as follows:—Mr. John Bowie, 19; and Mr. D. Y. Cameron, Glasgow, 18. Mr. Robert Brough, Aberdeen, stood next. In the semi-final vote for the architect associate the result was:—Mr. Lorimer, 16; Mr. J. Macintyre Henry, Edinburgh, 15; and Mr. T. S. Robertson, Dundee, 14; and in the final vote Mr. Lorimer had 20 supporters and Mr. Henry 16.

Mr. John Bowie, says the *Scotsman*, is one of the rising portraitists of the city, whose work in recent years has received the recognition at the Royal Scottish Academy. A son of Dr. Bowie, Lauriston, Edinburgh, he was educated at George Watson's college. When seventeen years of age he began his career at the Mound, and entered the Royal Scottish Academy life school before he was twenty. In the first session he took the Chalmers bursary, and emerged from the school as one of the successful students of his time. A few years later he went to Paris, and studied drawing and painting in the ateliers of M. Bougereau and M. Fleury, and returning to Edinburgh began to paint with acceptance both genre pictures and portraits. To the latter branch of art he has of late more exclusively devoted himself, and with much success. Among the first portraits of his to attract favourable notice were heads of Mr. Albert Bach, the singer, and of the late Mr. Clark Gantton, R.S.A. He shortly afterwards was engaged on a large portrait group of the Edinburgh Town Council, which was bought and presented to the Corporation by the present Lord Provost. Many of the original studies for that picture, which is now hanging in the City Chambers, were much admired for their

incisiveness as characteristic likenesses and for their vigorous painting. Several of these heads were hung at the Royal Society of Arts exhibitions, among others those of the late Bailies Kinloch Anderson and Gulland and of ex-bailies Robertson and Macpherson and ex-Dean of Guild Miller. A large portrait group of the Royal Chaplains followed. Both of these works were engraved. Mr. Bowie has also painted and exhibited excellent portraits of Principal Story, Glasgow; the Rev. Dr. MacGregor, Edinburgh; Principal Rainy, the Rev. Hugh Black, United Free St. George's, Edinburgh; the Rev. Dr. Stewart, Lovedale; and Councillor Purves. At present Mr. Bowie is in Spain studying the works of the great portrait-painter Velasquez.

Mr. R. S. Lorimer is the youngest son of the late Professor Lorimer and brother of Mr. J. H. Lorimer, R.S.A. He was educated at the Edinburgh Academy and the Edinburgh University. He entered Sir Rowand Anderson's office as a pupil in 1887, remained there for four and a half years, then went to London as a draughtsman in the office of Mr. G. F. Bodley, R.A., the eminent church architect, where he remained for about two years. Another year and a half were spent in various London offices. He returned to Edinburgh ten years ago to superintend the restoration of Earls Hall, Fife, and to undertake some work that had been offered him by the late Mr. J. R. Findlay, of Aberlour. Since then he has been constantly occupied principally with domestic work in various parts of the country.

ST. BARTHOLOMEW THE GREAT.

ON last Saturday afternoon Mr. E. A. Webb, F.S.A., delivered a lecture on the changes which the ancient priory church has undergone from its foundation by Rahere to the present time. Mr. Webb dealt with Rahere's life in Rome, and the vision during his convalescence from fever which led to his return to England and the establishment of the church and hospital "in the suburbs in Smithfield." He himself was one of the Canons Regular of St. Augustine, generally called Augustinians, and his foundation consisted of thirteen canons, increased by Prior Thomas, who succeeded him in 1143, to thirty-five. The Norman church was the work of Rahere; the transepts, the crossing and the first bay of the nave, showing ornaments of the Transition period, were begun by Prior Thomas. The original nave, standing on what is now the graveyard, where some bases of pillars may be seen, was probably Early English. In the first decade of the fifteenth century extensive alterations were made. The lady chapel was rebuilt, with a crypt beneath. The original clerestory was replaced by that which now exists. About this time the tower was probably rebuilt, as the corbels of the west arch and the capitals of the Norman shafts on the north side have Perpendicular mouldings. To this period belong the tabernacle work and panels of the founder's tomb. Successive priors altered and modified the buildings; the oriel window in the centre arch of the Norman triforium on the south door and the door in the south ambulatory were added by Bolton, who built Canonbury Towers. After the surrender to the king by Fuller, the last prior, in 1539, the nave was destroyed, the present west front built, and the lady chapel and the conventual buildings sold to Sir Richard Rich. According to a document recently discovered in the Record Office by Mr. Webb, early in the seventeenth century the lady chapel was used as a dwelling-house. It was afterwards occupied as a fringe factory till 1885. The church was of very great interest, showing as no other church in London did the various architectural periods, and the restoration (commenced in 1863) had been carried out successfully. No one could mistake the new work for old, but the new harmonised extremely well in colour and style with the original. The special object of the lecture was to awaken interest in the recovery and restoration of three bays of the ancient cloisters, which are all that are known to remain. These adjoin the south wall, so that access could be gained therefrom through the original Norman entrance now walled up. These arches are of the fifteenth century, in a fair state of preservation, and their acquisition is very desirable. The other parts of the cloisters have been demolished to make room for, or been incorporated in, secular buildings. At the conclusion of the lecture contributions were received towards the purchase and restoration of the property, for which a sum of 2,500*l.* is required. The lecture will be repeated on Saturday next at 3 P.M.

The London County Council have resolved on the construction of a new asylum, to accommodate 2,000 patients, on the Horton estate, Epsom, at an estimated cost of 569,500*l.* An expenditure of 97,000*l.* on the preliminary work has been authorised.

NOTES AND COMMENTS.

It is sometimes difficult to discriminate between the varieties of machinery which will constitute "factories" under the Workmen's Compensation Act. There can be little doubt that a shed with an engine for grinding or mixing mortar would be a "factory," and the contractor who used it an "occupier" or "undertaker." But cranes and machinery for loading and unloading have caused some uncertainty. One of those puzzling cases was heard in the Salford County Court on Monday. The applicant was a bridge-builder's labourer, and he was employed in the widening of a bridge over the river Irwell. His work consisted in carrying water to the hydraulic "jacks" used for lifting the girders. The girders on being put into position were fixed by "drifts." The applicant was in the act of pointing out which "drift" required to be hammered in when another man raised his hammer and struck at it, the blow falling on one of the applicant's fingers. The injury was such that he had been unable to work since, and he claimed compensation. Plaintiff's solicitor argued that the "jack" was a mechanical appliance, and its power was provided by the entry of the water and air into a chamber. This power acted independently of the manual labour. His Honour Judge PARRY said it was an important question, when mechanical power assisted manual power, how far that came within the Act. He held that on the evidence before him this case did not come within the meaning of the Act. He was of opinion that the respondents were in the right, and would therefore make no order.

AMONG the modern French paintings which are known universally by means of photographs is the *Vierge Consolatrice*, by M. BOUGUEREAU, which for several years has been one of the most attractive pictures in the Luxembourg Gallery. The subject, it will be remembered, is the Divine Mother, clothed in black, looking upwards, while a young woman and a dead baby are prostrate at her feet. So much care has been taken with all the parts, and it is so difficult to do justice to the work in a small view; photographs are to be seen which only show the head of the principal figure, or that figure alone. The artist regards his painting as a whole, and although in reality it is a compliment to him, he does not approve of the selection of a part, but considers it as an act of injustice to himself. In order to test the question of control in such a case, M. BOUGUEREAU has taken an action against a manufacturer of Limoges, who has produced enamel plaques in which the head and bust of the Virgin alone are represented. As the picture is national property, the painter may not be able to control complete reproductions. But as he declares a part alone is incomprehensible from his point of view, he asks the Courts for protection. The case is under consideration.

WE mentioned last week the discovery of drawings which were falsely put forth as productions of the late M. PILLE. The inquiries by the magistrate resulted in a confession that the alleged author of the forgeries had made many other fabrications, and amongst them the tiara of SAITAPHARNES, now in the Louvre, for which 4,000*l.* was given. When the purchase was effected we had some comments upon it. But the crown, although made of gold and supposed to be Greek, did not captivate Frenchmen. As a consequence there was never any difficulty in seeing it in the gallery. Now that it is suspected to be no more than a modern sham it has become an attraction for all Paris. Whether it is old or new cannot be determined. A forger cannot have much respect for truth, and it is often of service for a man in Paris to make himself out a worse criminal than he is. Gold is a material easily manipulated, and if the most obdurate stones have been compelled to assume the appearance of antique gems a work like the tiara presents few difficulties to a fabricator. From the artistic skill which abounds in Paris it is always possible to obtain imitations of ancient styles for deceiving the unwary. So long as there is a superstitious affection towards what is ancient, and that people do not require to be convinced that all modern work is necessarily inferior to that of a past age, we must expect that crafty men will be found to pander to the infatuation.

THE recent numbers of *L'Art* contain many novelties. The liveliness of HORACE VERNET, the battle painter, is suggested by his amusing caricatures of the high and mighty architects and painters of his time. Students of SHAKESPEARE and of GOETHE will do well to enrich their collections with the reproductions of the famous lithographs by EUGENE DELACROIX. Facsimiles of letters form a feature in *L'Art*, and one is given by VICTOR COUSIN, the eclectic, in which we find him clamouring for a number of the *Edinburgh Review*, in which his philosophy was first explained to the world. The etchings continue to be as charming as ever. But *L'Art* defies competition, not only in the forms we have indicated but by its valuable "primes." The latest is *Marchande de Volaille à Cernay*, a large etching by LEON BOURGEOIS after the painting of E. DAMERON, which alone is worth a year's subscription.

ILLUSTRATIONS.

CATHEDRAL SERIES.—WORCESTER: NAVE ARCHES AND NORTH TRANSEPT.

DORMY HOUSE CLUB, SUNNINGDALE.

SUNNINGDALE GOLF CLUB.

STUDY FOR A TOWN CHURCH: SKETCH FROM SOUTH-EAST.

THIS design was one submitted in the recent R.I.B.A. competition for the Soane Medallion. The site, which is 140 feet by 90 feet, is at the corner of two streets in a large town. On reference to the plan it will be seen that, excepting a small area at the north-west corner, the whole of the ground has been utilised. The main object of the plan was to enable each member of the congregation to obtain a view of the high altar, and for this purpose the large uninterrupted areas required suggested the Byzantine style being adopted. The choir is arranged in a segmental form, and a return way for communicants has been provided. The morning chapel is placed at the south-west, having direct communication with the priests' vestry, which is at the south-east angle over site, and over which rises a campanile to a height of 171 feet to the crowning cross. The external design of the building depends entirely upon line and mass, and not on ornament, the interior decoration being in marble and mosaic. The study is by Mr. C. F. W. DENING, of Bristol.

PREMISES, TUDOR STREET (SOUTH SIDE), E.C.

THIS elevation was prepared by Messrs. BANISTER FLETCHER & SONS for the new publishing premises of the "Christian Herald" Company. The plan is very irregular owing to the peculiar nature of the site, and for this reason the staircase is placed to the front of the premises, and is carried up as a tower. The rest of the space on each floor is given up to the various departments of printing and publishing. As good light was required for this business, a simple mullioned treatment of windows was adopted. The floors were to be of fireproof construction. The front above ground floor was to be of red brick, the ground floor in Portland stone, and the roof covered with green Westmoreland slates. The rear of the premises overlooks the playground of the City of London School.

PREMISES, HIGH STREET, KENSINGTON, W.

THESE premises, forming No. 27 High Street, Kensington, have recently been erected, and consist of a music shop and practising rooms on the ground floor, the upper floors being occupied as flats.

The front has its boundaries recessed in the upper portion and a bay window taken up for the three storeys, thus forming a balcony on either side. The return walls have been treated with glazed tile panels representing famous musicians, by which means a certain amount of colour and interest is given to the façade.

The materials used are LAWRENCE'S red bricks and Kedon stone, and steel casements fitted with leaded lights for glazing. The builder was Mr. A. H. BIRD, and the works were designed and carried out under the superintendence of the architects, Messrs. BANISTER FLETCHER & SONS.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. H. T. Hare, president, in the chair.

On the motion of the President a vote of condolence and sympathy was passed to the relatives of the late Professor T. Roger Smith. He had been intimately connected with the Association, and many of the older members had passed through his classes.

House List, Session 1903-4.

The following were announced to be the principal officers:—President, Mr. H. T. Hare; vice-presidents, Mr. R. S. Balfour and Mr. Arnold Mitchell; hon. secretaries, Mr. H. P. G. Maule and Mr. H. Tanner, jun.; Mr. W. H. WHITE read a paper entitled

Ancient and Modern Town Houses; or, the Evolution of Domestic Architecture in London.

This title is perhaps too comprehensive for a short paper, and it should therefore be mentioned at once that only certain phases of the subject can be considered within its limits. Between its two headings, however, one sees in dim perspective much that is interesting in the gradual development of that class of buildings which, from the earliest grouping of dwellings for mutual protection down to such a vast aggregation of dwellings forming our modern London, has always been the nucleus from which, and around which, all other buildings have grown.

Once the walls of a fortified town were built, the ever-increasing number of inhabitants must have led up to the problem of getting as much accommodation in a limited space as possible, and limitation of space occurred in very early times, the result being that streets were narrow—mere alleys in most cases—and the picturesque timbered and plastered overhanging storeys which were built down to the time of the Great Fire added to the difficulties of properly lighting the houses, and also of access of air.

There is an interesting book entitled "The Evolution of the English House," by S. O. Addy, and there are four volumes upon "Domestic Architecture" by Turner and Parker, which trace the development of the house to the sixteenth century. Without dipping further, therefore, into the ancient history of town houses (although much that is interesting could be written thereon), we may take as sufficiently "ancient" the houses that were built in the seventeenth century, and then trace the problems that an architect had to solve in old days and has now to solve in these bustling times.

Starting from Wren and the impetus given to the development of the town house by the Great Fire of 1666, it may be noted that from that time to the middle of the eighteenth century there does not appear to have been any radical change in the type of plans adopted for the various classes of houses. By "classes" is here meant the small-sized town house, the middle-sized (both in terraces), and the town mansion. Of the first and second types there are few examples extant earlier than the eighteenth century, and of the mansions also, owing to the numerous alterations which have taken place, not many of these remain as first designed. But, dating from the middle of the eighteenth century, we have innumerable examples of three types, and upon examining them in detail, we shall find the same faults recurring through each, and, let us hope, the elimination of these faults to a great extent in present-day work.

It appears to have been the rule to have spent whatever time and thought was given to the planning of houses, until quite recent times, to the ground and first floors—the basements and upper floors being fearful and wonderful. It was all for "my lord and lady," and let the serving men and women shift for themselves; "live, and be thankful," was thought good enough for their motto, and they accepted the situation. The reception-rooms having been planned, the bedrooms, children's and servants' apartments had but little attention bestowed upon them, and were most frequently badly lighted, badly arranged and low in height. It is extraordinary why the early builders could have ever willingly burrowed down into the earth and increased their difficulties as to lighting and draining to such an extent.

No special scheme of house building appears to have been laid down prior to Wren's time, and his plan for rebuilding London after the Fire was not carried out according to his ideas. Yet he and Hooke, who had also made a plan, and who, owing to their appreciation of it, had been appointed surveyors to the City by the Corporation, were informed, were much overworked in setting out the rebuilding schemes. In 1668 Pepys describes a fire in Mincing Lane—a detached house "not yet quite finished, and the benefit of brick was well seen, for it burnt all inward and fell down within itself, so no fear of doing more hurt." Apparently, also, the jerry-builder was to the fore in the rebuilding, as our friend, Pepys, tells

us:—"I hear (1668) that there is fallen down a new house, not quite finished, in Lombard Street, and that there have been several so, they making use of bad mortar and bricks." From this time almost to the end of the seventeenth century no building schemes of any special note can now be followed with any advantage, so many alterations having taken place.

Wren must have had so much to do in his official capacity upon St Paul's and in designing sixty City churches with a few other trifles, that we can scarcely trace his influence or that of any other architect in the ordinary terrace house plan, although the traditions of his school of work can be seen in numerous instances. It is on record that he built a mansion for himself in Great Russell Street, but Elmes states that in 1823 "its noble front with majestic cantalever cornice was taken down by a speculating builder and common Act of Parliament fronts run up for four houses in its stead."

In the eighteenth century a vast quantity of houses were erected in London, and most of the principal residential squares and streets were laid out or rebuilt, with the exception of portions of Belgravia and practically the whole of South Kensington, this being nineteenth-century work.

Devonshire Square, City, was laid out between 1620 to 1670, but rebuilt later. Finsbury Square was laid out by the younger Dance in 1777, and was the first public place in London lighted by gas. Finsbury Circus was built in 1814; its glories have departed and huge blocks of offices have taken the place of most of the fine old terrace houses. Bloomsbury Square was laid out in the seventeenth century, but rebuilt during the eighteenth and nineteenth centuries. Grosvenor Square, although laid out in 1695 by Kent, has been rebuilt to a great extent, and was "the last square lighted by gas." Cavendish Square was commenced in 1717 and 1718, but building was then checked by the bursting of the South Sea Bubble, and this square remained in an unfinished state for many years. James of Greenwich was the architect of the two fine houses still in existence on the north side and which are fine examples of Wren's school.

The Brothers Adam built the Adelphi in 1768, some houses in Mansfield Street in 1768, Portland Place in 1778, a terrace of houses in Fitzroy Square in 1790-94, and as these are stone-fronted they appear to have seen that their favourite "stucco" was not all that could be desired. Portman Square was begun in 1764 but was not finished until twenty years afterwards, and was then described as "on the outskirts of the town, approached on one side by a road, unlit, unpaved and inaccessible by carriages." This brief list of dates gives us a rough outline of the history of the laying-out of some of the principal squares and terraces of houses built during the eighteenth century.

It is a matter for reflection to trace in the evolution of town houses how the trend of fashion has moved westward—and here it may be interesting to note that in most towns the fashionable quarters are in the west—and "fashion" for centuries past in London has ever moved westward. We are told that "the first emigrations of the London merchants westward (who used to live over their shops) was about the middle of the eighteenth century, and only those who had secured large fortunes and possessed reputations beyond the shadow of a doubt ventured as far as Hatton Garden."

We may now consider the work done in the nineteenth century to meet this westward movement and soon discover that the speculator was again to the fore. Regent Street and Regent's Park were laid out by John Nash from about 1812 to 1820. Belgrave Square was built in 1825 from designs by George Basevi, and Eaton Square by Cubitt in 1827—"Cubitt built" being (long afterwards) a sufficient guarantee for well-built houses. This term is used advisedly, as, alas! there is much to be deplored architecturally. From that date to the work done upon the Grosvenor, Cadogan and Queen's Gate estates (dating from about 1880), there is not much to interest us.

A very large amount of rebuilding has taken place upon these estates during the past twenty years, and fortunately a great deal of it has been done by some of our leading men, and here can be seen the work which must go down to future generations as some of the best town house work done during the latter part of the nineteenth century.

There is a considerable variety in the plans and elevations, and the development shows the reaction from the Portland Place and Harley Street terrace type. There is, no doubt, much that is charming in some of the new work done upon these estates, but whether the endless variety and "inconsequence" of many of the designs has not been produced at too great a sacrifice of dignity is a very moot question. This restlessness seems to be characteristic of the age, and it is interesting to speculate as to what would now be done in the designing of a row of terrace houses or a good "square," say by Mr. Norman Shaw, judging from the gradual development of his work from "Craigside," with its infinite variety and charm, and the dignity and reserve shown in his final masterpiece, "Chesters." In the corner house in Queen's Gate, also by Mr. Norman Shaw—although we are told he was given a cue

as to what was desired by the owner; yet it is well worth noting that after a long series of buildings thoroughly English in feeling, yet entirely fresh in grouping and with detail all his own—we find him at the close of his professional career reverting to severer forms and detail, allowing scale and proportion to take the place of picturesqueness, and really going back to the time when English architecture ceased to be a living style—viz the early Georges.

Until that time there had been a gradual development, a real following-on of design and adapted to the requirements of the age. Since that time we have been ringing the changes on the Greek Revival, the Gothic Revival, and latterly rushing to the Continent and coming back with sketch-books filled with innumerable "bits" to be grafted on to the next new work. But it is most interesting to see (as is apparent in so much that has been done during the past ten years) that the tendency is to return to our vernacular; to pick up the threads and to carry on the traditions of our own work, and surely it is worth while that our students should pause and study this reaction before struggling to invent new forms. By the way, does this not often mean amorphous lumps of brick and stone with conventional orange trees growing over the fronts of buildings and bearing fruit in the most extraordinary manner? This, however, is not a paper on "Architectural Styles," but the foregoing remarks are the outcome of studying the elevations of the houses we have been reviewing, and it need not be assumed they are suggested with a view of checking individuality or variety of detail, for it may be noticed that although "style" has been kept in the Queen's Gate house by Mr. Shaw, individuality is also impressed upon the design—internally more than externally perhaps.

These thoughts take us back to the works of the Brothers Adam, who, while adopting the characteristics of the vernacular style, impressed an individuality and refinement of detail on their work which does not appear to have been attained by any architect since. Examine the illustrations of their work and the skill in the "design" of their plans, the symmetry, proportion and refinement of detail in their decorations, and remember that they could and did treat their decorations architecturally; each reception-room and hall and staircase being separately studied and treated—walls, ceilings, floors, chimney-pieces, windows, doors and even the window and door fittings and the furniture were designed in the same style and scale as the house and with the same delicacy of detail. The fenestration in the work of the Brothers Adam was designed to show the relative importance of the rooms, but (with the exception of the drawing-room floor) the windows in many cases were too small to properly light and ventilate the rooms; it is curious they failed to realise the great defect which a centre pier between two windows produced as regards the effective lighting of a long room end on to the front. This applies to their London town houses of the ordinary terrace type. Adam Brothers' best work can be seen in their detached mansions, where their skill in the grouping of fine suites of apartments and for producing grand vistas and effects can be seen to most advantage.

The question of fenestration, formerly the keynote to the design and proportion of house fronts, seems in much of the work now being done to be relegated to the background, if not indeed forgotten in the craze for novelty of arrangement regardless of the position or needs of the rooms. The lower rooms, although requiring large windows in proportion to their size (particularly in narrow streets) are frequently too small, whilst the upper floors are over-windowed, and the desire for variety is allowed to dominate the whole character of the front. This criticism applies to town house architecture, not blocks of flats, where each floor is almost of the same importance.

The Brothers Adam were individualists and, to a very great extent, the characteristics of their work died with them, to be revived, so far as internal decorations are concerned, a century after their great work was ended. In the house, No. 25 Portland Place, said to have been built by Robert Adam for his own occupation, we have a good specimen of their work.

The work of John Nash had none of their refinement of detail, although certain qualities of his work, viz. breadth of effect, grouping and balance are well worth studying. Had the terraces of houses in Regent's Park which he erected (Cornwall Terrace was designed by Decimus Burton, but the same feeling exists) been faced with stone instead of stucco, the effect now would impress us in quite a different manner. Indeed, a walk round Regent's Park might convince the sceptical that breadth of effect may yet be obtained with a considerable amount of variety, and there is an element of repose and dignity about these terraces sadly lacking in the work now in general vogue; but this must not be confounded with the deadly monotony of the rows upon rows of stuccoed monstrosities of the Cromwell Road type: "Stuccoed and usually also porticoed, and bearing a gloomy likeness to an array of family vaults awaiting their occupants," as Mrs. Cooke in "Highways and Byways in London" recently said.

Until some of our prominent estate owners make the opportunity by dealing with blocks of houses at a time instead of solitary slips, there appears little chance of any change from the kaleidoscopic effects in our streets which our present lack of system and scheme produces. On the Grosvenor and Cadogan estates, although much good work has been done, yet designs "jostle" each other.

In dealing with recent work it is difficult to differentiate between the characteristics of the plans of various architects, and it would be necessary to devote a special paragraph to the work of each man to bring out these points, but a study of the plans which have been published shows that in later years much has been done to give greater individuality to the plans of even ordinary terrace-houses than was formerly the case; but a writer has truly said that "except in the minority of instances town houses are not built by the men who inhabit them, and in rarer cases still it is where ground values and questions of light and air do not entirely overrule the æsthetic influences of architecture itself." Indeed, most of the best modern work is that which has been done by architects for special clients to meet the latter's particular requirements; further, the site and its surroundings in many cases dictate the general laying-out of the plan. Aspect must also be considered as far as possible, even in smoky, murky London.

Planning is perhaps not quite so interesting to students as designing the elevations, and yet the importance of the plan cannot be over-rated, and the art or science of planning, as shown in the works of the best masters, is a very different thing indeed from that which comes from less able hands, and most certainly does "count."

Having received instructions to build a house in London—say, upon the site of an old one—the architect should study as far as possible the client's mode of living, his "hobby," and the accommodation he requires, and must not forget that "cost" will enter largely into the question and enhance his difficulties. Further difficulties may then present themselves in the shape of Acts of Parliament and London County Council by-laws, and neighbours' rights (invested interests), if neglected by the architect, will probably land him and his client into sad trouble and worry. In building upon a large estate other difficulties may be presented. The owner's and his surveyor's views require special attention, and with the popular cry against the ground landlords and their desire to meet their tenants in some instances and otherwise, sometimes compromises have to be made, and the architect's hands are by no means unfettered.

We will now consider the planning of town houses more in detail, and it may be as well to mention that the detached town mansion is not dealt with in this paper. It is in itself a sufficient subject for a very interesting discussion, but general principles can scarcely be laid down when conditions and requirements are so varied.

In the modern town house of the terrace type, whether the frontage be 20 or 30 feet, the problem is much the same—that is, the same number of rooms, in a given locality, will be asked for, the keynote being the relation of the hall and staircase to the rooms.

Of the "Adam" type, two examples exhibited show very well the charm of their work and their faults, judged by present-day requirements, and as indicating how much hinges upon a small point it will be observed that the sanitary block is in both cases at the extreme end of the ground and first floors, and approached only through some of the principal rooms. Upon examination of the Cadogan estate, Queen's Gate and Harley Street plans, now exhibited, it will be seen that modern ideas as to the position of the sanitary block have completely changed this type of plan.

Most people want to enter their rooms direct from the hall or corridors, and that the rooms be not "passage" rooms from one part of the building to another. There is a tendency (upon restricted sites) to omit the morning-room, and to enlarge the hall and make it more like a room. There is no doubt a considerable charm in this type of plan, and where the staircase is well treated and is not allowed to take up too much room, the hall becomes a useful lounge. A good fireplace is essential if it is to be so used, and well-arranged radiators materially add to the warmth and comfort of the house. If a staircase from the basement to the outer hall can be obtained, the inner hall is less liable to disturbance by the entrance of servants.

Such a plan often permits of side lighting from an area which is most desirable, but usually the space given up to the area is not sufficient—the air is stagnant and very little light is obtained, the result being again unsatisfactory. If "pairs" of houses can be built the areas become double in size so far as light and air go, and this is a great gain to both houses.

The usual "Adam" staircase is top-lighted, and although in many cases this has been effectively treated, the great defect is a gloomy hall. This can in some cases be avoided, and in a Harley Street house a window has been introduced upon each

half-landing in addition to a good lantern light, thus flooding the hall and staircase with light and giving ample ventilation, which is not to be obtained by the merely top-lighted staircase. This is a simple solution of the problem, and might be more often adopted with advantage. It breaks up the long shadows cast by the upper flights of stairs and landings, and gives a sense of brightness and airiness which has proved attractive. There is another determinant as to the position of the staircase, and that is the planning of the drawing-room, *i.e.* first floor. If double or connected drawing-rooms are required the staircase cannot be taken up between the rooms in the ordinary 20 feet to 30 feet frontage; if, however, connected rooms be not required, and the site is sufficiently deep, a central staircase, lighted either from the top or from an area, or from both, can be obtained, and examples of this type are worth studying.

A second staircase should wherever possible be provided—in the smaller houses, of course, it is not possible—and its substitute, although sometimes practicable, is expensive—it is a small passenger lift. But unless this can be worked by electricity and arranged to be used without a special attendant it is not of much use. Whilst dealing with the position of the staircases the relation of same to the kitchen is of great importance. In some of the old plans the service appears to have been almost lost sight of, and the labour to the servants must have been immense, and would not be tolerated by the present-day domestic servant.

The diagrams exhibited have been prepared from published plans or works actually carried out—in most cases show therefore that the position of the hall and staircase settles the general lines of the plan, although capable of much variety in detail according to the skill of the planner and the possibilities of the site.

In the smaller sized house it is not always possible to have a central or even an important staircase, but a well-designed one adds to the character of the house, and the very ordinary straight flight may be varied by reversing the bottom steps—and thus, by a little contriving, a position is secured for a fireplace and the ordinary "passage" effect is avoided. The rooms upon the ground floor usually required are a good dining-room (and remember that 15 feet in width is the minimum for comfort), a library and morning or own room, and a billiard-room is now more often asked for than formerly. If space be limited upon the ground floor a billiard-room can often be devised in the basement, but in such cases a staircase separate from the servants' stairs should be arranged so that access can be obtained without passing through the servants' rooms. The gentlemen's water-closet and lavatory should be upon the ground floor and well screened. Passing to the drawing-room floor, we have to decide whether there are to be two drawing-rooms or a single drawing-room and boudoir, with perhaps a guest's bedroom. For the ordinary house a large drawing-room, with smaller back ditto with large doors between and a small boudoir, is a very useful arrangement. If possible a water-closet and lavatory should be provided upon this floor if a well-screened position can be discovered. If a guest's bedroom be planned upon this floor a dressing-room and bathroom and water-closet is very desirable, and unless space prevents should be arranged. The second floor is usually given up to the heads of the family, and ordinary requirements demand a good bedroom with dressing-room (large enough to use as an extra bedroom), bathroom and water-closet, and one or two smaller bedrooms.

The principal staircase can sometimes with advantage terminate on this floor, and the back staircase become the staircase to the upper floors; but it should in such a case be well arranged and of more importance than the ordinary back stair. The drawback to this plan is that it becomes common to the family and servants. A skilful planner can often solve this difficulty, however.

The third floor usually follows the arrangement of the second floor. If there are children to arrange for, then special planning is required, and the accommodation should consist of a large day-room, two or three bedrooms, bath-room, water-closet, nursery pantry with sink, small larder, linen store, and plenty of cupboard accommodation—and a lift in this case saves much labour. On the fourth floor the servants' bedrooms, box-room, cistern-room, and, if possible, isolation-room, should be arranged, with easy access to the roof and from there to adjoining roofs in case of fire.

Descending to the basement, let us first glance at the plans of some old houses and compare them with those of recent date, and try and discern the reasons for the development. It is a mystery that with the drainage arrangements which existed (or the lack of them) down to quite recent times, that the death rate of London has been so low. It was until quite recently a common occurrence for the drainage to go into loosely-formed brick channels, very close to the underside of the basement floors and leading to cesspools constructed right under the houses; and in dealing with old houses close search should always be made for open-jointed pipes laid in brick drains, and cesspools disused, but full of foul matter.

As previously mentioned, it appears as if no careful study were made of the planning of the basement in the old houses—masses of brickwork, long dark passages and recesses abound, windows were absurdly small; it seems almost impossible that servants could have lived under such conditions; the very defects of planning increased the staff required to do the work of the house, for dark rooms and passages are almost synonymous with dirty rooms and passages. Many of the old examples show that the position sometimes selected for the kitchen was about as far from the dining-room as possible, and lifts were not then in use. The water-closets shown in a well-known book lead out of the men-servants' bedrooms, and in many of the Harley Street houses as originally planned, the water-closets were against the party-wall and without a ray of light, and no outside ventilation was possible. These defects, together with the old open-jointed drains and cesspools, were, indeed, strange and awful combinations. The examples are typical of hundreds of such cases which existed until quite recent years, and, indeed, are not yet extinct.

The difficulties of the older architects were increased by the necessity of providing laundries and bakehouses, which were often placed in the basement. Steam laundries and bakeries have helped to solve these difficulties, and we are able to concentrate and centralise the work and service of the basement to a very great extent. No part of the house will pay better for able planning than the basement.

It will not be necessary to describe in detail the rooms required in the basement, but only to insist that their proper relation to each other and to the upper rooms is of the utmost importance for the economical working of the house. It was time that the old order gave place to the new, and that the comfort and welfare of the servants be taken into consideration, for without such consideration the comfort of the owners and occupiers must certainly be lessened and an abnormal staff of servants will be required to do the housework.

The problem of how to adapt old houses such as are here indicated—to bring them, in the words of the house agents, "modernised up to date"—is one often presented to the architect, and it may be useful to note how such problems have been dealt with quite recently.

By studying carefully how to concentrate the service, by rearranging the rooms, by enlarging the window openings, obtaining borrowed lights and glazed doors wherever possible, many of these old basements can be made light, easy to work and perfectly healthy; but it is not a task to be entered upon lightly, and will often call for more skill and patience than the average man cares to bestow upon the matter. These exercises are, however, of very great use to the house-planner, as from the very defects one learns what to avoid in planning new work.

There are numerous small points that go towards the proper equipment of even an ordinary-sized town house. Amongst them may be mentioned:—Plenty of cupboard accommodation and good linen stores—but see that these are in suitable positions. A carefully arranged dinner and service lift from the basement to the top floor, if possible, and large enough for coats and ordinary luggage, should be arranged. The well of the back staircase is a good position, but this sometimes is further from the dining-room than is desirable. Telephones or speaking-tubes from each floor to the basement save much labour. Hot and cold water service upon each bedroom floor, and at least two bath-rooms, are required in a well-arranged house of the class we are considering. The careful arrangement of the electric lighting to control and to avoid waste must be studied, and the architect is the proper person to arrange these matters, which should be thought of when the plans are being made to avoid trouble and annoyance afterwards. The Public Health by-laws must not be forgotten, and the proper arrangement and disposition of the bath-rooms, water-closets, housemaid's sinks, &c., if not well considered in planning, lead to trouble and waste of money to an alarming extent.

No doubt all these considerations have added greatly to the difficulties of modern house planning, but by dint of much patience and persistent labour the various offices can be properly and correctly placed and—although we may envy our brothers of the craft who in earlier times had practically solved their problems when the ground and first-floor plans were made—we of this day must face our difficulties and take our pleasure in solving them. We must not be content with a thing that "will do," nor relax our efforts until we feel we have arrived at that happy compromise, the best that can be done "under the circumstances of the case." When the plans are all carefully drawn out, then is the time to study in detail the position and size of doors, fireplaces and windows, to throw light into the dark corners, to provide a proper place for everything, and therefore leave no chance for a thing to be out of its place.

"The little more, and how much it is—the little less and what worlds away!"—BROWNING.

The architect should be his own severest critic, and should

not rest so long as he can see there is a point which can be improved.

The examination of the plans published in our excellent professional journals show often enough that this is not done, and very imperfectly and badly arranged houses are still being planned and unfortunately built. Our young architects should make use of the many advantages these illustrations offer them by way of examples, and when real practical work comes they should first carefully consider what has been done before committing themselves to working drawings, which may not be the best solution of the problem. Finally, if we are to arrive at dignified and comfortable houses, "cranky" notions and mere eccentricity—which is commonly called "originality"—must be set aside.

Most people require houses to live in. We should therefore strive to concentrate the work of the house to make it, as far as possible, bright, cheerful, and well arranged and well constructed. Give every opportunity to let such sunshine as we are blessed with enter the house wherever possible, and by so doing you will add greatly to the health and comfort of its occupants.

The paper was fully illustrated; old prints, diagrams and plans were exhibited round the room on screens.

Professor BERESFORD PITE, who proposed a vote of thanks for the paper, said the notes and remarks would be useful to those who were concerned in the uses and requirements of the large London house. Simple planning was the architect's chief aim. The hall should be of ample size, large enough to have the rooms opening around it. The complicated plan had a charm in country houses, but in London it became a nuisance. It was well to break the staircase into flights.

Mr. Max Clarke seconded the vote, supported by Messrs. T. H. Watson, H. S. Collings, H. Lovegrove, F. Hooper, J. Boyton, John Murray and Dr. Voelcker.

VENTILATION AND WARMING.*

THE object of this paper is (1) to impress upon architects and others the great importance of proper ventilation in all buildings intended for the occupation of man. It was actually stated on good authority at the Sanitary Institute about two years ago that there was scarcely a building in the country that was effectually and efficiently ventilated.

2. Allow me to remind you that there are two essentials which are necessary to insure the continuance of our existence, viz, air and food. The former (air) is by far the most important—we might live days without food, but we could exist but a few moments only without air. We might exist for years on impure food, if not actually poisonous; but a very small additional quantity of certain impurities, produced by respiration and combustion, would and often do prove fatal. It has been stated, and is a fact, that "man's own breath is his greatest enemy," proving beyond a doubt that God's greatest material gift to man is pure air.

Before proceeding to the more practical part of our subject I must ask you to kindly allow me to refresh your memories on a few points connected with air.

3. The composition of air in its natural state:—

Oxygen (the vital gas)	20.90 per cent.
Nitrogen (diluent)	77.00 "
Carbon dioxide (CO ₂)	0.04 "
Argon	1.00 "
Aqueous vapour (according to temperature)	1-12 grains per cent.
Ammonia	Trace.
Organic matter, ozone, mineral salts, inorganic matter	Variable.
In towns, sulphurous acid and sulphuretted hydrogen	Trace.

Fortunately the first three important gases are found to be very uniform in their proportions in every part of the world. It should be borne in mind, when warming, that a certain quantity of aqueous vapour is necessary for health; generally about 70 per cent. of humidity is found to be the most satisfactory. It may be remarked that a considerable quantity of suspended matter injurious to health is often found in the air in towns, but the air in the country, and at high elevations is generally pure. The air is naturally purified by the wind and rain; the latter carries down the gases to the earth—CO₂ is thus absorbed by the ground to the benefit of vegetation, and the purity of the air. Plant life is also a great purifier of the air, as it absorbs CO₂. The latter is seldom found in the air in greenhouses.

4. An adult, on an average performs about 17 respirations per minute, during which he inhales and exhales about 16 cubic feet of air per hour; in the process the air when in the lungs

loses from 4 to 5 per cent. of oxygen, which is absorbed by the blood during its aëration; the exhaled air contains about 5 per cent. CO₂—equal to 0.8 cubic feet of CO₂ per hour. Of course this quantity varies according to the size of the individual, also whether he is in a state of rest or energy. It is also influenced by the temperature. Less than one-half is exhaled when the temperature is at about 90 degs. than when it is at the freezing-point. It has been found on an average that in a mixed assembly 0.6 cubic feet of CO₂ per hour may be taken as a fair average.

5. It is now admitted by all authorities on ventilation that as a rule, and for convenience, the amount of CO₂ in the air may also be taken to represent the other impurities with which it is usually contaminated, as the other impurities have been found, when the heat is not great, to vary in the same proportions as the CO₂.

6. Taking CO₂ then as the standard of all impurities, we find there are only four parts of this gas in every 10,000 cubic feet of pure air, and that it cannot be increased beyond 50 per cent. (or .0006) without being unfit for breathing.

When .0006 it can be perceived by the sense of smell.

„ .0008 (or 100 per cent. above pure air) it is offensive.

„ .0010 (or 150 per cent. above pure air) it is most offensive.

Any further increase cannot be distinguished by the sense of smell, as it becomes dulled by the breathing of foul air. We, therefore, have a limit of permissible impurity of .0002. It is the object of ventilation to keep the impurities within this limit.

7. We have now to see what quantity of fresh air has to be supplied per hour when 0.6 cubic feet of CO₂ is taken as given off by each individual, so that the standard of purity may be maintained. It will be seen that to dilute 0.6 cubic feet of CO₂ to bring it to the standard of the limit of permissible impurity, viz. .0002 (or $\frac{1}{5000}$), it must be mixed with 5,000 times its bulk of air:—

$$= 0.6 \text{ by } 5,000 = 3,000 \text{ cubic feet.}$$

So that 3,000 cubic feet of air is generally admitted as the quantity necessary per individual per hour. This quantity does not represent the amount of cubic space required per individual, as the cubic space is reduced in practice by the changing of the air—if changed three times in the hour the cubic space is reduced to 1,000 feet; if changed six times it is reduced to 500, and so on. In estimating the quantity of air required we must not omit, if gas is used, to allow 1,800 cubic feet of air for every cubic foot of gas consumed, so that the products of combustion may be properly diluted; consequently, a 5-foot gas burner is equivalent to three adults, and requires 9,000 cubic feet of air per hour to dilute the products of its combustion. We seldom realise how important it is that we should always have a proper supply of pure air, so as to insure the aëration or purification of the blood, upon which depends the maintenance of good health.

8. Successful ventilation may be stated as that which provides air in sufficient quantity, of good quality, possessing a suitable temperature and humidity. Well distributed without draughts. Complete and prompt removal of the vitiated air. The whole process being practical and economical.

Ventilation may be classed generally under the two following heads:—"Natural" and "Artificial."

9. Natural ventilation may be described as that which requires no special apparatus involving expense in working it, but is dependent on the movements produced in the air in consequence of its varying densities, which are produced by the varying temperatures and humidity. In a climate like ours we nearly always have a lower temperature outside a building than inside, which insures the chief element required for natural ventilation. This difference of temperature may not exist during the summer months; ventilation may then be obtained by opening windows, which should be specially constructed with a deep bottom bead fixed to the frame for the purpose. The movement or circulation of the air depends upon a property it possesses of expanding when heated, which it does at the rate of .00203 of its volume for each degree of Fahrenheit, assisted by the moisture it contains. When expanded it becomes lighter, and is then by the law of gravitation forced upwards by the cooler and denser air surrounding it. Wind is produced by this cause as well as natural ventilation.

10. Artificial ventilation may be described as that which requires constant supervision and expenditure to insure its proper working. It is divided into two systems—"vacuum" and "plenum," or extraction and propulsion. Each has its advocates, but of both it may be said that they are costly in working, besides requiring great care in their management.

In the vacuum or extraction system, strong currents are produced in the outlet or up-cast shafts by means of hot-water or steam coils, or by exhaust fans. There is an objection to this system when the current in the up-cast shafts is sufficiently strong, as it then causes every aperture to become an inlet, drawing impure air from sources not intended. There is also another serious difficulty in buildings having only one up-cast

* A paper read before the Society of Architects on March 19 by Mr. B. R. Tucker, member of the Council; (professional) member, Sanitary Institute, and late Chief Surveyor, War Office.

shaft, the rooms most remote from it scarcely get any current at all. For these reasons this system is in little favour.

The plenum or propulsion system has many advocates, as, unlike any other, the air can be taken from any desired source, away from contaminations; it can be filtered, washed, warmed or cooled, as desired. It is then driven by fans through tubes or ducts (generally placed in the basement), from these it is conveyed by up-cast shafts to the several rooms, &c., the air in each case discharging by a hopper-mouthed louvred opening, the louvres fixed at an angle of 40 degrees, so that the air may impinge against the ceiling. The opening is placed not less than 7 feet 6 inches above the floor, so that the air may discharge over the heads of the occupants; it then strikes the opposite wall, where it descends (split up), returns across the room to the foot of the wall at which it entered; it is here forced into outlet shafts, the openings of which are at the floor level. In the case of very large rooms the inlets may be on both sides of the rooms, and the foul air drawn through apertures formed at intervals in the floor. In any case, the position of the outlet must be such as will insure an absence of inconvenience and draught.

In no case should cold fresh air be drawn through the floor, or draughts will be produced about the feet of the occupants. The outlet shafts should be carried up through the roof and terminate each with a louvred top at some height above the ridge of the roof.

The advantages of this system are:—(a) The purest air is available can be used; (b) it can be cleansed, warmed or cooled as desired; (c) it can be changed, even eight or ten times in an hour, without causing draughts; (d) can be equally distributed to every part of the room; (e) all vitiated air can be driven out; (f) efficiency is secured independent of the force of the wind.

The disadvantages are:—(a) The long lengths of tubes or ducts so necessary to this system, which are so liable to become clogged with dust, and consequently be a means of polluting the air as it passes through them; (b) the great cost of the installation and the constant cost of working it; (c) great care and intelligence required in working it.

All inhabited rooms should be ventilated by means of fresh-air inlet ventilators and outlet foul-air flues. The natural system of ventilation is best suited for general use, as it is inexpensive and simple to work.

Domestic Rooms

11. Each room should be supplied with fresh air by means of a suitable ventilator, having an adjustable valve controlled by a cord. It should be fixed in a drop-channel opening in the outer wall near the ceiling, and furthest from the fireplace. The opening should be protected on the outside by a galvanised grating. The foul air should escape by means of a flue, of suitable size, formed in the chimney-stack between the smoke flues, with an opening into it near the ceiling, protected by a grating, ornamental or plain. The heat of the smoke flues would insure a more rapid escape of the foul air. The products of combustion from gas should be conducted into the foul air flue by means of a ventilator in the ceiling. In certain cases, as in living-rooms, a portion of the incoming fresh air might be warmed by means of a ventilating grate of approved construction. All inhabited rooms should have fireplaces for ventilation.

Large Rooms, Halls, Churches, Schools, &c.

12. In this class of building the fresh air is usually supplied by means of Tobin's tubes. These should be of a suitable size and sufficiently numerous to insure that the air is sufficiently split up so as not to produce a draught. When practicable, the fresh air passing through them should be warmed by means of hot-water or steam coils placed in suitable chambers in communication with them. The air should enter the Tobin's tubes as much above the ground as practicable to avoid ground impurities. In the case of windows, especially if large, it is advisable to place "direct" or direct-indirect radiators under them; if desired the radiators may be placed in cases or chambers; this is a good arrangement, as it effectually prevents cold draughts being produced by the cooling effect of the glass of the windows. The Tobin's tubes and cases of radiators may be so designed that they form a portion of the architectural features of the building. All windows should at least have a portion of their surfaces made to open; it should be of the hopper form of opening, well above the heads of the occupants, so that a good supply of fresh air can be introduced in warm weather. A portion of the incoming fresh air might be warmed by a ventilating grate of approved construction. The foul air should be removed by exhaust shafts terminating above the ridge of the roof, each surmounted by an extracting cowl or ventilator, having considerable extracting power when acted on by the wind—when there is no wind the current in the extracting exhaust shafts should be maintained by the employment of gas-jets or a hot-water or steam coil placed in their lower end, or by a cast-iron stove pipe fixed in the centre of the shafts and terminating above the cowl.

Hospital Wards.

13. It is possible that, as a rule, natural ventilation is best suited for hospital wards, especially when they are of ample cubic capacity, particularly as the open-air treatment by widely opened windows is now being practised in even certain London hospitals with beneficial results. The extracting power of the exhaust shafts should be aided, when necessary, by artificial heat, so as to insure the prompt removal of vitiated air. No doubt air maintained at 60 degs. Fahr., as in the plenum system, is somewhat enervating and depressing for hospitals, whereas the results of the open-air treatment would appear to show that a good supply of fresh cool air invigorates the system and increases the power of its resistance to germs, inasmuch as cool air is condensed air, and consequently imparts a larger quantity of oxygen into the system; it is also less liable to contain the germs of disease.

Large Schoolrooms.

14. It is maintained on good authority that the plenum system is the best for large schoolrooms, as it insures an equal distribution of warm pure air to each scholar. It has been ascertained that more mental vigour and increased working power are obtained with this system of ventilation than with natural ventilation. It is stated that Dr. Kerr's observations made on the air in natural and mechanically ventilated schools at Bradford, when over 250 tests were made for CO₂ during 2½ hours of afternoon school work, showed that in the naturally ventilated schools the CO₂ gradually increased from about 0.8 up to about 2.8 volumes per 1,000 cubic feet, whereas in those mechanically ventilated the amount of CO₂ remained steadily at 0.8 per 1,000 cubic feet all the time. The plenum system would be too expensive for small schools, consequently natural ventilation must be employed in these.

Barrack-rooms.

15. Perhaps there is no instance where ventilation is put to so severe a test as in barrack-rooms, where a number of men live, eat and sleep continuously in the same room. The cubic space allowed is 600 cubic feet per man, and the inlets and outlets for air are equal to 10 square inches per man. Half the quantity of the incoming air is warmed by the ventilating grate. The result of this system of ventilation is found to be satisfactory, although the area of 10 square inches would appear too small. No doubt a quantity of fresh air is admitted in this, as in other cases, by the doors and windows, and carried off by the chimney flues; in this way it is possible each man may obtain 3,000 cubic feet of air per hour, the air being changed probably about five times during that period.

Size of Ventilator and Flues.

16. This is important; it is, however, impossible to lay down a hard and fast rule. Generally it is considered that 24 square inches of area per individual, independent of the chimney, will be found sufficient. Less than this would be sufficient if the outlet shafts exceed 25 feet in height. A velocity of 5 feet of air per second through an area of 24 square inches will produce 3,000 cubic feet per hour, the quantity required. It should be stated that the foregoing quantity makes no allowance for a large supply of air which enters by the doors and windows, also through the walls, which are somewhat porous, and escapes up the chimney flue. Probably from 30 to 50 per cent. might be deducted as approximately representing this quantity, especially as an ordinary fire requires 3 to 4 feet of draught per second and a strong fire about 6 feet. A velocity of 5 feet per second at the ventilators will not produce more than about 3 feet in the room, which is the maximum that can be endured when the temperature is about 50 deg. Fahr. The lower the temperature the less should be the velocity. One foot per second is sufficient when the temperature is about 35 deg. Fahr. The position of the ventilators should be very carefully studied so as to prevent draughts. A draught may be defined as a current of air which produces a sense of chill. A prolonged cold-air bath may be very disastrous in its effects; in fact, a draught is dangerous.

(To be concluded.)

THE NATIONAL GALLERY, DUBLIN.

THE additions recently made to the above building from the designs and under the superintendence of Mr. Thos. Manly Deane, the surviving partner of the well-known firm of Sir Thos. N. Deane & Son, of Dublin, have not only practically doubled the original area of the building, but by the arrangement of dividing the additional space into separate rooms of about 30 feet square a much greater wall space is gained.

The additions consist of a basement floor for storage and workshops, and two other floors; the front portion of the building facing Merrion Square contains the entrance hall, and is otherwise devoted to the Milltown library—a large room which will serve as the board-room—the directors' room, secretaries' room and other administrative offices. The rear

portion of the new buildings which are built parallel with the old Gallery, with a courtyard between, contains the additional gallery space, and consists of seven rooms *en suite* on the ground-floor level and seven rooms on the first floor, six of the rooms on the ground floor being octagonal on plan. This form, owing to the rooms being side-lighted, was suggested by the director, Sir Walter Armstrong, and the effect is most pleasing and successful. All the rooms on the upper floor are top-lighted. The new galleries communicate with the old at both ends on each floor.

Externally the new work has only one elevation of importance, viz. on the east towards Merrion Square, the others being perfectly plain walls built of Black Calp limestone. But on the east the building is faced with granite ashlar and Portland stone dressings. The architect had a difficult problem in dealing with this front, for he was bound to follow the horizontal lines of the old Gallery, and was limited vertically between the existing entrance and the wall of an adjoining garden, which limitation prevented the portico through which the building is entered from being placed centrally.

The portico which forms the lower storey has four columns with square blocks or rustications on the shafts, with architrave and cornice over, and the upper floor has an arcade of three arches on festooned columns. This arcade was originally designed as an open loggia, but such was considered undesirable, and the arches are now filled, having on the first floor square-headed windows and on the second floor three circular windows concentric with the arches over the columns. The main cornice of the building is a continuation of that on the old Gallery.

The contractors for the work have been Messrs. Michael Meade & Son, of Great Brunswick Street, Dublin, and they have carried it out with great care and attention, and to the satisfaction of the architect and their employers, the Board of Public Works for Ireland.

The entire cost of the work, exclusive of clerk of works' salary and architect's fees, has been 18,906*l.* 10*s.*, a sum well within the contemplated cost.

The heating of the buildings, which includes the rearrangement of the old system, has been carried out by Messrs. Boyd & Son, of Paisley, at the moderate cost of 816*l.*, which sum is included in above total. The teak-block flooring of the ground floor, &c. has been done by Messrs. Geary & Walker. The carved walnut trimmings of the door opes between the Gallery rooms has been executed by Signor Carlo Cambi, of Siena, in his usual beautiful style and workmanship.

Sir Walter Armstrong has expressed the opinion that this is now "the best picture gallery in the United Kingdom," and Mr. Deane is to be much congratulated on his success.

The addition of this noble set of chambers, says the *Irish Times*, has enabled the director of the Gallery and his assistants to rearrange and set off with much better advantage than hitherto the splendid collection of paintings and of statuary which constitute the Gallery; and we cannot do better in describing the immense improvements which have been effected than to give some idea of the mode which the director has adopted to make the possessions under his care more readily available. First of all, it should be noted that one of the most important results of the addition of the twelve new rooms and the beautiful connecting passages is that all the pictures and every art object in the keeping of the authorities have been rehung, replaced and made available, and that every picture has been brought down and placed in a position in which its characters, its beauties, or, as it may be, its defects, are brought into what, for want of a better phrase, may be styled the natural plane of vision. This, it is quite needless to point out, is a very important feature of the new Gallery. None of the pictures are now skied—they are all "on the line," and their inspection and examination is no longer attended by those difficulties which were entailed in the old days.

The rearrangement of the collection has been done most effectively. The old Gallery—that is the chief room upstairs—is now given up completely to the Italian school, the Venetian pictures occupying one side, and the other "Italians" the opposite. The other old rooms are allotted to the English, French and Spanish specimens, one of the rooms, that on the left of the staircase, being monopolised by Turner. On the left-hand wall are hung the well-known pictures of the master which have long been amongst the most valued and interesting treasures of the Gallery; the opposite wall being reserved for the Turner series from the "Liber Studiorum," presented by Stopford Brooke. The water-colours have now all been grouped, the old room under the staircases having been entirely remodelled. The old offices have been added to the apartment, and the officials are accommodated in the new block. Amongst the most interesting features of the room are the Burton pictures and studies of drapery, including that marvellous bit of water-colouring, "Hee-leil and Hildebrand—the Meeting on the Turret Stairs." There are about a hundred English and Irish water-colours added

to the collection, which is now beyond all doubt a most representative and fascinating one. This room is enhanced by Watteau's drawings, and a priceless little pen sketch by Dürer. The six chambers on the upper floor of new building, together with the connecting galleries, allotted to the Flemish, German and Dutch schools. The pictures are rearranged in them, and amongst the new ones may be mentioned a most delightful study in still life by Christian Luckx, ten pictures bequeathed by Sir Henry Baillie by Dutch and Flemish masters, and amongst them should be missed a most remarkable artistic production. It is a representation of Christ in the House of Martha and Mary, the figures in which are by Rubens, the landscape and accessories by Brueghel and Kessel, and the architecture by D. van Delen. The Rubens part of the work, it is unnecessary to say, is the choicest; the figures are deliciously proportioned, and are instinct with life, grace and beauty, but it cannot be said that the rest of the picture is in any way admirable. There is a figure within the house originally painted as a woman, which for some reason another was altered and turned into a man, and altogether the work is perhaps one of the most extraordinary artistic productions in existence. In Room 18—one of the new set—the splendid example of Hondelcoeter, a study of poultry, is not likely to be overlooked. At the end of the suite there are the three rooms in which the Milltown collection will be housed. Amongst the advantages which will be derived from the erection of the new Gallery will be that an art library will be able to be brought into existence, of which there is already in the possession of the director a very promising nucleus. The intention is to have in this library principally valuable and important works of reference in relation to the fine arts, and above all the authentic catalogues of notable collections of paintings and sculpture. This library will be available to students and should prove a most useful addition to the Gallery.

The ground floor of the new building, which is, like the upper, divided into six apartments, practically forms the National Portrait Gallery. Each of the rooms is built on an octagonal shape, and—if we may be permitted to make an illustration—are 37 feet square. The length of the suite is 180 feet. This portrait gallery is now perhaps the most interesting section of the entire Gallery; at all events, it has for the people a very special and fascinating interest. In it are hung the portraits of illustrious Irishmen and Irish women and celebrated personages connected with the history and fortunes of the country. There are some "extraordinary stretches," of which is the hanging of the portrait of Garrick, but after all did not that great actor achieve a few of his finest triumphs in the historic theatre in Crow Street, and why not therefore give him a frame in the collection in which the Viceroy's portraits are acknowledged to have the right to appear? We have nothing but praise for the way in which the collection has been grouped. The old portrait gallery, which heretofore contained all the portraits, hung high up and low down, is now dedicated to engraved portraits, mostly mezzotints and a few pictures including "The Wedding of Eva and Strongbow" and "The Meeting of the Volunteers," both so familiar to everybody. Amongst the fresh exhibits in this room are a facsimile of Dürer's drawing of Irish soldiers, which is in the Berlin Museum. It was done in 1521, and has considerable historical and antiquarian value; and a modern mezzotint of the picture of Her late Majesty at the age of four, which is in the Dulwich Gallery, London. The other portraits are grouped according to periods, from the Williamite period to the present, in each room the period is indicated by a notice board. It cannot do more than congratulate Sir Walter Armstrong upon the great care and success with which he has attended to the most important part of the collection in particular. It is possible to indicate the trouble that his assistants and himself must have taken in settling this section alone, and they have succeeded in making a most interesting pictorial history of Ireland during some of the most exciting periods of our national story. We can only afford space to indicate a few "novelties" in the collection. There are portraits of J. Blake Dillon, Sir Charles Gavan Duffy, given by the latter before his death, and to them will be added a portrait of Davis and a picture of MacManus, entitled, "Reading the *Nation*," also presented by Duffy. J. B. Yeats's "Butt" is a splendid likeness, and "Curran," by Lawrence, which was bought by Lord Iveagh for 100*l.*, and given by him to the Gallery, is one of the most characteristic pieces of portraiture it is possible to conceive. The Lord Kilwarden, who met such a tragic fate this year a century ago in High Street, the Right Hon. David La Touche, and Lucas, of *Freeman's Journal* fame, are new. The last-mentioned work is by Thomas Hickey. The Garrick, by Johann Zoffany, is a very engaging portrait. The marble bust of Swift, said to be by John Cunningham; the contemporary portrait of Queen Elizabeth, a work of first-rate importance and value; the statuette of James II., the sketch by Lely of the Queen Mary of Modena, are all novelties in the Gallery.

The room devoted to Old Dublin, which contains maps

atches of the metropolis at various periods from 1610, the
e of the earliest known map, should have a very strong
ination for the citizens. There are displayed in it not only
the most important of the old maps, but the interesting
ws by James Malton, Brocas, James Mahony and others.
ahony's view, taken from the spire of St. George's Church in
53, is a marvel of detailed drawing.

LIGHTNING RESEARCH.

THE committee formed two years ago by the Royal Institute
of British Architects and the Surveyors' Institution to
investigate the action of lightning strokes on buildings with a
view to the improvement of current methods of protection,
the beginning of the year decided to confine their attention
to the future to cases where buildings were struck and injured
in spite of the provision of lightning-rods for their protection.
It of sixty cases recorded for the committee in 1901 no fewer
than twelve were of buildings fitted with some form of lightning-
conductor. Considering the numerical ratio of protected to
non-protected buildings, and allowing for the fact that pro-
tected structures are usually in some of their parts in more
exposed positions than the non-protected, the proportion must
be considered extremely unequal.

In face of some recent disasters brought to the notice of
the committee it is not surprising that dissatisfaction is felt
with the system recommended by the Lightning Rod Confer-
ence of 1882. Last year the committee's observers sent in
reports of sixteen protected buildings struck by lightning—
some slightly, others very seriously injured, or entirely destroyed
in parts. Details of these will be given in the final report of
the committee, together with comments thereon. An interest-
ing case may be quoted. It is that of a large country house in
Essex, erected some twenty-eight years ago, and till recently
without any form of protection. In 1901 a church in the
immediate neighbourhood having been struck, the owner of
the house, for greater security, decided to have lightning-rods
put up. An elaborate system was installed and completed in
March 1902, nearly every portion of the building having its
own final and conductor. During the storm season of last
year the house was twice struck—on June 17 and on August 8.
On each occasion, besides other injuries, a chimney-stack was
damaged, the brickwork being split up and the capping-stones
slodged and hurled about in all directions. The lightning-
rods on the damaged chimneys were torn from their supports
and much bent.

Other protected buildings recently struck of which reports
have been received include All Saints Church, Boyne Hill,
Aidenhead; St. Andrew's Church, Mark's Tey, Essex; New
St. Pancras Church, Marylebone Road; Swanscombe Church,
Kent; St. Botolph's Church, Aldgate; St. Michael's Church,
Highgate; Devaar Island Lighthouse, Argyllshire; South
Ireland Lighthouses; factory chimney, Nelson, Lancs;
Aveland Laboratory, Cambridge; Tiffin's School, Kingston-
on-Thames; Ainsworth Mill, Lancaster.

All these cases are being carefully studied by the committee.
They hope to be in a position to report on the whole question
of lightning protection at the end of the present year, and to
offer some suggestions for more efficiently guarding buildings.
Meanwhile they desire the continued co-operation of observers
in this important inquiry, it being necessary that they should
be supplied with as complete details as possible of "protected"
buildings to enable them to arrive at the causes of failure of
the means of protection adopted.

The committee are contributing an exhibit to the loan col-
lection of the International Fire Prevention Exhibition to be held
at Earl's Court this year, and invite the loan of objects of inter-
est appertaining to the subject for the purpose of adding to
their collection. Anyone in possession of relics of lightning
disasters, and willing to lend them, is requested to communi-
cate with the Secretary to the Committee at 9 Conduit Street.

PROPOSED LIBRARY, STRATFORD-ON-AVON.

IN a letter to the *Times*, Mr. Sidney Colvin writes:—"Of the
scores of thousands of persons who have visited with curiosity
and reverence the cottage birthplace of Shakespeare in Henley
street, Stratford-on-Avon, few surely would desire to see its
immediate surroundings transformed or modernised more than
can be helped. A plan is now on foot which, if carried out,
must inevitably have this effect. The plan is to build, by help
of funds supplied by Mr. Carnegie, a new free library in the
same street with the birthplace and about 25 yards distant
from it. Now it is plain that such a building, however dis-
creetly designed, cannot fail to be the dominant object in the
little street, and to strike a sharp note of modernity in almost
immediate contact with the birthplace itself. Surely this
vicinity should be kept sacred to Shakespeare. Local opinion
is much divided on the merits of the scheme, and it seems very
desirable that the efforts of those who are urging its recon-
sideration should be backed by an expression of public opinion

from outside. Miss Ellen Terry, Mr. Wilson Barrett and Mr.
Milliken, an American architect, who has been drawn to
make his home in Stratford by devotion to the memory of
Shakespeare—these and others have already done their best.
But a wider appeal seems to be necessary.

The exact position I understand to be as follows:—At the
beginning of last year the then mayor of Stratford, Mr. Archie
Flower, begged from Mr. Carnegie the gift of a free library for
the town. Mr. Carnegie, with his usual liberality, consented,
and subsequently he bought and gave to the trustees of the
birthplace three cottages standing in the street between it and
a piece of ground partly vacant, partly occupied by a shop
belonging to the Town Council. It is on this piece of ground,
together with the site of one of the cottages, that, according to
the plan which at present holds the field, the new free library is
to be built. The alternative proposed by those who dislike the
scheme is that Mr. Carnegie's gift should be housed, where
there is plenty of room for it, in connection with another
building which is not a part of the ancient Stratford, and
which the town already owes in great part to the public spirit
of the family of the ex-mayor, namely, the Memorial Theatre.
This seems a perfectly reasonable and graceful suggestion. As to
the three cottages which have become by Mr. Carnegie's liberality
the property of the trustees, they are very humble and quite
harmless, as any reader not familiar with the site may convince
himself by referring to the *Illustrated London News* for
December 6, 1902, where they are figured. Although one of
them has been proved to date from Shakespeare's own day (see
a letter from Miss Marie Corelli in the *Academy*), there
could be no great objection to their demolition for the
sake of the better protection of the birthplace itself from fire.
But in the minds of many there is the gravest possible concern
at the prospect of the little street being further altered by the
erection of a conspicuous modern building, associated with the
names of modern benefactors and municipal authorities.
Might not the approaching gathering for the annual per-
formances at the Shakespeare Theatre be made the occasion
for a public expression of such concern by those who share it?



The Stained Glass of the Future.

SIR,—I must apologise to Mr. Walter J. Pearce for the
apparent discourtesy in not replying to his letter in your issue
of March 13 before this. The delay was due to my not seeing
it in time to reply in your last issue.

It is not my fault if my words bear the construction he
places upon them. But when firms receive large consignments
of German antique, which they *think* is the best, but *know* to
be the cheapest; and when others substitute Norman for Early
English, even when an architect specifies the latter, which *they*,
also, try to believe is the best, but *know* to be the cheapest,
it seems high time that architects *should* be warned.

When I uttered that warning I had no idea that that
practice was so widespread. I thought that comparatively
little of the best glass was used, because architects were not
aware of its existence; but I find that the evil is due to quite
another cause. A clerk in the office of the retailers of Norman
glass made the amazing admission to me not long ago that
"scores of architects specified Early English, but they did not
get it."

May one not ask therefore, would these people have refused
to supply Early English if it had been cheaper than Norman?

Any disclaimer of superiority which the modesty of Messrs.
Powell might induce them to make would not influence my
opinion. I should think that the age of chivalry was not dead;
besides, it must be remembered that the Messrs. Powell are
very amiable people.

I am quite satisfied with my outlook, which is bounded by
what my experience has taught me is the best. I certainly
wish there was a greater demand for the two makes I have
mentioned, so that they would have to make more, because one
of their great charms is that they never repeat themselves.

Norman was held up to my admiration the other day in
that it was possible to repeat and match what they had already
made. That is to say, it has become a mechanical process.

I do not admit that my resources are limited. With these
two makes, and the boundless resources of plating these and
others, my colour scheme is practically limitless, consistent
with a certain level of quality. It is absolutely unique and
inimitable. It should be remembered that quality is of greater
importance than variety of colour.

Let who will dabble in all sorts of makes, the best is good
enough for me.

Mr. Pearce is scarcely to be envied, I think, for his
Gargantuan appetite for all makes of glass—good, bad and

indifferent. He reminds me of the Northumberland pitman who uttered the historic phrase, "There's ne bad beor! Some beor's better than others, but there's ne bad beor!" I would say any one is anathema who would use an inferior piece while a better could be obtained for "love or money," but especially for money.

I am simply amazed that any one who has the slightest feeling for quality in the material can make such a reckless statement as that the "imitations" (as Mr. Pearce calls them) of Early English have ever approached the original.

It is absurd to suppose that because the procedure may be similar the result must be the same.

How can one argue with such people? What respect should we pay to the opinion of one who having bought "Dolly Gray" at the street barrow of a music pirate for the magnificent sum of twopence should assert that it was as good as, if not better than, "Im Treibehaus," "Schmerzen," "Ich grolle nicht," and "Die Doppelgänger"? The qualities of these latter works can only be appreciated by those who habitually move in their atmosphere.

Mr. Pearce makes the alarming statement that he will defy any but an expert to tell him the difference between one make of bottle glass and another. If that be so, what a splendid opportunity to temper the material to the shorn customer by substituting the cheapest. We must take care not to pamper that poor weakling with too rich material.

Yet what a curious, but very common, sort of honesty is that which adapts itself to the customer's ignorance.

What should we say of a jeweller who gave his customers paste instead of diamonds, simply because they were not expert enough to tell the difference? After the evidence I have quoted it is by no means absurd to say that some people will substitute a cheaper quality.

Mr. Pearce does not seem to be very familiar with what goes on in "the trade," of which he certainly has too high an opinion. He would probably be shocked to learn of anyone substituting compo. at 17s. 6d. per cwt. for lead at 28s. and 30s. But why cannot he let "the trade" defend its own "honour"? He must remember the old copy-book heading.

With regard to the question of firing, Mr. Pearce must know that that is purely a relative term; that no glass can be fired without a certain loss of brilliance, sometimes it is no more than the bloom off the grape. I know perfectly well that the best Venetian opalescent and gold ruby will not fire. It is nothing to me, therefore, if somebody else's will. I should probably think it not worth the trouble.

As for the dreadful things (in choice language) that are going to happen to my painted sheet glass, let me say that they are quite imaginary. I have never had the slightest reason to doubt its permanence.

Indeed, one might almost be inclined to think that when the painted piece is glazed behind the coloured glass, it would be protected from the action of the atmosphere. And as for flashed glasses, Early English probably contains more (and ruby and blue on more bases) than any other.

I knew it would come—the famous joke about somebody's oil-colours. It must have been bubbling over in the minds of "the trade," but to Mr. Walter J. Pearce belongs the honour and glory of bringing it to light. He is so pleased with his pretty bubble that it would be a shame to prick it. So let that pass.

I must repeat once again that my ideas and methods are the result of working in the best material, and with regard to the subject of timbre, when I say that I have never seen it mentioned in any writing on stained glass, or ever seen the slightest traces of it in any work, ancient or modern, it did not seem unreasonable to claim it as my own.

To conclude, if we wish stained glass to develop we must encourage the making of the best material.—I am, &c.,

SILVESTER SPARROW.

March 24, 1903.

GENERAL.

The Statue of Robert Burns, by Mr. G. A. Lawson, H.R.S.A., has been cast, and was this week shipped to Melbourne.

The Special Commissioners appointed by the British Iron Trade Association to investigate the subject of American industrial conditions and competition, as affecting the iron and steel industries, have issued their report, and a conference has been called, for the purpose of discussing the question in the light of the facts now presented, to be held at the Westminster Palace Hotel on the 31st inst., when several papers will be read and considered.

The Ancient Church at Ickford, Bucks, is proposed to be restored as a memorial to Archbishop Sheldon. The archbishop, who was formerly rector of the parish, initiated the scheme for the re-erection of St. Paul's Cathedral after the Great Fire of London, and contributed 4,000*l.* to the work.

A Circuit Court has given judgment for 14,750 dollars in favour of Mr. E. Myers, of Detroit. He prepared plans for a new courthouse in Wilkesbarre seven years ago, which was accepted, but the Commissioners were unable to erect a building owing to the opposition of the taxpayers. The sum given includes the cost of the plans, which was 10,000 dollars with interest and costs.

Signor Nasi, the Italian Minister of Public Works, stated that the report about the dangerous condition of the ruins on the Palatine, Rome, is greatly exaggerated.

The International Historical Congress will be opened in Rome on April 2, and meetings will continue to be held until April 9.

MM. Roger Bouvard and Humbdenstock have been appointed architects for the French pavilion at the St. Louis Exhibition.

The Students selected to compete for the Prix de Rome in Architecture are MM. Coutan, Jausse, Bans, Boileau, Wielhorski, Lefèvre, Ebrard, Joulie, Fougere and Nicot.

The Excavations at Waverley Abbey continue under the direction of the Rev. T. S. Cooper and Mr. H. Hornes. The most interesting discovery of the year is a second gateway of the same date as the later portion of the lay infirmary. The dimensions are nearly 44 feet by 21 feet, and the buttresses and those of the central pillars are in excellent preservation. The building is to the west of the church and almost adjoins on to it, the entrance being on the south side, connected with a large courtyard, having an important western gateway.

Paul Flickel, the German landscape painter, died at Nervi on the 18th inst. He was born in Berlin in 1852, and his residence was in that city.

M. Luc-Olivier Merson has been asked by his fellow students in the Villa Médicis, Rome, to design the menu card for the dinner in celebration of the centenary of the removal of the French Academy at Rome to that building.

Mr. James Mansergh, C.E., was presented on Tuesday with the freedom of Lancaster. In his speech he referred to the influence upon his career derived from his association in school days with Sir Edward Frankland and Professor Tyndall, that impulsive, warm-hearted Irishman who gave to his life work. Earnest men were then beginning to think about the conditions under which poorer people live and measures of sanitary reform, including purer water supplies, were the result. Mr. Mansergh has aided 360 municipalities with his engineering skill.

A Rood Screen has been presented by Lord Aldenham to Aldenham Church.

The Chairman of the architectural and engineering section of the forthcoming Sanitary Institute Congress to be held in July at Bradford will be Mr. Maurice Fitzmaurice, the engineer of the London County Council.

Mr. Ernest Flint, F.R.I.B.A., of 80 Coleman Street, London, E.C., is the architect for the alterations about to be carried out to the Kensington workhouse.

Colonel R. W. Edis, C.B., V.D., will on Monday be presented with a silver candelabra and bowl, with an illuminated address, on his retirement from the active command of the 20th Middlesex R.V. after forty-two years' service, of which during twenty he was commanding officer.

A Cross about 25 feet high is to be erected at Mowbray, near Weymouth as a memorial of the Venerable Bede. The cost will be about 500*l.*

The Claim of Mr. J. L. Donnelly, architect, of Dublin, against the Omagh Urban Council was, on the suggestion of the Lord Chief Justice, settled by the payment of 125*l.* The claim was 149*l.* 9*s.* 5*d.*

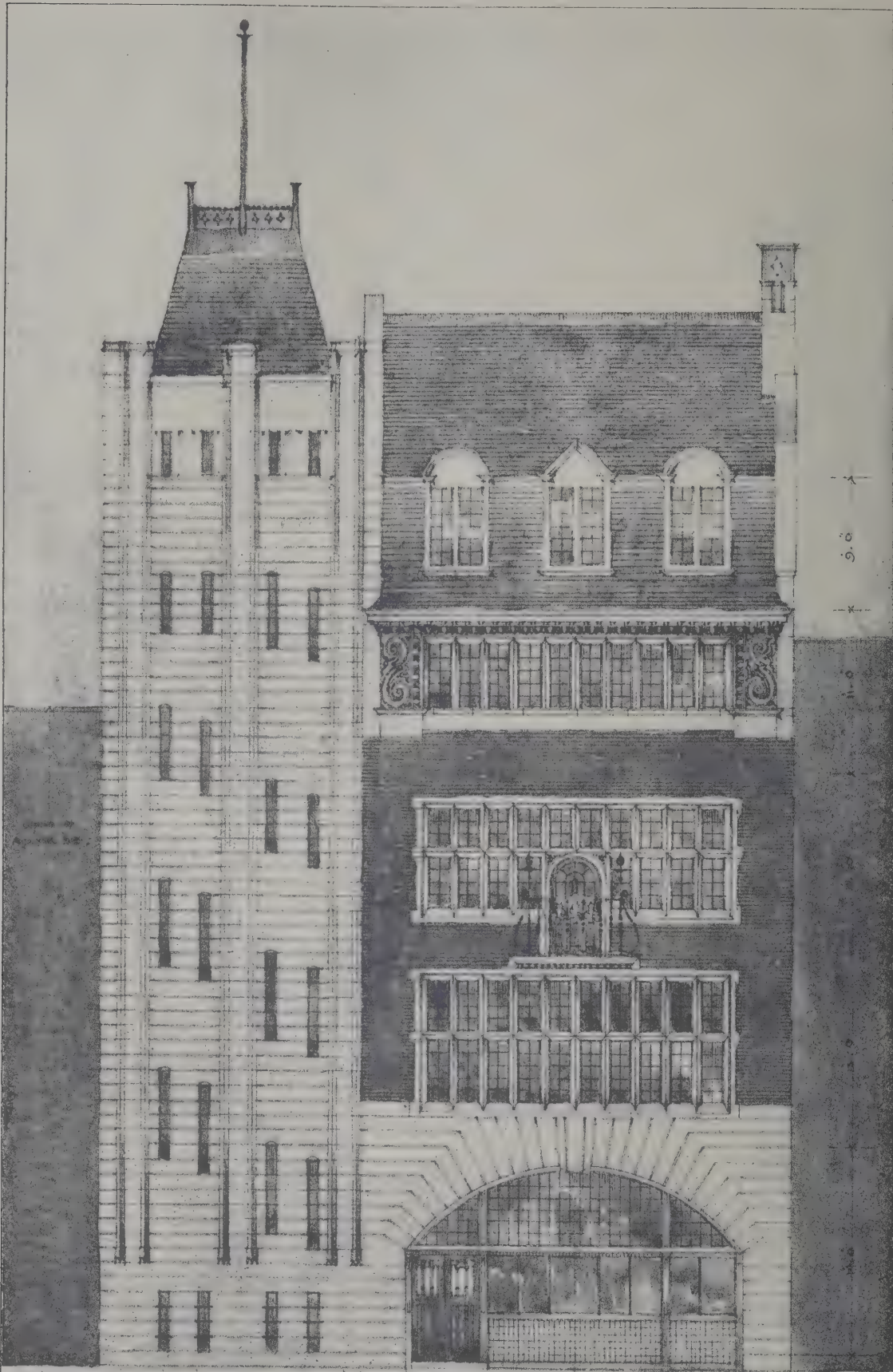
The Freehold of Nos. 98, 100, 102 and 104 Cannon Street was sold on Tuesday by Messrs. Debenham, Tewson, Farmer & Bridgewater for 40,000*l.*, or nearly forty-four years' purchase of the present rental.

The Taylor Scholarship of 50*l.* for Irish students of law was awarded on Tuesday to Miss Elvery, of Dublin, for a statuette and a relief. A prize of 15*l.* was gained by Mr. C. French, of the Royal Academy Schools; one of 10*l.* by Mr. Beatty, of the Grosvenor Studio; another of 10*l.* by Mr. O'Donohue, and prizes of 10*l.* and 5*l.* by Mr. W. J. Leech of the Académie Julian.

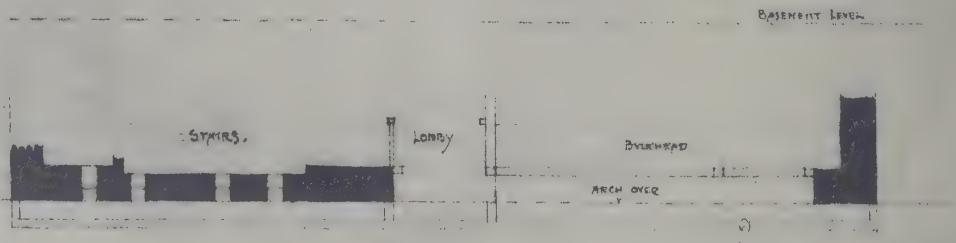
The Church of St. Aldhelm's, Edmonton, which accommodates 700 worshippers, and has been erected at a cost of upwards of 7,000*l.*, was consecrated on Wednesday.

A Meeting of the Technical College Architectural Craftsman's Society was held at 204 George Street on Friday evening, 20th inst., Mr. C. Ernest Monro in the chair. A paper was read by Mr. James M'Kim on the "Glasgow Mode of Measurement." Mr. M'Kim gave a sketch of the origin and method of application of the modes generally. He then treated of different modes individually, singling out and explaining the points of general interest. A lively discussion followed.

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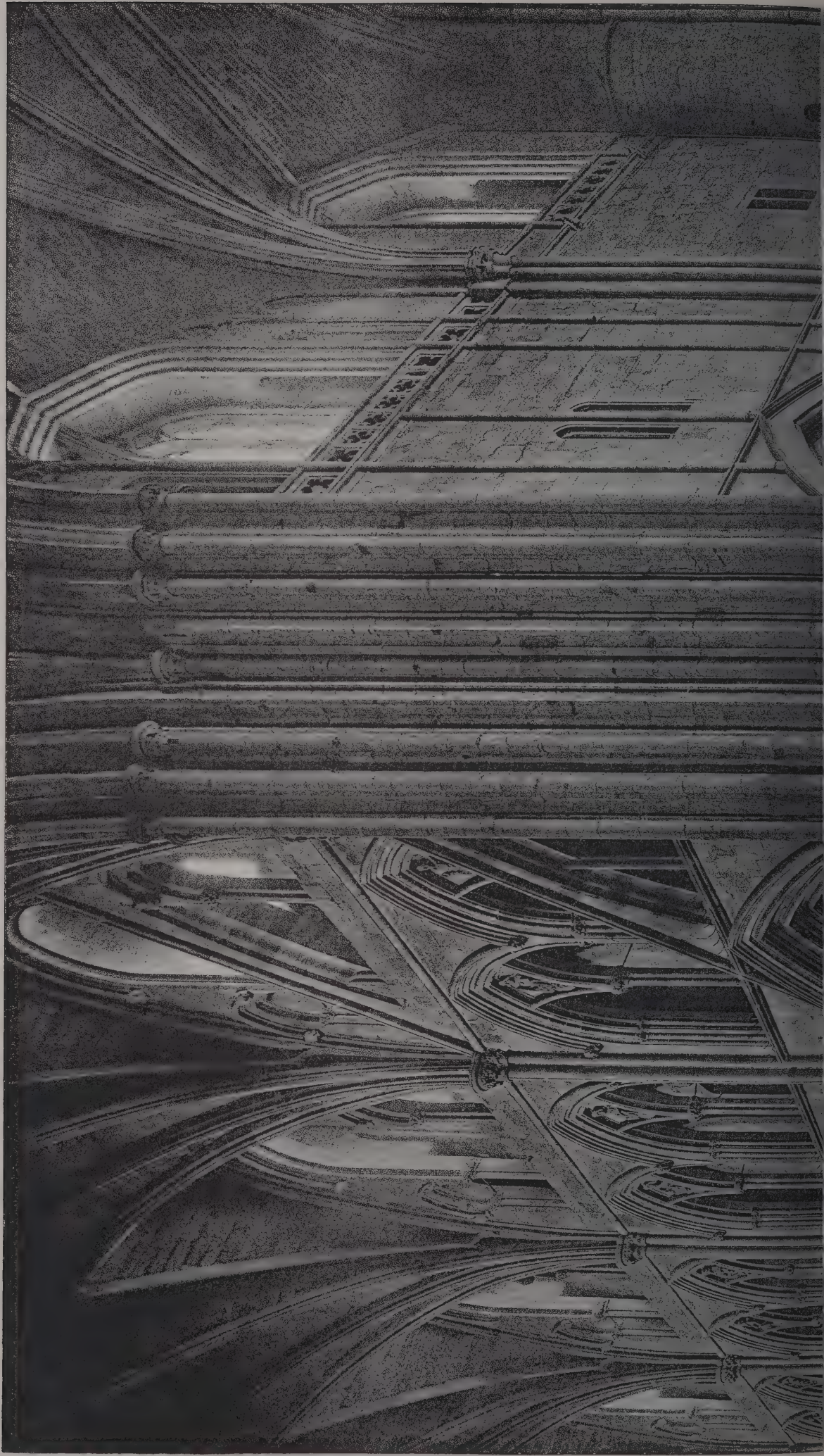
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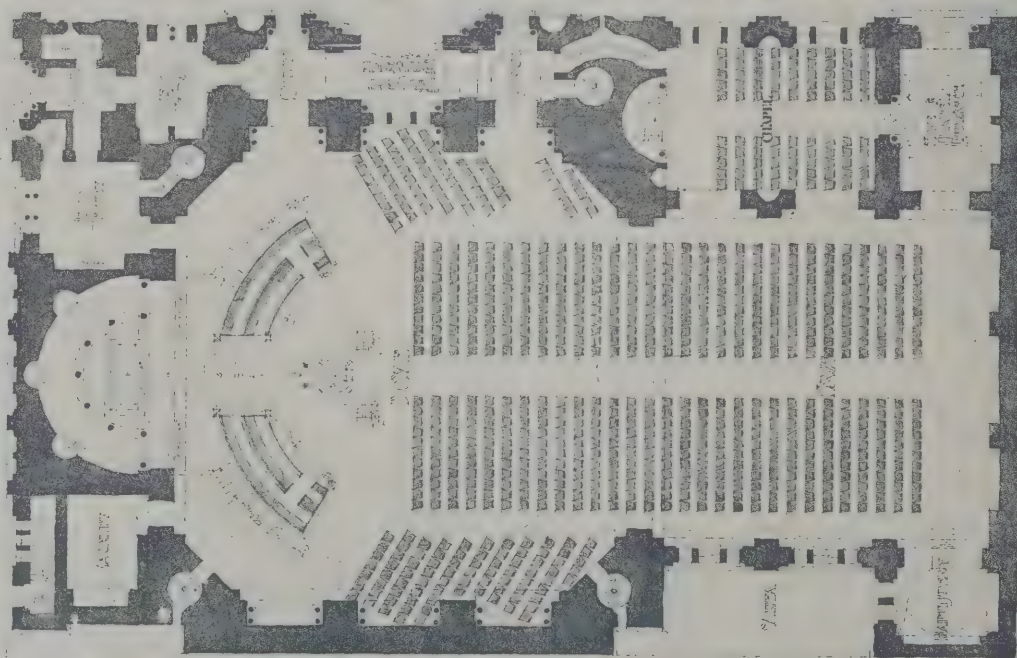
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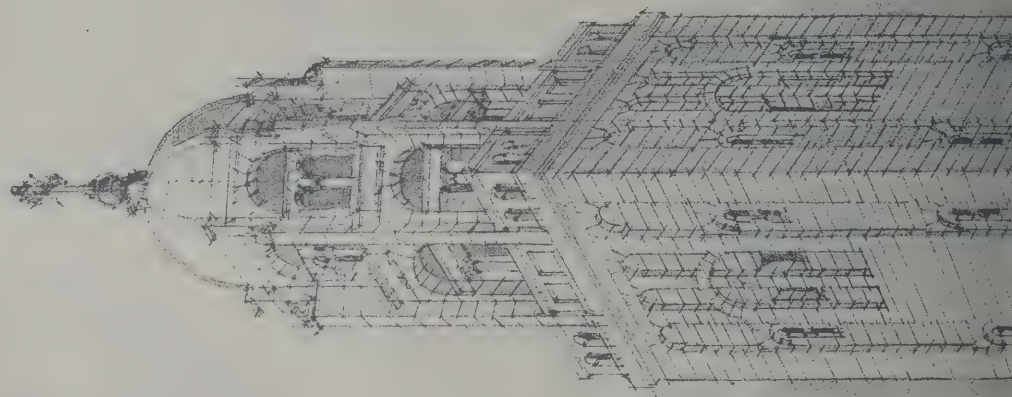
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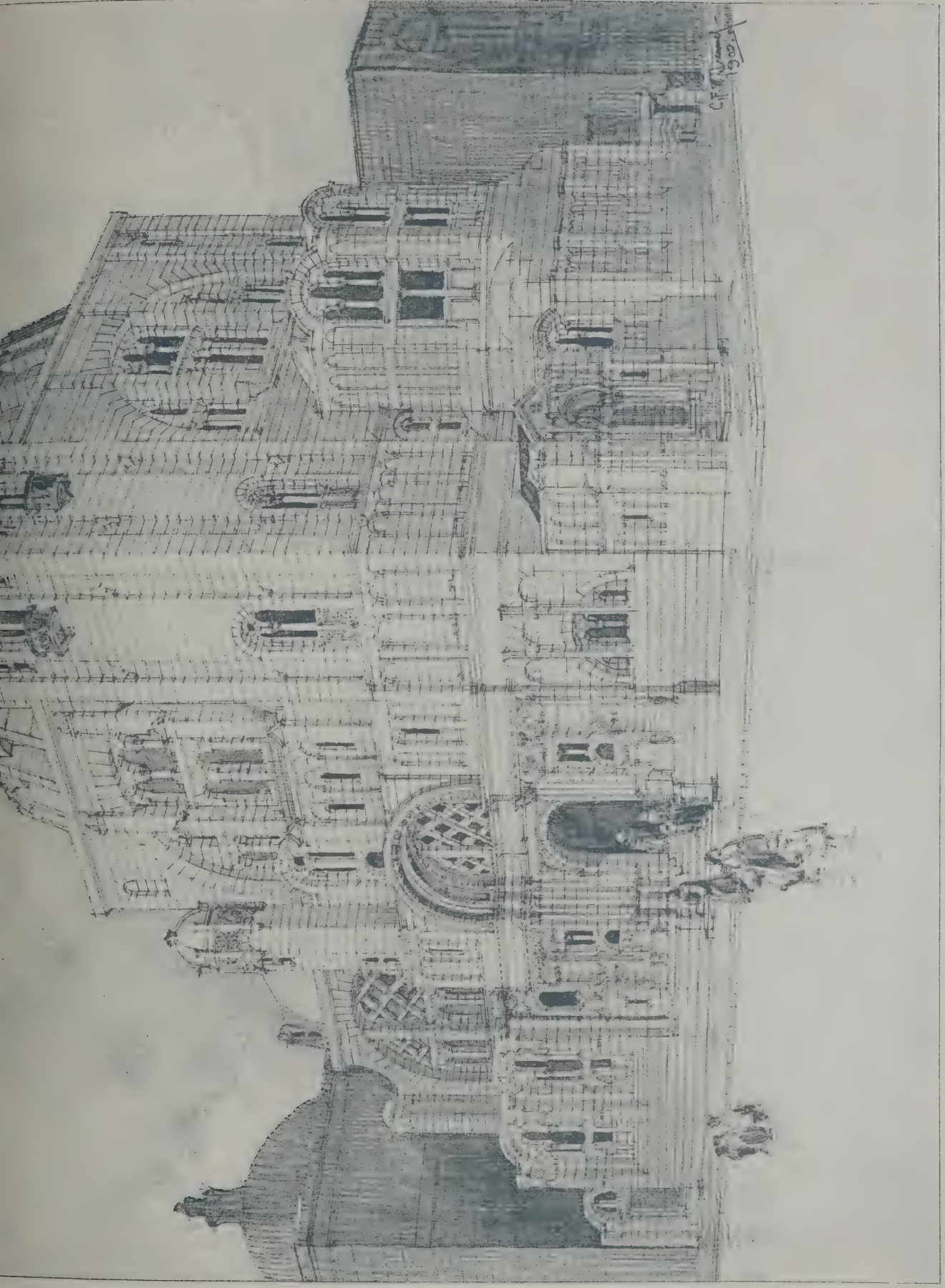
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GROUND PLAN





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STUDY FOR A TOWN CHURCH: SKETCH FROM SOUTH-EAST.

By C. F. W. DENNING.

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THE
Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding £5,000. Premiums of 60*l.*, 25*l.* and 15*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

CASTLEFORD, YORKS.—March 31.—Designs are invited for a free library. Premiums 15*l.* and 10*l.* respectively. Mr. H. H. Broadbent, clerk to Urban District Council, Town Hall, Castleford.

CHEPPING WYCOMBE.—April 4.—Designs are invited for the erection of a town hall and municipal buildings. Premiums of 100 guineas and 25 guineas will be awarded for the designs placed first and second respectively. Mr. T. J. Rushbrooke, borough surveyor, 77 Easton Street, Wycombe.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60*l.* and 30*l.* are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

HULL.—March 31.—Designs in competition are invited for extension of the town hall. Premiums of 300*l.*, 200*l.* and 100*l.* are offered. Mr. E. Laverack, town clerk, Town Hall, Hull.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000*l.* Premiums of 75*l.*, 50*l.* and 25*l.* respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

SCOTLAND.—Sketch plans are invited, with estimate of cost for erection of a branch library for the Dennistoun district, Glasgow. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100*l.*, 50*l.* and 25*l.* will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

YEovil.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ALDERSHOT.—April 9.—For supply and erection of the necessary plant, &c., for the proposed extension of the Council's electricity works. Plans and specifications of the engineer and surveyor to the Council, 126 Victoria Road, Aldershot.

ALDERSHOT.—April 14.—For erection of proposed public offices and fire-station at Aldershot. Mr. C. E. Hutchinson, architect, 11 John Street, Bedford Row, London.

ALNWICK.—March 31.—For erection of a 150-quarter malt-house, adjoining the Tweed Dock and North-Eastern Railway sidings at Tweedmouth, Berwick-on-Tweed Messrs. Brewill & Bailey, architects, 44 Parliament Street, Nottingham.

ALNWICK.—April 3.—For construction of two blocks of houses for the working class in Clayport Gardens. Mr. G. Wilson, town surveyor.

BARKING.—April 3.—For construction of a temporary bridge and road, concrete, stone and brick abutments, &c., for a new bridge over the river Roding, the formation and paving of roads and footpaths in connection therewith, in the urban district of Barking. Mr. J. Percy Sheldon, chief surveyor, County Offices, Chelmsford.

BARNSELY.—April 2.—For erection of new stabling, carriage-house, &c., and alterations and additions to the Star inn, Cudworth. Messrs. R. & W. Dixon, architects, 5 Eastgate, Barnsley.

BARNSELY.—April 2.—For erection of stabling, clubroom, &c., at the Three Horse Shoes Inn, Brierley. Messrs. R. & W. Dixon, architects, 5 Eastgate, Barnsley.

BATLEY.—March 30.—For erection of three residences, Bradford Road, Batley. Mr. John H. Brearley, architect, Branch Road, Batley.

BENTHAM.—April 8.—For erection of the Bentham Wesleyan chapel and schools. Mr. John F. Curwen, architect, 26 Highgate, Kendal.

BOLLINGTON.—April 11.—For construction of a circular covered service reservoir, to contain 100,000 gallons, and for connecting up the same to the present water-main, with all necessary fittings and appurtenances. Mr. W. H. Radford, engineer, Albion Chambers, King Street, Nottingham.

BOSSINGTON.—March 31.—For erection of a pair of cottages at Bossington. Mr. Thomas Stopher, architect, 57 High Street, Winchester.

BRADFORD.—March 31.—For reconstruction of conveniences at the abattoir, St. James's Market. Mr. Frederick Stevens, town clerk, Town Hall, Bradford.

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BRAUNTON.—March 30.—For erection of a pair of semi-detached villas at Braunton, Devon. Mr. W. C. Oliver, architect, Barnstaple.

BRIDLINGTON.—April 2.—For alterations and additions at North Close, Marton Road. Mr. Samuel Dyer, architect, 29 Quay Road, Bridlington.

BRISTOL.—March 30.—For enlargement of Chester Park schools, Fishponds. Mr. W. V. Gough, architect, 24 Bridge Street, Bristol.

BRISTOL.—March 30.—For erection of a girls' school and domestic subjects' centre at Windmill Hill, Bedminster, Bristol. Messrs. H. J. Jones & Son, architects, Bridge Street, Bristol.

BRISTOL.—April 8.—For supply of—(1) feed and general service pumps; (2) exciter dynamos; (3) motors; (4) pipework; (5) extension of coal conveyor; (6) arc lamp standards. Mr. H. Faraday Proctor, City Electrical Engineer's Office, Temple Back.

CANTERBURY.—March 30.—For fixing wood and glass screens in the committee-rooms in the municipal offices, Guildhall Street. Mr. Arthur C. Turley, city surveyor, Guildhall Street, Canterbury.

CASTLEFORD.—April 2.—For erection of two public urinals. Mr. H. H. Broadbent, clerk, County Offices, Castleford.

CLAYTON.—April 1.—For erection of a nurses' home at the workhouse, Clayton, Yorks. Mr. Sam Spencer, architect, Old Bank Chambers, Great Horton.

CLECKHEATON.—March 31.—For erection of wire works, engine and boiler-houses, offices, and 40 yards chimney-shaft at Exchange Works, Cleckheaton. Messrs. Reuben Castle & Son, London City and Midland Bank Chambers, Cleckheaton.

DEWSBURY MOOR.—April 1.—For erection of two dwelling-houses, fence walls, &c., in Moor End Lane, Dewsbury Moor, Yorks. Mr. Henry Stead, architect, Heckmondwike.

DRIFFIELD.—April 6.—For construction of a brick and iron girder bridge over the trout stream at Sunderlandwick, near Driffield. Mr. Alfred Beaumont, county surveyor, County Hall, Beverley.

DURHAM.—April 1.—For rebuilding bell turret and repairing damage to the roof of St. Luke's Church, Ferryhill. Messrs. Oliver Leeson & Wood, architects, Bank Chambers, Mosley Street, Newcastle-on-Tyne.

DURHAM.—April 3.—For erection of a Wesleyan Methodist's house, Esh Winning, co. Durham. Mr. H. T. Gradon, architect, 22 Market Place, Durham.

EALING.—April 2.—For making-up the following roads:—Lavington Road (first portion), Loveday Road (first portion), Seaford Road (remainder), Westfield Road (remainder). Mr. Charles Jones, borough engineer, Town Hall, Ealing, W.

EXMINSTER.—May 1.—For erection of female observation ward, male infirmary, and No. 5 male ward, at the Devon county asylum, Exminster. Mr. E. H. Harbottle, County Chambers, Exeter.

EXMOUTH.—April 1.—For erection of a masonry lifeboat-house upon the site of the existing boathouse at Exmouth. Mr. M. F. Moresby, hon. secretary, National Lifeboat Institution, 2 Adelaide Terrace, Exmouth.

FENCHLEY.—April 11.—For supply and erection of section 7, steam, exhaust, feed and drain piping, auxiliary plant, chequered plating, tools and sundries; section 8, main switchboard (two booster sets), testing instruments and apparatus. Mr. E. Calvert, electrical engineer, Broadway.

GILLINGHAM.—April 2.—For erection of a brick wall round plots of land on Gillingham pier and wharf, Gillingham, Kent. Mr. F. C. Boucher, clerk, Council Offices, New Brompton.

GUILDFORD.—April 6.—For new flood gates, together with the erection of new buildings over same, and over turbine forebay at the waterworks, Millmead. Mr. C. G. Mason, borough surveyor, Tuns Gate.

HALIFAX.—March 30.—For additions to the Parkinson Lane school. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HALIFAX.—April 3.—For rebuilding warehouse in Portland Street, Halifax. Messrs. Joseph F. Walsh & Graham Nicholas, architects, Museum Chambers and Station Chambers, Halifax.

HALIFAX.—April 7.—For extensive additions to Kingston Confectionery Works, Queen's Road, Halifax. Mr. Medley Hall, architect, 1 Harrison Road, Halifax.

HAMPSTEAD.—April 2.—For erection of a boundary wall, &c., at the cemetery, Fortune Green Road, N.W. Mr. Arthur P. Johnson, town clerk, Town Hall, Haverstock Hill.

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HAMPTON.—April 7.—For erection and completion of isolation hospital on the Council's land at Uxbridge Road, Hampton Hill, Hampton, Middlesex. Mr. Sidney H. Chambers, surveyor, Public Offices, Hampton, Middlesex.

HANWELL.—March 30.—For erection of two cottages at the District Council Farm, Boston Road. Mr. P. J. Dennis, clerk, Council Offices, Church Road West, Hanwell, W.

HEATON NORRIS.—April 2.—For construction of pumping station, screening wells and sewage filters at Heaton Mersey. Mr. Walter Banks, surveyor, Council Offices, Heaton Moor.

HEBBURN.—March 31.—For erection of shelter in the Hebburn Park. Plan and specification may be seen at the Surveyor's Office, Hebburn.

HERNE BAY.—March 30.—For additions and repairs at the isolation hospital, West End, Herne, near Herne Bay. Mr. J. E. Burch, 39 Castle Street, Canterbury.

HUDDERSFIELD.—April 9.—For erection of four shops in Buxton Road, Huddersfield. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HULL.—For erection of offices, &c., in Kent Street. Mr. T. Brownlow Thompson, architect, 15 Parliament Street, Hull.

HULL.—April 3.—For street works in Gilbert Street, and for the extension of the Anlaby Road sewer to Hamlyn Avenue. Mr. A. E. White, city engineer, Town Hall, Hull.

ILFORD AND EAST HAM.—April 3.—For construction of concrete, stone and brick abutments for a new bridge over the river Roding, the erection of a brick and concrete retaining wall, and the formation and paving of roads and footpaths in connection therewith, in the urban districts of Ilford and East Ham. Mr. Percy J. Sheldon, chief surveyor, County Offices, Chelmsford.

ILKESTON.—March 30.—For erection of Bennerley Road new Board schools to accommodate 320 children. Mr. Charles W. Hunt, architect, 132 Station Road, Ilkeston.

IRELAND.—April 1.—For erection of two semi-detached dwelling-houses, Belfast. Mr. J. Barrett Robinson, architect, 21 Arthur Street.

IRELAND.—April 11.—For erection of cottages in various townlands of Londonderry. Mr. J. J. S. Barnhill, engineer to the Rural District Council, 1A Strand, Londonderry.

KEIGHLEY.—April 6.—For erection of residence at Holycroft, Keighley. Messrs. W. H. & A. Sugden, architects, North Street, Keighley.

KENDAL.—March 30.—For (1) erection of a five-stall stable at the canal head; (2) painting railings, &c., pleasure grounds; (3) supply of a water ballast two-cylinder roller; (4) painting at baths and wash-houses. Mr. R. Hampton Clucas, borough engineer, Town Hall.

KING'S LANGLEY.—April 8.—For erection of a home for female attendants at the Leavesden Asylum, King's Langley, Herts. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge, S.E.

LAMBETH.—April 2.—For construction of an overground convenience for ladies and children at Vauxhall Park, South Lambeth Road. Mr. Henry Edwards, C.E., borough engineer, Lambeth Town Hall, Kennington Green, S.E.

LEEDS.—For erection of—(a) Brownhill schools, in Harehills Lane, Burmantofts; (b) Ingram Road schools, in Brown Lane, Holbeck. Mr. W. S. Braithwaite, architect, School Board Offices, Leeds.

LEEDS.—For erection of two houses in Moor Road, Hunslet. Mr. John B. Read, architect, Estate Offices, Waterloo Road, Hunslet.

LEICESTER.—April 3.—For extensions to the foundations, abutments, wing walls, &c., of the bridge over the canal in Abbey Park Road, and for other works in connection therewith. Mr. E. George Mawbey, borough surveyor, Town Hall, Leicester.

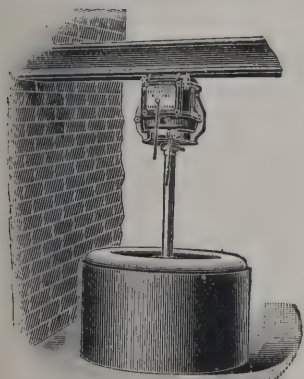
LICHFIELD.—March 31.—For erection of four pairs of attendants' houses at the county asylum, Burntwood, and (separate tenders) for erection of new mess and recreation-rooms, and other additions and alterations to the main building of the Burntwood Asylum. Mr. Walter H. Cheadle, architect, Stafford.

LICHFIELD.—April 6.—For erection of eight dwelling-houses in Frog Lane, Lichfield. Mr. William Perry, architect, 39-41 Bore Street, Lichfield.

LIMEHOUSE.—April 7.—For erection of two blocks of workmen's dwellings upon the King John's Court area. Mr. Geo. W. Clarke, town clerk, 15 Great Alie Street, Whitechapel, E.

LIVERPOOL.—March 30.—For fitting-up and furnishing of eleven children's home at Olives Mount, Wavertree. Mr. H. J. Hagger, vestry clerk, Parish Offices, Brownlow Hill, Liverpool.

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LIVERPOOL.—March 31.—For erection of a sorting office at Wavertree, Liverpool. All particulars may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

LONDON.—April 1.—For erection of a postal stores building at Islington, N. Particulars may be obtained on application to Mr. J. Wager, at H.M. Office of Works, Storey's Gate, S.W.

LONDON.—April 8.—For erection of a temporary shed for motor ambulance waggon at the Mead ambulance station, Fulham, S.W. Mr. T. Duncombe Mann, Embankment, E.C.

LYDD.—April 7.—For repair of the roof and two upper stages of Lydd Church tower. Rev. A. Hardy, Lydd.

MACCLESFIELD.—April 18.—For erection of the superstructure of the new infirmary annexe for 206 patients at the Parkside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

MANSFIELD.—April 9.—For erection of mixed and infant school at Pleasley. Mr. Jos. Perkin, architect, Main Street, Shirebrook.

MORPETH.—April 3.—For erection of buildings for ten constables and a drill shed at the police headquarters, Morpeth. Mr. J. A. Bean, county surveyor, The Moothall, Newcastle-upon-Tyne.

NELSON.—March 30.—For Baptist school chapel in Bradshaw and Entwistle Streets. Mr. Harry Whittaker, architect, 21 Market Square, Nelson.

NETHERNE.—April 14.—For excavating and levelling site and foundation works for new asylum at Netherne, Surrey. Messrs. George T. Hine & Co., architects, 35 Parliament Street, Westminster, S.W.

NEWCASTLE-UPON-TYNE.—April 6.—For construction of an underground public convenience at the corner of Derwent Place and Scotswood Road. Specifications, bills of quantities and forms of tender can be obtained at City Engineer's Office, Town Hall, Newcastle.

NORMANTON.—March 31.—For supply of the following materials for the twelve months commencing April 1, 1903, viz. flags, channels, limestone, macadam, cement, granite macadam, setts, whinstone, lime, kerbs, granite, earthenware pipes. Mr. Arthur Hartley, consulting surveyor, Council Offices.

PORTSMOUTH.—March 31.—For erection of workshops and offices at Gladys Avenue, North End, Portsmouth. Mr. E. Rotter, Pearl Buildings, Commercial Road, Portsmouth.

PRESTON.—April 18.—For erection of a refuse-destructor, extension of stabling, storeyard, &c., off St. Paul's Road, Preston, Lancs. Particulars may be obtained at the office of the Borough Surveyor, Town Hall, Preston.

RICHMOND.—March 31.—For erection of a mortuary, post-mortem room, &c., at Paradise Road. Mr. J. H. Brierley, borough surveyor, Town Hall, Richmond.

ROTHERHAM.—March 31.—For conversion of existing buildings in Greasborough Road into a fire station and for erecting new stabling, hayloft, new conveniences and boundary wall, and repairs to six cottages adjoining, the painting of the cottages inside and outside and the papering and distemping of the whole of the rooms. Mr. Joseph Platts, architect, High Street, Rotherham.

ROWLEY REGIS.—April 20.—For erection of the Siviter's Lane Board school at Rowley Regis, for 300 boys and girls mixed and 300 infants, with cookery, laundry and manual training-rooms, &c. Messrs. Meredith & Pritchard, architects, Bank Buildings, Kidderminster.

SCOTLAND.—March 30.—For construction of the roofing of the extension of Glasgow Central station, for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

SCOTLAND.—March 31.—For wall and floor tiling and enamelled brickwork at Kingseat Asylum, Newmarch, Aberdeen. Mr. A. Marshall Mackenzie, architect, 343 Union Street, Aberdeen.

SCOTLAND.—April 1.—For erection of a warehouse at Tamhdu Distillery, Strathspey. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—April 1.—For erection of a waterman's house at Morton reservoir, near Mid-Calder, Linlithgow. Mr. Wm. M. Scott, architect, Linlithgow.

SCOTLAND.—April 1.—For erection of a warehouse at Glen-Roths Distillery, Roths. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—April 4.—For erection of the church of Our Lady of Loretto and presbytery attached, in Newbigging, Musselburgh, near Edinburgh. Mr. Alfred Edward Purdie, architect, Meadow Grange, Blean, near Canterbury.

SCOTLAND.—April 9.—For construction of a brick gas-holder tank at the works of the Stranraer Gaslight Company. Application to be made to the Manager at the works, Harbor Street.

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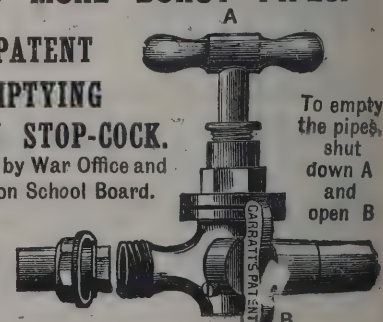
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SELLINDGE.—March 30.—For laying about 2,000 square yards of new tar paving to the playgrounds at the Board schools. Messrs. Jeffrey & Lacey, architects, North Street, Ashford, Kent.

SHEFFIELD.—March 31.—For erection of a boundary wall about 683 feet long, and a governor house 37 feet by 27 feet, both of brick and stone, at the Neepsend station, the Sheffield United Gaslight Company. Mr. Hanbury Thomas, general manager and secretary, Commercial Street, Sheffield.

SHOREDITCH.—April 1.—For constructing an area to a portion of the infirmary, Hoxton Street, N., with incidental work in connection with the drainage. Mr. F. J. Smith, architect, Parliament Mansions, Victoria Street, S.W.

SHREWSBURY.—April 3.—For erection of a nurses' home on the workhouse premises, situate at Cross Houses, near Shrewsbury; construction of fire-escape staircases, bridges, &c. Mr. A. B. Deakin, architect, Pride Hill, Shrewsbury.

SLOUGH.—April 9.—For erection of a school building in the Queen's Road, Stoke Road, Slough. Messrs. Lee & Farr, architects, Slough.

STANWELL.—For erection of a cemetery chapel at the cemetery, Stanwell, Middlesex. Mr. W. Ralph Low, architect, Clarence Street, Staines.

STOCKPORT.—April 9.—For erection of a public convenience in Reddish Road, Reddish. Mr. John Atkinson, borough surveyor, St. Petersgate, Stockport.

SUNDERLAND.—May 1.—For erection of Whickham Street, electrical sub-station and engine foundations, &c., at the Hylton Road electric-lighting station. Mr. John F. C. Snell, borough electrical engineer, Town Hall, Sunderland.

WALES.—For erection of shops, bakehouse, warehouse, &c., in Llanarth Street, Newport, Mon. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport.

WALES.—March 30.—For erection of a house at Pontllynn. Mr. Wm Roberts, chemist, Pontllynn.

WALES.—March 30.—For construction of about 1,535 yards of retaining and fence walls, and widening and forming carriage-ways and footways within the Pontypridd district. Mr. P. R. A. Willoughby, surveyor, District Council Offices, Pontypridd.

WALES.—March 30.—For rebuilding 51 High Street, Merthyr. Mr. John Morgan, 53 Thomas Street, Merthyr.

WALES.—April 1.—For erection of fifty-one workmen's cottages near the Gwauncaegurwen Collieries, Brynamman. Mr. C. A. Branfill, 10 Picton Place, Swansea.

WALES.—April 3.—For additions, &c., to Bethany chapel, Aberavon. Mr. J. H. Phillips, architect, Clive Chambers, Windsor Place, Cardiff.

WALES.—April 5.—For erection of two playsheds at the Graigefnparc Board school. Mr. C. S. Thomas, architect, 63 Wind Street, Swansea.

WALES.—April 6.—For erection of twenty or more houses at Nelson. Mr. Geo. Kenshole, architect, Bargoed.

WALES.—April 6.—For the conversion of the present three departments at Ynyshir, Ystradyfodwg, into one for boys. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—April 11.—For extension and alteration of chapel and vestry at the Nebo Congregational chapel, Blaengarw. Mr. John M. Jones, secretary, 54 King Edward Street, Blaengarw, R.S.O., Glam.

WALWORTH.—April 2.—For alterations and decorative repairs to Nos. 194, 196, 198 and 200, Boyson Road, S.E., for the purpose of converting the same into a reception home for children. Mr. G. D. Stevenson, architect, 13 and 14 King Street, Cheapside, E.C.

WARRINGTON.—April 1.—For erection of nine octagonal shelters at the Lancashire County Asylum, Winwick. The Chairman, Visiting Committee, County Asylum, Winwick.

WHITBY.—April 6.—For erection of semi-detached villas at Sleights, near Whitby. Mr. A. Percival Stanton, architect, Glaisdale, Grosmont, Yorks.

WINTERTON.—April 15.—For restoration of Winterton Church, Lincs. Mr. C. Hodgson Fowler, architect, The College, Durham.

WORKINGTON.—March 30.—For restoration of St. John's Church, Workington. Mr. James Howes, architect, 106 Harrington Road, Workington.

WREXHAM.—March 30.—For erection of eight houses on Cae Shae, Wrexham. Mr. J. Pinder, 98 Ruabon Road, Wrexham.

A NEW Unitarian church which has been erected in Bessborough Road, Birkenhead, was opened on the 19th inst. The new building seats 400 persons and has cost 12,000/.

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Rackham	£2,657	0	0
J. Smith	2,652	0	0
Free & Sons	2,360	0	0
J. Jackson	2,303	0	0
Peters & Co.	2,089	0	0
Parsons & Parsons	2,026	0	0
D. T. JACKSON, Barking (accepted)	1,967	0	0
Buxton & Jenner	1,960	0	0
G. J. Anderson	1,900	0	0
Ambrose & Co.	1,888	0	0
Iles & Co.	1,850	0	0

BATH.

For erection of a sanatorium at Winsley, near Bath. Messrs. SILCOCK & REAY, architects, 47 Milsom Street, Bath. Quantities by Messrs. AMOR & UNDERWOOD, Bath.

A. W. Long	£11,207	4	5
Stephens, Bastow & Co.	8,062	0	0
H. W. Pollard	7,932	18	0
William Webb	7,767	0	0
H. & C. Spackman	7,695	0	0
A. J. Beaven	6,990	0	0
E. Chancellor & Sons	6,926	0	0
Hayward & Wooster	6,908	0	0
A. J. Colborne	6,884	13	2
JACOB LONG & SONS, Railway Road, Bath (accepted)	6,877	0	0

BIRKENHEAD.

For erection of 42 tenement dwellings for the labouring classes in Mason Street and Green Lane and 12 tenement dwellings and a public urinal in Getley Street. Mr. CHARLES BROWNRIDGE, borough surveyor.

Accepted tenders.

P. Tyson, Dryden Street, Liverpool, 42 tenement dwellings in Mason Street and Green Lane	£6,940	0	0
A. White & Sons, 117-19 Duke Street, Liverpool, 12 tenement dwellings in Getley Street	1,915	16	0

BIRKENHEAD—continued.

For street works in Marion Street, between Adelphi Street and the railway, and Derby Road, between Wellington Terrace and Wilmer Road. Mr. CHARLES BROWNRIDGE, borough surveyor.

*Accepted tenders.**Marion Street.*

W. Maddocks & Co., Corporation Road, Birkenhead £776 5 11

Derby Road.

T. Horrocks, 113 Greenwich Road, Walton, Liverpool 354 10 8

For street works in various passages in the borough. Mr. CHARLES BROWNRIDGE, borough surveyor.

Accepted tenders.

T. Horrocks, 113 Greenwich Road, Walton, Liverpool, 31 passages £1,828 10 6

W. Jackson, 477 Hawthorne Road, Bootle, one passage 128 12 0

Exors. of the late W. F. Chadwick, 19 Leeds Street, Liverpool, one passage 48 13 3

BRADFORD.

For erection of offices and conveniences at the Bradford Moor Fair Ground.

Accepted tenders.

W. Booth, Fair Road, Wibsey, Bradford, excavator, mason, and bricklayer.

K. Wilkinson & Sons, Burnett Street, Bradford, joiner and carpenter.

J. Wheeler, 781 Leeds Road, Bradford, concreter and plasterer.

J. H. Clapham, 2 Marshfield Street, Bradford, plumber and glazier

J. Smithies, 356 Great Horton Road, Bradford, roof tiler.

BRIGHTON.

For alterations, &c., to the ceiling and roof of the laundry at the workhouse, Elm Grove.

SATTIN & EVERSLED, Brighton (accepted) £49 0 0

For erection of the buildings for the new electric-power station at Southwick, near Brighton.

W. A. FIELD & CO. (accepted) £20,300 0 0

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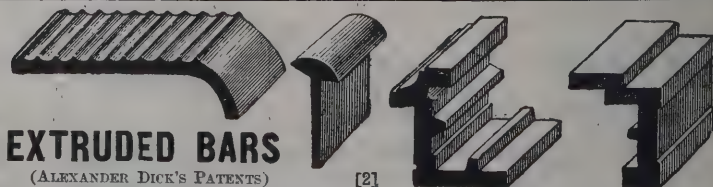
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[21]

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BRIGHTON—continued.

For painting fences, seats, &c., in the borough.	Mr. FRANCIS J. C. MAY, borough engineer.
J. OLIVER (accepted).	£373 0 0
For construction of a reservoir and foundations for pumping station, Falmer.	
J. & T. Binns	£6,710 0 0
T. Smart	6,538 17 1
Longley & Co.	6,500 0 0
Rowland Bros.	6,099 0 0
H J Penfold	6,097 0 0
B. Cooke & Co.	5,887 0 0
Pedrette & Co.	5,690 0 0
C. Jay	5,150 0 0
R. Cook & Sons	4,941 0 0
A. E. NUNN, Tenterden (accepted).	4,269 0 0

BRIDLINGTON.

For alterations to house and premises, 2 Clough Bridge Road.	Mr. J. EARNSHAW, architect, Wellington Road, Bridlington.
F. KNEESHAW, Bridlington (accepted).	£85 0 0
For erection of a furnace and shed at the Corporation's Portland Place dépôt.	Mr. E. R. MATTHEWS, borough surveyor
J. H. Hudson	£477 0 0
E. E. Yeomans	424 0 0
J. Sawdon	420 0 0
E. Corner	416 7 6
F. Flintoft	405 0 0
T. Spink	403 0 0
W. Barnes	399 19 0
F. Kneeshaw	363 0 0
Sampson & Siddall	352 10 0
A A. Booth	344 0 0
A GARDAM, Bridlington (accepted).	330 6 6

CAMDEN TOWN.

For alterations and additions to the public washhouse, King Street.	
T. WILLIS, 15 Bridge Road, Hammersmith (accepted).	

DAWLISH.

For relaying single private drain in the rear of Sea Lawn Terrace and Riviera Terrace, Dawlish.	Mr. R. CLARKE, surveyor.
Hawking & Best.	£310 0 0
F. Friend	292 0 0
R. T. Friend	278 0 0
Hubber & Son	234 9 0
E. Hawking	231 3 0
W. BREALEY, 163 Cowick Street, Exeter (accepted).	225 5 0

ERITH.

For street works in Horsa Road, Hengist Road and Ethelbert Road, Northumberland Heath, Erith, Kent.	Mr. A. H. JENNINGS, surveyor.
R. Ballard.	£3,333 0 0
D. T. Jackson	3,320 4 5
Lawrence & Thacker	3,202 10 0
G. Rackham	3,115 14 0
T. Adams	3,097 1 4
W. H. Wheeler.	3,080 7 6
S. J. Brice & Sons	2,987 14 8
Streeter & Todhunter	2,970 1 3
Free & Son	2,896 11 5
G. G. PAGE, Lyndon Road, Belvedere (accepted).	2,614 3 4

GOMERSAL.

For erection of an engine-house, boiler-house, flues, &c., at Upper Spen Mills, Gomersal, Yorks.	Mr. THOS. LEADLEY, architect, 3 Coleridge Place, Bradford.
Accepted tenders.	
K. Wilkinson & Sons, mason and carpenter.	
H. H. Bentley, plumber.	
T. Barber, plasterer.	
T. Nelson & Son, slater.	
J. Lees & Sons, ironfounder.	
Total	£1,596.

LIFTS

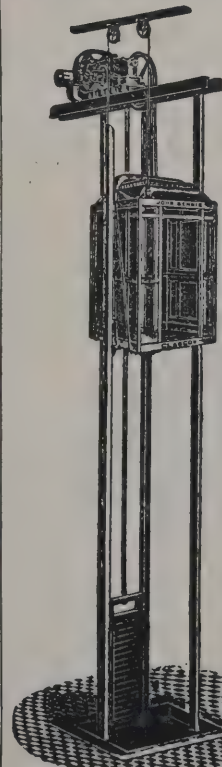
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Moncur St., GLASGOW.

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LEEDS.

GRIMSBY.

For wiring and supply of fittings and 1½ h.p. motor for the Wintringham Higher Grade school, Eleanor Street.

Crowther & Co.	£710	10	0
A. Dickenson	598	18	4
King & Co.	512	1	6
H. Sutton & Co.	510	0	0
P. Murley	487	0	0
W. Hartnell	457	0	0
Appleyard & Stather	440	0	0
D. Watson	430	10	0
F. A. Glover & Co.	418	10	0
Robinson & Emerson	395	6	6
Wray & Ashworth	385	0	0
Walsall Electrical Co.	345	11	0
S. H. Heywood	337	0	0
C. Wallis	334	0	0
S. W. Webster	330	0	0
C. Wokes & Co.	325	10	0
H. Hyde	322	5	0
Kennington & Dolby	299	18	2
Northern Electrical Co.	295	0	0
A. C. DICKENS, Grimsby and Northampton (accepted).	227	9	6

HANDSWORTH.

For sewerage works in the district of Handsworth, Staffs.

J. White, jun.	£205	11	6
Curral, Lewis & Martin	203	17	9
J. Barnes	201	0	0
J. Mackay	191	16	6
A. Cooper	182	11	0
Thompson & Co	175	11	6
R. W. Fitzmaurice & Co., Ltd.	165	15	6
S. WOOD, Union Road, Handsworth (accepted)	146	10	0

For sinking a well and making a borehole on the site of the proposed public baths at the corner of Hinstock Road and Grove Lane, Handsworth, Staffs.

W. Barrick	£2,014	10	0
C. Isler & Co.	970	0	0
W. Matthews & Co.	878	3	6
J. Thom	845	10	0
J. North	763	10	0
E. TIMMINS & SONS, LTD., Runcorn (accepted)	739	12	6

HARROW.

For erection of a cottage at the Greenhill sewage farm. Mr J PERCY BENNETTS, surveyor.

J. SMITH, Roxeth Hill (accepted)	£415	0	0
For making-up Greenhill Road. Mr. J. P. BENNETTS, surveyor.			
C. Ford	£1,252	0	0
J. Holloway	1,134	0	0
Champness	1,114	0	0
H. Brown	1,073	0	0
Wimpey & Co.	1,066	0	0
Bracey & Clarke	1,038	0	0
Free & Sons	1,019	0	0
T. ADAMS, Wood Green (accepted).	1,002	0	0

HEBBURN-ON-TYNE.

For construction of a shelter and bowl-house in the park.

A. DAVIDSON (accepted)	£178	0	9
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IBSTOCK.

For street works in Grange Road, Copson Street and Orchard Street. Mr. W. SYKES, surveyor.

Accepted tenders.

Copson Street.

T. Bradbury, Hinckley	£217	13	0
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Orchard Street.

T. Bradbury	170	5	0
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Grange Road.

T. Bradbury	139	10	0
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KIRBYMOORSIDE.

For widening Catter bridge, near Kirbymoorside, Yorks. Mr W. G. BRYNING, Northallerton, county surveyor.

R. Ware	£285	0	0
W. Rickaby & Sons	229	3	7
A. Barnes	225	0	0
J. Keswick & Sons	209	0	0
H. Oldfield & Son	182	17	0
W. BLACKBURN, Broughton, Malton (accepted).	166	15	6
B. Firth	150	9	3

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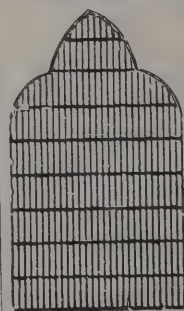
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LEAMINGTON.

For making-up ten private streets at Leamington, Northumberland. Mr. THOMAS GREGORY, engineer.

M. D. Young	£2,758	9	6
J. Wardlaw	2,444	0	16
McLaren & Co.	2,125	8	1
J. McLaren & Son	2,059	6	6
T. Brown	2,042	1	6
J. W. Robson	2,009	14	11
G. E. SIMPSON, Ellison Terrace, Newcastle (accepted)	1,868	17	6

LISCARD.

For erection of a chimney and iron flue at the Liscard, Cheshire, electric-supply works.

DRYLAND & PRESTON (accepted)	£3,533	10	0
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LONDON.

For erection of a fire-escape station at the South-Eastern Hospital.

POWER, POWER & CO., 5 Philpot Lane, E.C. (accepted)	£65	15	0
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LONDON SCHOOL BOARD.

For junior mixed school, Middle Row.

Killby & Gayford	£9,736	0	0
Martin, Wells & Co., Ltd.	9,725	0	0
C. F. Kearley	9,545	0	0
General Builders, Ltd.	9,511	0	0
Leslie & Co., Ltd.	9,161	0	0
McCormick & Sons	8,961	0	0
J. Appleby & Sons	8,852	0	0
W. Johnson & Co., Ltd.	8,835	0	0
J. Simpson & Son	8,787	0	0
W. Downs	8,771	0	0
Rice & Son	8,696	0	0
Holloway Bros. (London), Ltd.	8,669	0	0
W. King & Son	8,656	0	0
Treasure & Son	8,545	0	0
Lathey Bros.	8,495	0	0
Stimpson & Co.	8,350	0	0
Spencer, Santo & Co., Ltd.	8,063	0	0
E. Triggs*.	7,995	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued

For erection of Brownhill Road school.

Martin, Wells & Co., Ltd.	£35,702	0	0
Thomas & Edge	34,989	0	0
T. L. Green	33,961	0	0
W. Downs	33,464	0	0
J. Marsland & Sons	33,356	0	0
W. Gregar & Son	33,196	0	0
John Greenwood, Ltd.	33,097	0	0
J. Longley & Co.	32,894	0	0
G. Munday & Sons	32,847	0	0
J. Smith & Sons, Ltd.	32,491	0	0
Treasure & Son	32,245	0	0
E. Lawrance & Sons	32,236	0	0
Stimpson & Co.	31,990	0	0
F. & H. F. Higgs	31,906	0	0
J. Garrett & Son	31,746	0	0
W. J. Mitchell & Son	31,671	0	0
G. E. Wallis & Sons	31,466	0	0
J. & M. Patrick	31,294	0	0
Spencer, Santo & Co., Ltd.	31,127	0	0
J. & C. Bowyer	30,887	0	0
W. Johnson & Co., Ltd.*	30,584	0	0

For erection of Fortress Road school.

W. King & Son	£18,850	0	0
C. Dearing & Son	18,748	0	0
J. Grover & Son	18,580	0	0
Clarke & Bracey	17,827	0	0
W. Smith & Son	17,785	0	0
Leslie & Co. Ltd.	17,517	0	0
C. Miskin & Sons	17,360	0	0
McCormick & Sons.	17,298	0	0
J. Simpson & Son	17,197	0	0
Patman & Fotheringham, Ltd.	17,168	0	0
J. Allen & Sons, Ltd.	17,091	0	0
J. Appleby & Sons	17,048	0	0
L. H. & R. Roberts	16,949	0	0
W. M. Dabbs	16,905	0	0
Lathey Bros.	16,795	0	0
G. S. S. Williams & Son	16,684	0	0
J. Willmott & Sons	16,675	0	0
C. Cox	16,642	0	0
E. Lawrance & Sons	16,493	0	0
Treasure & Son, London and Shrewsbury*	16,152	0	0

* Recommended for acceptance.

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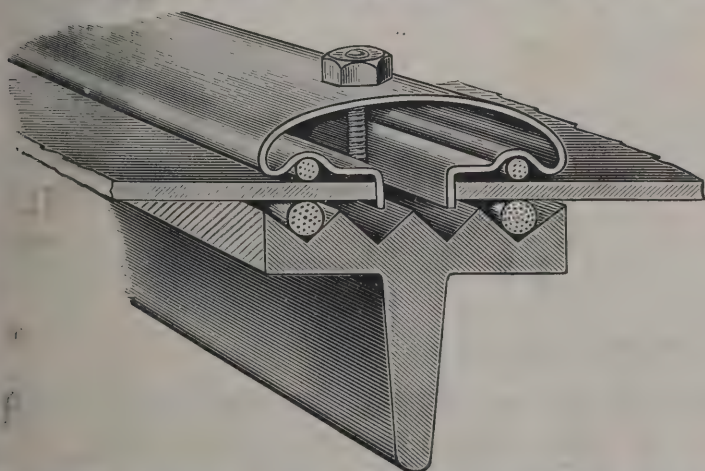
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For Index of Advertisers, see page x.



LONDON SCHOOL BOARD—continued.

For school enlargement, Upper Hornsey Road.

C. Dearing & Son	£4,737	0	0
G. Neal	4,734	0	0
J. Grover & Son	4,682	0	0
J. Simpson & Son	4,652	10	0
Marchant & Hirst	4,590	0	0
J. Willmott & Sons	4,467	0	0
T. L. Green	4,457	0	0
H. Wall & Co.	4,426	0	0
G. S. S. Williams & Son	4,368	0	0
Treasure & Son	4,365	0	0
Patman & Fotheringham, Ltd.	4,351	0	0
McCormick & Sons	4,329	0	0
C. Cox	4,305	0	0
E. Lawrance & Sons	4,172	0	0
A. Porter *	4,070	0	0

For erection of Broadwater Road school.

Leslie & Co., Ltd.	£25,176	0	0
Holloway Bros. (London), Ltd.	24,068	0	0
W. Smith & Son	23,684	0	0
E. Lawrance & Sons	23,198	0	0
G. E. Wallis & Sons	22,884	0	0
W. King & Son	22,870	0	0
J. Marsland & Sons	22,861	0	0
Stimpson & Co.	22,390	0	0
J. & M. Patrick	22,276	0	0
W. Downs	21,897	0	0
J. Garrett & Son	21,705	0	0
F. & H. F. Higgs	21,427	0	0
Lathey Bros.	21,404	0	0
W. Johnson & Co., Ltd.*	20,948	0	0

For pulling-down houses and enclosing, draining and paving additional land to enlarge boys' playground, Compton Street school.

Johnson & Co.	£699	0	0
Marchant & Hirst	574	0	0
G. S. S. Williams & Son	539	0	0
Staines & Son	495	0	0
T. L. Green	493	0	0
J. Willmott & Sons	486	0	0
F. & F. J. Wood	438	0	0
Stevens Bros.*	428	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For taking-down boys' offices and rebuilding them further away from school buildings, &c., Byron and Bright Street school.

Ashby & Horner	£746	0	0
G. Munday & Sons	653	0	0
Johnson & Co.	593	0	0
Barrett & Power	582	0	0
R. P. Beattie	579	9	4
Vigor & Co.	567	10	0
J. T. Robey	550	0	0
D. Gibb & Co.	488	0	0
F. & F. J. Wood	478	0	0
F. Bull	461	0	0
Stevens Bros.*	448	0	0

* Recommended for acceptance.

For adapting a house for use of schoolkeeper, &c., Marlborough Road school.

R. S. Ronald	£297	0	0
W. R. & A. Hide.	295	0	0
C. GURLING (accepted)	237	0	0

MAIDENHEAD.

For erection of a riverside villa on the Fishery estate, for Mr. E. J. Read. Quantities by the architects, Messrs. PALGRAVE & CO., 28 Victoria Street, S.W.

W. J. Lovell	£2,447	0	0
A. J. Hudson	2,398	0	0
Butcher & Hendry	2,185	0	0
C. H. Hunt & Sons	2,090	0	0

For completion of a riverside bungalow, for Mr. Harold Mossop, on the Fishery estate. Messrs. PALGRAVE & CO., architects, Westminster.

C. H. HUNT & SONS, High Wycombe (accepted) £1,260 0 0

OAKHAM.

For restoration of roofs, Langham Church, near Oakham, Rutland. Mr. J. C. TRAYLEN, architect, Stamford.

S. F. Halliday	£370	0	0
Thornton Bros.	360	0	0
A. E. Billows	359	15	0
NICHOLS BROS., Oakham (accepted)	352	0	0

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PREMISES, TUDOR STREET (SOUTH SIDE), E.C.

PREMISES, HIGH STREET, KENSINGTON, W.

OKEHAMPTON.

For erection of a Wesleyan church and vestries, &c., at Okehampton, Devon.

J. M. Harris	£4,769	10	3
R. F. Yeo & Sons	4,220	18	9
W. Ball	3,825	0	0
J. Sleeman	3,479	18	0
H. Harris	3,375	14	3
Worden & Sons	3,370	6	8
R. F. Brealy	3,200	0	0
H. GREEN, Okehampton (accepted)	3,159	0	0

PORTSMOUTH.

For erection of additional Lancashire boilers, steel chimney, fans and engines for induced draught, mechanical stokers, economiser, steam feed and other pipes, chequer plating and sundry ironwork.

J. Carter & Co., Ltd.	£8,829	0	0
D. Stewart & Co., Ltd.	8,561	0	0
J. Thompson	8,000	0	0
J. Fraser & Son	7,919	0	0
Tinkers, Ltd.	7,690	0	0
Davy Bros.	7,500	0	0
Hughes & Stirling	7,247	0	0
Yates & Thom	6,927	0	0
E. Danks & Co., Ltd.	6,227	10	0
Oldham Boiler Works Co., Ltd.	6,020	0	0
HEWETT & KELLETT, Bradford (accepted)	5,545	0	0

SCOTLAND.

For cleaning and reconstruction of about 265 lineal yards of the main sewer in Bay Street, Port Glasgow.

J. HUTCHISON, Gairbraid Street, Glasgow (accepted).

For alterations and additions to Greenhill public school, Falkirk. Mr. JAMES STRANG, architect, Vicar Street, Falkirk.

Accepted tenders.

R. Dalziel, mason.

J. & P. Dewar, carpenter and joiner.

E. Brown, plumber.

J. Millar, plasterer and slater.

G. O. Cherry & Co., Ltd., Glasgow, tiler.

O'Brien & Meck, painter.

D. O'May, glazier.

Rest of Falkirk.

STANTON-UNDER-BARDON.

For sewerage works in the parish of Stanton-under-Bardon, Market Bosworth. Mr. WALTER MORTON SYKES, surveyor.

B. Shipman £107 15 0

N. Dilks 85 10 0

J. ORGILL, Stanton-under-Bardon, Leicester (accepted) 68 10 0

WALES.

For construction of new roadway, about 1,930 yards long, at Merthyr Tydfil. Mr. T. F. HARVEY, surveyor.

J. F. Seal £2,280 0 6

Gould & Owen 1,872 8 0

J. Sutherland 1,516 17 4

R. J. Matthias 1,501 7 7

Meredith 1,474 14 3

W. H. Evans 1,418 3 9

Jones & Davies 1,399 18 3

W. BROWN, Tudor Street, Merthyr (accepted) 1,339 12 6

For street works at Ely, Cardiff. Mr. JAMES HOLDEN, surveyor, Llandaff Chambers, 35 St. Mary Street, Cardiff.

T. Rees £525 8 10

J. Rees 462 19 5

T. R. Williams 455 5 2

F. Ashley 449 6 0

E. OSMOND, Cardiff (accepted) 446 9 5

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WALES—continued.

For erection of two houses, Gnoll Road, Neath. Mr. FRANK B. SMITH, architect, Port Talbot.
W. H. Creighton £750 0 0
J. Lake 692 8 0
J. SNOW, Neath (accepted) 615 18 0

For erection of two houses at Neath. Mr. FRANK B. SMITH, architect, Port Talbot.
W. H. Creighton £1,500 0 0
J. Lake 1,202 0 0
J. SNOW, Neath (accepted) 1,160 0 0

For reconstruction of sewer outlet at Crindau, Newport, Mon.
Mr. R. H. HAYNES, borough engineer.
LEADBETER BROS (accepted) £87 4 0

For erection of an infants' school to accommodate 250 children at Hiracl, Bangor. Mr. W. G. WILLIAMS, architect, 220 High Street, Bangor.

Jones & Evans £3,796 0 0
D. Owen 3,757 0 0
W. Thomas 3,629 0 0
W. Jones 3,348 0 0
R. & J. Williams 3,955 0 0
Jones & Williams 2,904 0 0
Roberts & Owen 2,868 0 0
W. PARRY, Farrar Road (accepted) 2,670 0 0

WALTHAMSTOW.

For alterations and additions to the Castle public-house, Eden Road. Mr. GEO. B. JERRAM, architect, Hoe Street, Walthamstow.

Amey £689 0 0
Fuller & Son 670 0 0
Stewart 640 0 0
Bruce 604 0 0
Slatter 596 10 0
J. A. Read 536 0 0
Castle & Son 530 0 0
Crisp 494 0 0
Fairhead (accepted) 411 5 0

WATTON.

For construction of a sewer at Watton, Norfolk.

Waters & Son £192 0 0
ADCOCK & SON (accepted) 185 10 0

WALTON-ON-THAMES.

For street works in America Road, Walton-on-Thames. Mr. CHAS. J. JENKIN, surveyor.

J. Jackson £4,220 9 3
Lawrence & Thacker 3,626 3 2
R. W. Swaker 3,000 0 0
E. Iles, jun. 2,953 10 1
T. Adams 2,945 13 4
M. Meston 2,756 10 10
E. Betts 2,633 2 9
T. Free & Sons 2,607 14 6
C. Horsell 2,538 18 2
C. Ford 2,527 15 6
M. Adamson 2,515 0 0
G. H. Hershman 2,441 0 0
W. Griffiths & Co., Ltd. 2,420 0 0
S. Kavanagh & Co. 2,349 19 10
C. Mott & Sons 2,341 8 9
J. C. TRUEMAN, Swanley, Kent (accepted) 2,110 0 0

WEST HAM.

For supply of electrical plant, &c.

Accepted tenders.

Macartney, McElroy & Co., Ltd., 53 Victoria Street, S.W., overhead equipment.

Tudor Accumulator Co., 16 Victoria Street, S.W., accumulators.
Harris Patent Feed-Water Filter, Ltd, 73 Queen Victoria Street, E.C., purifier.

British Insulated and Helsby Cables, Ltd., Preston, Lancs., cable boxes, &c.

Reason Manufacturing Co., Ltd., Lewes Road, Brighton, house cut-out boxes.

Wiggins & Rihll, Victoria Docks, E., engine-room stores.

Geipel & Lange, Parliament Street, S.W., meters.

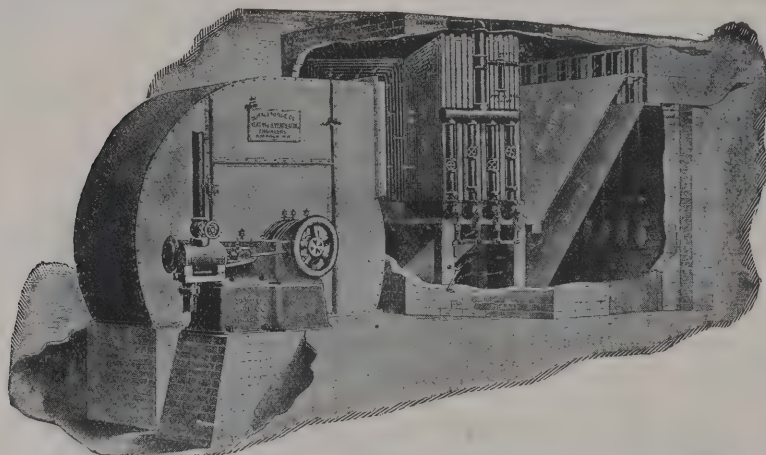
British Electric Transformer Co., Hayes, Middlesex, transformers.

Cryselco Co, Ltd, Bedford, incandescent lamps.

WEST HARTLEPOOL.

For sewer construction in West Hartlepool Street, Station Lane and Front Street, and construction of an outfall sewer across the foreshore. Mr. J. W. BROWN, borough engineer.

J. W. THOMPSON, Gosforth, Newcastle-on-Tyne (accepted).

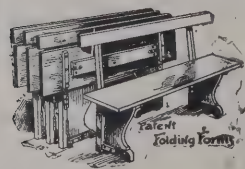


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WESTBOURNE PARK.

For erection of dyeing and cleaning works. Mr. T. F. SHAW, architect, Harlesden.	
Goodman & Sons	£2,458 0 0
Parfitt & Co.	2,269 0 0
C. Simmons	2,203 0 0
G. ROBINSON, Holloway (<i>accepted</i>).	2,185 0 0
J. Sharp (withdrawn)	1,870 0 0

WESTWARD.

For erection of a stone bridge and approaches over Carwath, Westward. Mr. WILLIAM BROWN, surveyor.	
N. Harrison	£223 10 0
Varty & Robinson	262 0 0
E. Wright (for girder bridge, iron)	51 0 0

WHITBY.

For painting the outside wood, stone and ironwork at the warehouse.	
F. C. AGAR, 159 Church Street (<i>accepted</i>)	£38 10 0

WILLESBOROUGH.

For erection of a small scullery at the infirmary of the work-house, Willesborough, near Ashford. Mr. T. H. WILDE, surveyor, Albemarle Road, Willesborough.	
G. A. NEWPORT, Willesborough, Ashford, Kent (<i>accepted</i>)	£100 0 0

WINSLEY.

For erection of a sanatorium at Winsley, near Bath. Messrs. SILCOCK & REAY, architects, 47 Milsom Street, Bath.	
A. W. Long	£11,207 4 5
Stephens, Bastow & Co., Ltd.	8,062 0 0
H. W. Pollard	7,932 18 0
W. Webb	7,767 0 0
H. & C. Spackman	7,695 0 0
A. J. Beavan	6,990 0 0
E. Chancellor & Sons	6,926 0 0
Hayward & Wooster	6,908 0 0
A. J. Colborne	6,884 13 2
J. LONG & SONS, Railway Road, Bath (<i>accepted</i>).	6,877 0 0

NEW CATALOGUES.

THE new revised catalogue for 1903 just being sent out by Messrs. Jas. Bedford & Co., engineers, Halifax, contains numerous illustrated descriptions of their various makes of ventilators, syphon, exhaust, &c. The designs for these are eminently graceful and pleasing, and offer a wide field of choice, their lines being carefully adapted to the various styles in architecture. The syphon ventilator may be regarded as the specialty of the firm, who have given great attention to perfecting it; it is made entirely of zinc, so is both light and durable, and its price is relatively low.

MESSRS CROGGON & Co., of Upper Thames Street, E.C., and Fairfield Road, Bow, are issuing a new catalogue, of which Section 1 is devoted exclusively to illustrated descriptions of iron and steel roofs and buildings, and Section 2 to wood-framed and galvanised iron structures. Among the illustrations are sketches of a variety of buildings which have actually been erected by Messrs. Croggon, embracing hospitals, factories, drill-halls, churches, club-houses, bungalows, billiard-rooms, verandahs, farm buildings, stables, boat-houses, granaries, cycle and other sheds, &c. In the more important cases plans, dimensions and specifications are given, as are also some useful measured sections of roofs, &c.

TRADE NOTES.

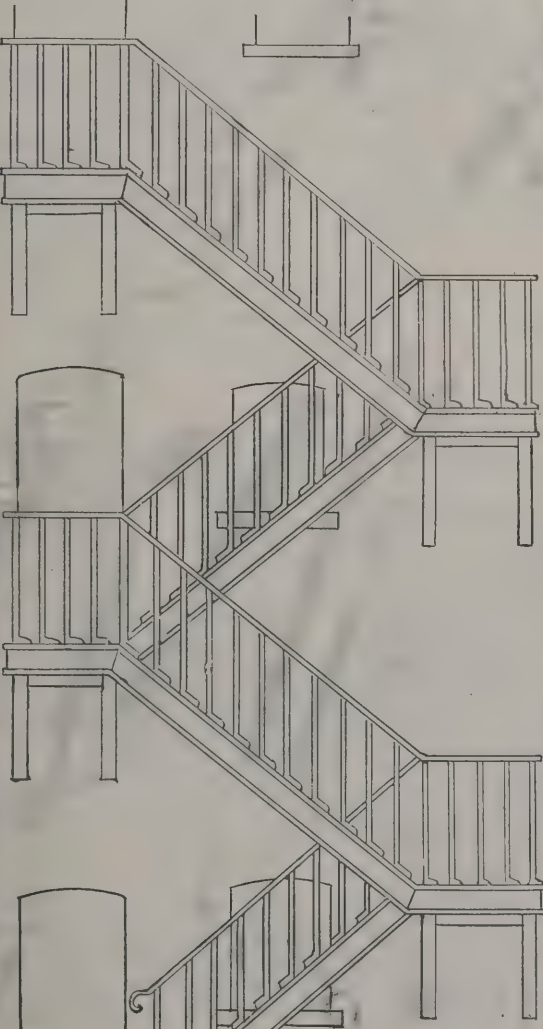
THE Yost Typewriter Co., Ltd., have just obtained a Royal Warrant from H.R.H. the Prince of Wales for the excellence of their machines.

THE clock erected in the Mallock Memorial Clock Tower, Torquay, was made by Messrs John Smith & Sons, Midland Clock Works, Derby. It is fitted with all the latest improvements, and guaranteed by the makers to go to great accuracy. Mr J. Donkin, F.R.I.B.A., architect, Bournemouth, designed the tower.

THE Chancery Lane Safe Deposit Company have issued a descriptive pamphlet illustrating their system and the recent new extensions of the Safe Deposit. The Company have of late greatly extended the facilities in connection with their Safe Deposit.

MESSRS. T. & R. BOOTE, LTD., encaustic and glazed tile manufacturers, of Burslem and Birkbeck Bank Chambers,

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Southampton Buildings, W.C., have opened a store at the Midland Railway Company's Goods Depot, King's Road, St. Pancras, N.W., which they trust will be a source of great convenience to their customers. Their London offices are connected with the store by a private telephone, and goods can be despatched the same day as ordered.

IN our notice of the exhibition held in Manchester last year in connection with the Sanitary Congress, we directed our readers' attention to Mr. William E. Farrer's (of Birmingham) exhibit of "Torfit," a new sanitary building material for urinals, &c. Mr. Farrer has recently fixed a sample stall of "Torfit" in the underground convenience in Oxford Circus, London, where it is on trial and where, of course, it is open to inspection.

VARIETIES.

A NEW Primitive Methodist school has been opened in Acre Lane, Oldham. The estimated cost of the building is 1,334*l*.

THE new school built by the Old Monkland School Board in Dundyan Road, Coatbridge, was formally opened on the 20th inst. The building is situated to the west of Whifflet Farm, and accommodation has been provided for 670 pupils, and the total cost of the finished building and accessories is close on 7,000*l*.

A NEW chapel and Sunday school in connection with the Methodist New Connexion church have for a long time been needed in Higher Openshaw in consequence of the rapidly-increasing population. On Saturday a new Sunday school—a part of the scheme—was opened. The cost of the church and chapel will be 2,542*l*, and that of the school itself 1,207*l*.

THE Pittencreeff (N.B.) new school was formally opened on the 23rd inst. It was designed by Mr. David Barclay, Glasgow, and has cost about 8,000*l*, is two storeys in height and measures 90 feet 6 inches by 82 feet 6 inches. On the ground floor there is a drill hall, 52 feet by 31 feet 6 inches, from which entrance is had to five classrooms for sixty scholars each. Two staircases give access to the upper floor, where there are five classrooms for sixty scholars each and one room for forty, making the new total accommodation 640. Teachers' rooms, cloak-rooms and lavatories are provided. Certain

alterations and improvements will be proceeded with upon the older building, which will become more especially an infant and junior school, with sewing-room. The old centre school-room will be made a kindergarten drill hall for the infants.

THE new church which St. Patrick's Roman Catholic congregation have had built on a convenient site on Strathleven Place, Dumbarton, from designs by Messrs. Dunn & Hansom, Newcastle-on-Tyne, was opened on Sunday last. The church is a massive and handsome structure in red sandstone, and has cost something like 9,000*l*. At the opening ceremony high mass was celebrated, the service being specially conducted by Archbishop Maguire, of Glasgow. Although admission was by high-priced ticket there was a large congregation. At the evening service the sermon was preached by the Rev. Jas. H. Kirk, of Tollcross. There was a large attendance of West of Scotland Catholics, and special trains were run from Glasgow and other places on the North British Railway.

THE Incorporated Society for Promoting the Enlargement, Building and Repairing of Churches and Chapels held its usual monthly meeting on Thursday, the 19th inst., at the Society's House, 7 Dean's Yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. There were also present the Revs. Canon J. Allen, D.D., Dean Blakiston, Canon J. Erskine Clarke, S. A. Donaldson and A. G. Ingram, Messrs. H. W. Mozley, J. E. Ollivant, F. H. Rivington and the Rev. W. B. L. Hopkins, secretary. Grants of money were made in aid of the following objects, viz.:—Building new churches at Barry Dock (St. Mary), Glamorgan, 200*l*. for first portion; Ben Rhydding, near Ilkley, Yorks, 200*l*.; Hopwood (St. John the Evangelist), near Birch, Lancs, 75*l*.; Palmer's Green (St. John), near Southgate, Middlesex, 100*l*.; and West Ealing (St. James), Middlesex, 75*l*.; towards rebuilding the church of St. Paul, Skelmersdale, Lancs, 55*l*.; and towards enlarging or otherwise improving the accommodation in the churches at Lower Guiting (St. Michael), Gloucester, 35*l*. in lieu of a former grant of 25*l*.; and Ranworth (St. Helen), Norfolk, 40*l*. in lieu of a former grant of 30*l*. A grant was also made from the Mission Buildings Fund towards building a mission church at Aldington, near Hove, Sussex, 50*l*. The following grants were also paid for works completed:—Ilford (St. John), Essex, 150*l*.; Blyth (St. Mary), Northumberland, 40*l*.; Claverley (All Saints), Wolverhampton, 30*l*.; Buckland in Dover, 75*l*. on account of a grant of 175*l*.; and Scarborough

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Saviour), Yorks, 4c7. In addition to this the sum of 1617. paid towards the repairs of twenty-two churches from funds held by the Society. The Archbishop of Canterbury, president of the Society, has announced his intention to the chair at the annual general court to be held at the arch House on Tuesday, May 19, at 2 30 P.M.

BUILDING AND BUILDERS.

the Hoole Wesleyan chapel an organ chamber is to be ed at a cost of 4507.

COL. W. L. COKE, Local Government inspector, held an inquiry recently into the application to borrow 6,5007 for the sewerage of Gedling, Notts. Messrs. Elliott & Brown, of Nottingham, are the engineers to the scheme.

A NEW slaughter-house which, by the way, is much needed, be erected at Dalkeith. Mr. Greig, architect, has made examination of the proposed site, and recommends it as entirely suitable. The Council have resolved to obtain tiled estimates for the building, and it is intended it should cost complete more than 2,0007.

THE Wesleyan chapel committee has sanctioned a further outlay on new chapels, Sunday schools and mission halls 50,0007. The work carried on in Liverpool by the late Charles Garrett is to be extended by the erection of new premises, estimated to cost 43,0007. A grant of ably 10,0007, will be made to this scheme from the Wesleyan Twentieth Century Fund. New mission premises also to be erected in Hull at an outlay of 32,0007.

A LOCAL Government inquiry has been held at Colwick by W. L. Coke into the application for a loan of 6,0007 for sewerage of Colwick, Notts. Mr J. R. Elliott, A.M.I.C.E., the firm of Elliott & Brown, civil engineers, Nottingham, gained the scheme, which consists of cast-iron and stone sewers, pumping station with duplicate gas-engines and pumps and pumping main connecting on to the Nottingham Corporation outfall sewer.

AT a meeting on the 17th inst. of the Sheffield and District Painter's Association at the Builders' Exchange, Cross Street, Sheffield, a paper was read on the "Chemistry of Colour," in connection with the Association, by Mr. T. Hey France, of Rotherham. He treated the subject in a

thoroughly practical way, and during the evening tested several pigments forwarded by various members, much to the edification and satisfaction of those present. The lecturer referred in strong terms to the spurious materials that are on the market, and advised every member of the Association to be on the alert.

AT a meeting of the Ayr Town Council the question of a new infectious diseases hospital came up for consideration under a report by Mr. John Eaglesham, architect, giving alternate schemes and estimates. The first estimate provided for an expenditure of 9,9557 and the second 7,8057. A minute recommending the adoption of the first alternative was unanimously adopted. The proposed hospital is to be erected at Heathfield in connection with the buildings there put down for a smallpox hospital, but which are now to be incorporated with the proposed new hospital.

THE North-Eastern Railway Company have begun an important scheme, the carrying out of which will place Hull in possession of a railway terminus more in keeping with its commercial importance than is the existing structure. The whole of the property required in connection with the additions to and remodelling of the Paragon Street station premises has been acquired and is being demolished. The platform and cab accommodation will be more than doubled, and the roof area will be increased to an even greater extent. The new roof will be of striking appearance, resembling the fine curved iron roof of the York station. The total accommodation is also to be increased.

PLANS have been passed and the contracts accepted for the new Robert Ferguson schools, which it is proposed to erect in Carlisle. The accommodation to be provided will be for 300 mixed scholars on the first-floor and 350 infants on the ground floor. The contract with Messrs. J. & R. Bell is for the whole of the work of erecting the schools, exclusive of the services of the clerk of works, architect, &c, and amounts to 8,9777 2s. 8d. With the other expenses added it is expected that the total cost will be about 12,0007, and the Education Department have given their sanction for the borrowing of 11,7677. The site cost 1,3067, and was purchased for that sum in 1897. In reckoning the total cost of the school that figure must be added to the 12,0007.

AT the Coventry School Board approval has been received from the Local Government Board of a site in Swans Lane for a new school. The Board also proposes to enlarge Earlsdon

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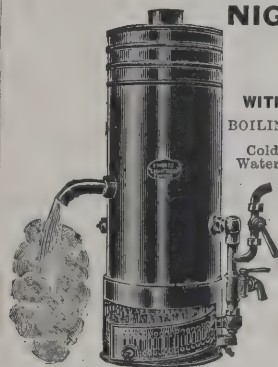
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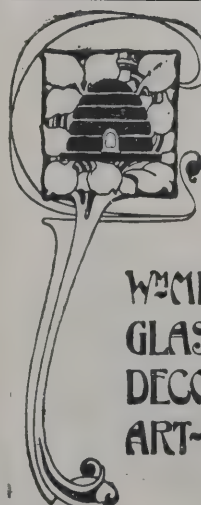
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school. When these schemes are carried out Coventry will have accommodation for all reasonable elementary educational requirements. The chairman (Alderman Bird) and vice-chairman (Alderman Booth) were reappointed representatives on the general municipal charities. The clerk presented an interesting *résumé* of the work of the Board and its cost. Since 1897 the number of children had increased from 4,853 to 7,296, and the cost from 14,619*l.* to 24,994*l.* The total average cost per child had but slightly increased, but there was a noticeable increase in teachers' salaries.

THE Swansea School Board inaugurated on the 12th inst. work on two new schools, the erection of which will involve an expenditure of nearly 29,000*l.* One of these is in the outlying district of Pentrechwyth, where an infants' school is in course of construction at a cost of nearly 3,000*l.* The other school is at the Hafod, which will be a three-department school and will cost about 26,000*l.* The proceedings consisted of laying the foundation-stones of both, the first ceremony being at Pentrechwyth. Mr. Wignall officiated, being presented with mallet and trowel, the gifts of the architect and contractor, Mr. T. H. Jones and Mr. Rosser respectively. The foundation-stone of the Hafod school (which takes the place of the old Vivian school) was laid by the chairman of the Board (Mr. D. Roberts), who was presented with trowel and mallet by the architect (Mr. C. E. T. Lawrence) and the contractors (Messrs. Weaver).

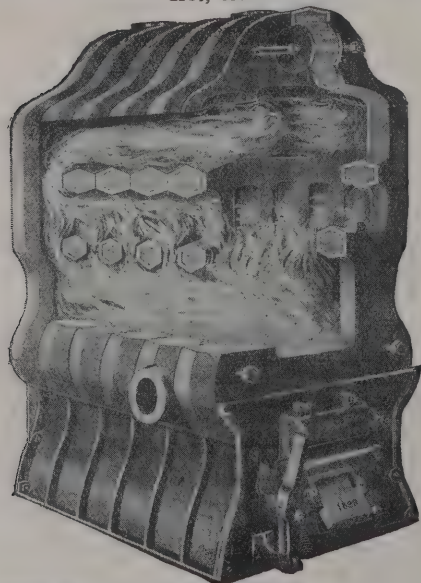
THE quarterly meeting of the South Wales Building Trades Employers' Federation was held at the Castle hotel, Merthyr. The representatives present were:—Messrs. J. E. Turner, W. Thomas, W. Symonds, C. W. Couzens, W. T. Morgan and James Allen, of Cardiff; W. M. Blackburn, W. A. Linton and A. S. Morgan, of Newport; W. O. Jenkins, B. Bennett and W. H. Billings, of Swansea; W. N. Ingledeu and D. O. Evans, of Merthyr; and D. Williams, of Pontypridd. Mr. W. M. Blackburn presided. The Merthyr representatives reported that nothing further had been done with the notices that had passed between the Masons' Society and their Association, and in case of their failing to agree certain arrangements were made. It was reported that the half-yearly meeting of the National Federation was, by invitation, to be held at Cardiff in July next, and a resolution was passed agreeing to co-operate with the Cardiff Association in this matter. It was resolved that the annual meeting of the Federation be held at Newport in June next.

THE Mediæval town church of St. Andrews, N.B., is about to undergo a course of much-needed restoration, the scheme for which, as proposed by the architect, Mr. Macgregor Chalmers, is briefly as follows:—The galleries will be removed, the side aisles will be reduced to their original height, which has been recently discovered. The pillars and arches will resume their old places and form, and on them the clerestory will be rebuilt. The so-called "bishop's" or "communion aisle will be remodelled, and the corresponding one of small size built to the north. A new aisle will be built to the east of the bishop's aisle. The porch shown in every plan and drawing up to and including that of 1767 will be rebuilt on former foundations if they can be found. The tracery of the windows and the mouldings and decorations of the doors will be in keeping with the suggestions given by these old sketches and by contemporary churches. The walls will be of stone throughout. The greater part of the seats will be of oak. It has been decided that the funds raised to commemorate the late Dr. A. K. H. Boyd should be devoted to the erection of the pulpit in the restored church. Dr. Boyd's great gifts as a preacher and interest in the restoration of the "parish church in a university city," where so many of his widely-known sermons were delivered, will thus be fitly recognised. The estimate of the probable cost of restoration is 23,375*l.*

It has been decided by the Roman Catholic congregation in Musselburgh forthwith to proceed with the erection of a handsome stone church more suited to their requirements than that possessed by them at present. Designs have been accepted, which are the work of Mr. A. E. Purdie, Carterbury, who was the architect of the Poor Clares Convent, Liberton. Of Early Gothic architecture, the new church will be cruciform, having a nave measuring 98 feet long by 34 feet broad, transepts, chancel, organ chamber, baptistery and two sacristies, which will provide direct communication with the presbytery or priest's house, which is also to be erected. In memory of the ancient shrine and chapel destroyed by the townfolk of Musselburgh in Reformation times, the building will be styled the Church of Our Lady of Loretto, and will be erected on the site of the present chapel in Wondel Street. This chapel, which for three years has been a chapel-school earning Government grants, was originally a private Episcopal chapel belonging to Lady Mary Oswald Inveresk, and acquired by the local Catholics nearly 23 years ago, between which date of acquisition and the Reformation there had been no meeting-place for Catholics in Musselburgh.

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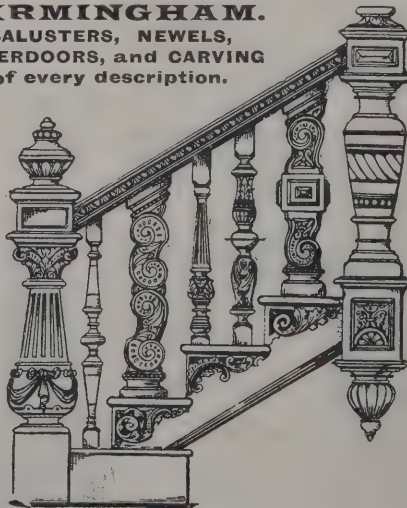
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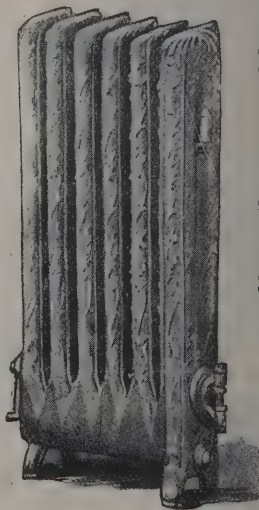


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A PREVENTATIVE OF LEAD POISONING.

WE lately commented on the Government investigation of the risks arising from the use of certain moorland waters. It was demonstrated that by careful filtration the danger arising from conveying such water in lead pipes is minimised if not removed. That is assuring to the inhabitants of the towns which come within the scope of the inquiry. But it should be remembered that only one class of water was considered, and the conclusions of the scientific inquirers of the Local Government Board cannot be accepted as applicable everywhere in Great Britain. There is water which, in theory at least, could be considered as preservative of leaden pipes, while on the other hand, in many places the lead exerts a deleterious influence on the water. Efforts have been made to remove the danger by lining the pipes with another material or composition, and various patents have been brought out. The difficulty is to find a substance that will be enduring and innoxious, and at the same time is capable of so close a combination with the lead pipe as to become equal to an amalgamation with it. The latest puckering of the lining is fatal to its efficiency. The most satisfactory and successful effort to overcome the difficulty which has come under our observation is that of Messrs. Hanson, Dale & Co., Limited, of Huddersfield. The firm has long been known as manufacturers of lead piping, and of course are aware by practical experience of what is desirable. They have recently produced two varieties of improved pipes. One is a pure solid-drawn block-tin pipe, which from being homogeneous throughout cannot present even an infinitesimal danger through the chemical action of the water, and has an immunity against rust or corrosion. It merits to be employed at least for the pipes conveying water for dietetic purposes in houses, while ordinary piping would serve for supplies to baths, lavatories, ash-houses, &c. The second invention is a tin-lined lead pipe. A section shows there are two materials employed, but the combination is so close as to be inseparable. It has all the advantages of a unified material. Chemical scrutiny has demonstrated it is absolutely free from risk, while the pipe retains the advantages which plumbers maintain are only forfeited by lead. Both kinds of pipe can be recommended as being in sanitation, for the most apprehensive housekeeper can be confident that with Messrs. Hanson, Dale & Co.'s, Ltd., the purity of the water is safeguarded.

LONDON COUNTY COUNCIL ART SCHOLARSHIPS.

THE Technical Education Board of the London County Council have awarded the following art scholarships and exhibitions on the result of a recent competition for which 530 candidates entered:—Nineteen Schools of Art scholarships—five of the value of 20*l.* a year for two years and fourteen of the value of 10*l.* a year for two years; thirty Artisan Art scholarships—nine of the value of 20*l.* a year for three years and twenty-one of the value of 10*l.* a year for three years; ninety-three Junior Artisan Evening Art exhibitions, of the value of 5*l.* a year for two years. The examiners on whose recommendations the awards were made were Mr. George Frampton, R.A., Mr. R. Catterson Smith, headmaster of the metalwork school at Birmingham, and Mr. E. S. Prior, secretary of the Arts and Crafts Exhibition Society. The works selected from those submitted by the competitors were exhibited last week at the Northampton Institute, Clerkenwell. The following are the names of the candidates who have obtained the most valuable scholarships:—Five Schools of Art scholarships of 20*l.* a year—Sarah C. V. Jarvis, Battersea Polytechnic; Sarah E. Meekren, Royal College of Art; Maggie Richardson, Goldsmiths' Institute; Constance M. Skinner, Hammersmith School of Art; and Paula D. Wulff, Battersea Polytechnic, all art students. Nine Artisan Art scholarships of 20*l.* a year—George F. Brodrick, glass painter, and Arthur E. R. Gill, letter-cutter and signwriter, L.C.C. Central School of Arts and Crafts; Frederick B. Hitch, carver and modeller, Royal Academy; William A. Krüger, draughtsman, and George D. Macdaugald, modeller, L.C.C. Central School of Arts and Crafts; Hubert J. S. Martin, cabinet-maker (own account), Camberwell School of Arts and Crafts; Henry J. Pledger, plumber, L.C.C. Shoreditch Technical Institute; Edward Woore, stained-glass worker, and Algernon Young, designer, L.C.C. Central School of Arts and Crafts.

THE plans for the new Roman Catholic church of St. Albans have been approved by Cardinal Vaughan. The church will be in the Roman style, a plain but substantial building, designed to accommodate between 600 and 700 persons, and comprises a broad nave and aisles lighted by clerestory windows.

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ENGLISH ROADS.

THE President of the Local Government Board has appointed a departmental committee to inquire into the general condition and sufficiency of the roads of England and Wales, and to report whether any, and if so, what amendment of the law relating to these matters or its administration is desirable, in view of the various purposes for which the roads now are or shortly may be utilised, and particularly whether any change of the authorities who have control over the roads or of their powers is required.

The members of the committee are Mr. J. Grant Lawson, M.P. (chairman), the Right Hon. Sir J. E. Dorington, Bart., M.P., the Hon. A. Stanley, M.P., the Hon J. W. E. D. Scott-Montagu, M.P., Mr. W. J. Bull, M.P., Mr. E. R. Pickmere, town clerk of Liverpool; Mr. G. C. Kent, town clerk of Longton; and Mr. S. Woodbridge, clerk to the Brentford Urban District Council.

Mr. R. G. Duff, of the Local Government Board, will act as secretary to the committee.

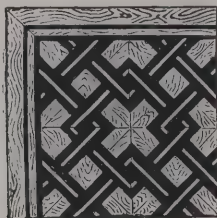
PREMIUM SYSTEM IN WORKSHOPS.

A GENERAL meeting of the Institution of Mechanical Engineers was held at the Institution House, Storey's Gate, on Friday evening, when a paper was read by Mr. James Rowan on "A Premium System applied to Engineering Workshops." Mr. Rowan is the head of a large marine engineering firm in Glasgow, by which the premium system has been adopted. He pointed out that the system involved expenditure of capital, and it was only by the most assiduous attention and the utmost perseverance that it can be carried through. The first thing to do was to establish a separate department for rate fixing. In a workshop with about 150 machines three men should gather all the data needed in two or three months. Standard times were thus established. On introducing the system an explanatory pamphlet should be issued to the workmen, as they were apt to regard it with suspicion. The premium system was started in his works in February 1898, and since then the average times of the machinemmen had been reduced during the four succeeding years by 20, 23, 31 and 37 per cent. The earnings of the men had increased by these percentages, and they stated they were thoroughly satisfied with the system.

The system was founded on the principle that a regular hourly rate of wages was paid irrespective of output. A standard time was laid down for the performance of any given piece of work, and if the workman completed the task in a less time than the standard he received pay in addition to the hourly wage in accordance with the time saved. At the worst the man got his hourly wages, and if he could execute the job more quickly than the standard time he earned additional money. The system had been introduced with success in America, the output of the factory being largely increased, to the employer's benefit, and the men earning greatly increased wages.

PROTECTION OF STEEL AND IRON.

ON March 6 Mr. Maximilian Toch delivered a lecture before the American Chemical Society on the "Permanent Protection of Steel and Iron," and demonstrated by means of photographs and photo-micrographs that steel and iron are corroded in some cases slowly and in others rapidly even when embedded in masonry. The microscopic structure of several cements was shown, and the speaker prophesied that in the future oil paint will in a great many instances be displaced by cement paints. From chemical investigation it was concluded that the cements as used for building purposes are unfit for coating steel, because most of them are carriers of oxygen, and instead of liberating pure lime in their setting they liberate a calcium ferrite which produces rust when in contact with a clean steel. The speaker mentioned novel experiments which he had made with cement preparations by changing the specific gravity of the cement, ridding it completely of iron, and diluting it in such a way that it can be used as a paint. It is made to set quickly so that it not only adheres to the steel and iron but it has the same coefficient of expansion. It is anticipated that Mr. Toch's method, on which he has worked for years, will cause extensive changes in the preservative coating of steel structures. He believes that unless the masonry of some of the new sky-scrapers will support the floors and ceilings it is doubtful whether some of them will stand fifty years. Moisture alone will not rust steel or iron, but carbonic acid, ammonia and sulphurous acid are violent producers of rust. Continued oxidation is bound to weaken a steel member. It was stated that steel embedded in some kinds of cement would not oxidise but that in other kinds it would oxidise rapidly.



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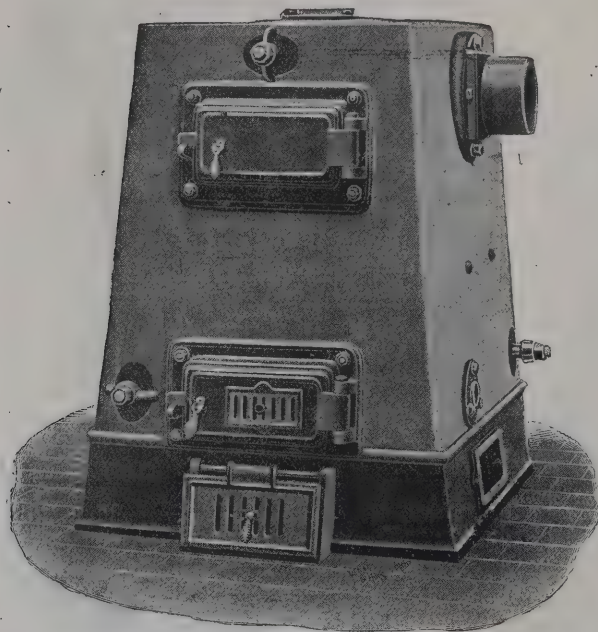
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JUDGMENT was given by Mr. Justice Kennedy in the King's Bench Division on Saturday, in an action brought by Mr. Stanley Broadbent, trading as Broadbent & Co., at Leicester, against Messrs. T. & W. Meadows, Heaton Norris, Stockport, to recover 208*l.* 17*s.* 8*d.* as a balance due for work done. The action had been heard at Nottingham. The defendants had entered into a contract to erect buildings in connection with a sanatorium at Baguley, and had employed the plaintiff on a sub-contract to do a portion of the slating and tilingwork. The defence was that the plaintiff's work was not left complete to the satisfaction of the architect, which was a condition precedent to the right to claim, and alternatively that if there was any money due to the plaintiff 105*l.* was sufficient to satisfy the claim. The point in dispute was whether the plaintiff was to make good after other trades." There was a condition in the original tender that plaintiff should not make good after other trades. The tender was ultimately reduced, but his Lordship said he found nothing which deprived the plaintiff of that provision. It would be unreasonable and unfair that the subcontractor should have his slates and tiles broken or cracked because the other trades had not done their work to the satisfaction of the architect. The plaintiff was substantially right, but inasmuch as his remuneration was to depend on the measurements of the architect he could only give judgment for the 105*l.* paid into court. He directed that the defendants should pay one-half of the plaintiff's taxed costs, and refused a writ of execution.

ENGINEERING AND SCIENTIFIC ASSOCIATION OF IRELAND.

MEETING of this Association was held on the 18th inst. at Merrion Row, at which Mr. R. D. Timmins read a paper (illustrated by views) on "Well and Artesian Boring, with note on Water Divining."

The president, Mr. T. G. Purser, occupied the chair. Mr. Timmins read his paper on "Well and Artesian Boring," which proved of exceptional interest, as searching for wells on scientific principles was practised by but a few engineering firms, and the literature on the subject was rather limited. Having described the geological conditions necessary for a supply of water, the lecturer alluded to the difficulty always found in deciding on the site for a boring, and to the

disappointment often experienced through geological faults when the general conditions appeared favourable. He then spoke of the great success which attended the work of the professional dowser, or diviner, and to the investigations carried out by Professor Barrett, the results of which were brought before the Society of Physical Research. The conclusion arrived at seemed to be that the dowser could be relied on to find water if the depth did not exceed 50 feet, and the quantity required not to exceed an ordinary private supply. For a public supply from greater depths a hydro-geologist should be consulted. The question of the hardness of water was a point of importance in any supply, and he put in tabular form the temperature of water at different depths, the high temperature of 62 degs. Fahr. being found at the depth of 1,350. Mr. Timmins then described the boring of the well for the supply of the town of Gainsborough, carried out by Messrs. E. Timmins & Sons, of Runcorn. The work was commenced in 1895, and on April 1, 1897, an unfortunate accident caused the boring tool, weighing 45 cwt., and 500 feet of rope, weighing 1½ ton, to be left in the borehole. After 22 months' labour these were recovered, and the well successfully carried to a depth of 1,515, and now an amply supply of water was obtained.

A discussion followed, in which Messrs. Holliday, Parr, Arthur Spence, Best and John Miller took part, and on the motion of Mr. Holliday, seconded by Mr. Parr, a vote of thanks to Mr. Timmins was passed amid applause.

NOTTINGHAM NEW WORKHOUSE AND INFIRMARY BUILDINGS.

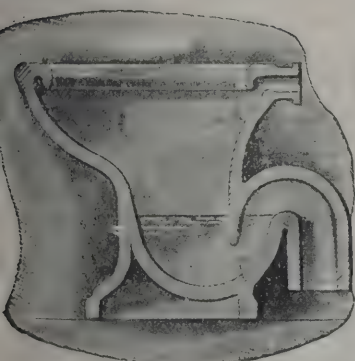
ON the 18th inst. the palatial pile of buildings which have been erected at Bagthorpe, Nottingham, and which are destined to use as workhouse and infirmary buildings, were formally inaugurated. Built to the plans of Mr. Arthur Marshall, A.R.I.B.A., of Nottingham, this workhouse is regarded as one of the most extensive and completely equipped of its kind in the country. It occupies a site containing 67½ acres, which was purchased from the Corporation at a cost of 12,900*l.*, and provides accommodation for close upon 1,700 inmates, exclusive of staff. The total expenditure has amounted to about 240,000*l.*, and details furnished by the architect disclose the fact that the average cost per bed has reached 127*l.* In the main building for inmates in health there is room for 624, with special

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provision for married couples; the infirmary is composed of eight pavilions with sixteen large wards for twenty-eight beds, giving a total of 480 patients, and other buildings furnish accommodation for children, consumptives, the feeble-minded and epileptic, and tramps, together with receiving wards, isolation hospital, nurses' home, workshop, mortuary, bakery, laundry, boiler and engine-houses, and a chapel to seat a congregation of 500. Briefly summarised the accommodation is as follows:—In the main building, 703; infirmary, 612; insane wards, 250; which with 55 nurses and a staff of 72 gives a total of 1,692. Mr. Marshall calculates that 100,000 tons of goods and materials have been brought to the site on the sidings, &c., and that 13,500,000 bricks have been used up, or enough, if placed end to end, to reach from London to Constantinople. There are seven acres of tile roofing, and the glass used in the work would suffice to pave half the Great Market Place. Draining is dealt with in seven miles of drains, and in the electric-lighting department there are 2,700 lamps, 40½ miles of wire, 13 miles of steel tubing and 36,000 screws. For the heating and hot-water service ten miles of piping have been laid, and the Nottingham Guardians have the distinction of having installed apparatus for domestic hot-water supply, the circulation of which is longer than any other in the British Isles. The foundation-stones of the workhouse were laid on April 17, 1899, by the then chairman of the Board (Councillor Charles Smith) and the chairman of the building committee (Alderman J. Jelley), but from first to last the work has extended over a period of six years.

of Oatlands and Overnewton, which they laid out for building purposes, and took the purchasers bound to erect houses of a certain character. The result financially has been profitable to the Corporation, the price received by the Corporation, which was converted into feu duties, being very considerably in excess of the purchase price and moneys disbursed in laying out the two estates. In his report on the census of 1901, page 23, the medical officer states that these houses "represent the best class of modern artisans' dwellings in the city." The idea present to the mind of the Corporation in arranging for the erection of these houses was, I believe, to provide accommodation for those who were being displaced by the demolition of buildings in the Saltmarket district. The houses were, however, rather larger and more expensive than suited those who were being dispossessed, and were in consequence let to ordinary tenants.

The evidence laid before the commission which recently sat to dispose of the Glasgow Corporation (Water, City Improvement and General) Provisional Order, 1902, showed that the scheme of the Corporation of Leeds for dealing with the housing problem was to acquire suitable land, and to resell it for the erection of workmen's houses at such prices as would enable this to be done at a profit to the builders, the Corporation making a loss upon the sale of the land and recouping themselves from the rates.

While such a scheme as this it seems to us is suitable for Glasgow, we think that the object in view might be attained with the assistance of the Corporation without any charge upon the rates.

What we have in view is the formation of an ordinary company for the purpose of building houses for the labouring classes with a substantial capital and corresponding borrowing powers. We have been considering the acquisition of sites for building, and are advised that it would be possible to get suitable sites within the city convenient for the population to be accommodated at comparatively reasonable figures. Having acquired the land, we propose that the company should erect houses somewhat of the type built by the Corporation under the Act of 1897 at Haghill and in Baltic Street, but subject to certain modifications.

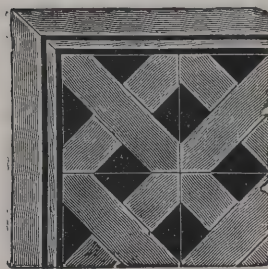
One of the difficulties experienced by the ordinary builder in the erection of houses of this type is that the back walls of brick and other expedients used in construction for the purpose of reducing cost render such buildings unsaleable except at a depreciated price, and also prevent a loan being obtained on

HOUSING IN GLASGOW.

THE following letter from Dr. David Murray relating to the formation of an ordinary company for the erection of houses in Glasgow for the labouring classes has been sent to the Lord Provost, and will be submitted to the consideration of a committee:—

Some of us who are interested in the housing question have been considering what could be done with the view of providing suitable accommodation for the labouring classes at moderate rents, and have roughly sketched out a plan, one of the elements of which is some assistance from the Corporation, which I shall shortly explain.

Under the Act of 1866 the Corporation acquired the estates



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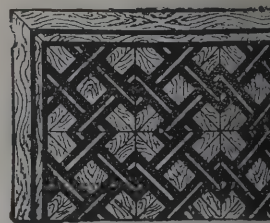
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inary terms. A tenement with a brick back, or even wholly brick, may provide dwelling-houses just as sanitary and as comfortable as a tenement of polished ashlar with the usual back wall of rubble or dressed stone. It is not, however, nearly so marketable, even after making allowance for the difference in cost. In building such houses the Corporation has the advantage that they do not require to sell, and they are able to borrow the whole of the cost at a comparatively moderate rate of interest, not upon the security of the tenements, but of the rates.

The object of the company which it is proposed to incorporate would be to hold and manage, not to sell, such property, and would therefore in this respect be in the same position as the Corporation. The company, however, could not borrow the money upon the same favourable terms as the Corporation, and what occurs to us is that the Corporation might themselves lend the usual two-thirds of the value to the company upon the security of the houses they erect on the same terms as money is advanced by the Corporation to the Improvement Trust Department.

Under such an arrangement the Corporation would run no risk. Each tenement or block of tenements would be valued in the ordinary way, two-thirds or thereby of the valuation could be advanced and a bond and a disposition in security could be granted as usual. The houses would be erected according to plans to be approved of by the Corporation, and the houses would be practically managed pretty much after the manner which the Corporation itself adopts.

The scheme of the company would be to build houses that would give a return upon the capital invested, and it is obvious that the necessary capital could not be raised except upon dividend-paying terms. It is proposed, however, to restrict the dividend payable to a maximum of 5 per cent. Any profits beyond that amount would be carried to a reserve fund, and applied in maintenance or reconstruction or otherwise for the benefit of the property. The sum at the credit of the reserve fund would not be divisible among the shareholders.

It will be a great favour if your lordship will give this proposal your favourable consideration. The assistance of the Corporation is an element in our scheme, and we cannot take any very active steps towards carrying it out until we know whether the Corporation are likely to entertain the proposal.

Mr. John Honeyman writes in the *Glasgow Herald*:—

As one of those who have for many years taken a deep interest in the housing problem I desire to offer a few remarks

on Dr. Murray's letter which was submitted to our Town-Council yesterday, and which is favourably commented on in the *Herald* to-day.

I quite agree with Dr. Murray that it would be very much better that the work of building houses on a large scale should be undertaken by a private company, such as he suggests, than by the Corporation; but, in the first place, it requires to be proved that any such scheme of building on a large scale is necessary. The evidence hitherto led before the Municipal Commission distinctly tends to prove the reverse. The citizens generally are not interested in the housing of the better class of working men; they are quite satisfied that houses for that class have hitherto been and are still being abundantly provided by private enterprise, and that the Corporation have no reason to take any trouble about them. Mr. Motion, who may certainly be held to know more about the matter than most other men, distinctly says that there is no difficulty in finding houses at present for the industrious poor—the only class we need give ourselves any concern about.

But while this may be the case at present, there can be little doubt that more houses suitable for that class must be provided before long. These, however, should not be situated either at Oatlands or at Overnewton, but as near the spots where dilapidated houses are to be taken down as possible; and if no public company or private individual can be found to erect these much-needed dwellings for the poor, then let the Corporation undertake the task and solve the problem of erecting healthful houses of the cheapest class at remunerative rents in central localities.

The mere question of housing is, however, by far the simplest problem connected with the improvement of the slums. No one can have gone deeply into the subject at all without being thoroughly convinced of that, and while Dr. Murray's scheme would not be of any use in connection with the improvement of the slums, it is on many grounds as objectionable as the Corporation's wider scheme of erecting superior houses—a project which is quite inexcusable. For, as Dr. Murray can hardly fail to see, it would, not less than the Corporation's scheme, interfere with the development of private enterprise, which hitherto has been quite able to provide liberally for the accommodation of the better class of working people, and which, if brought into competition with a privileged association getting land at less than cost price, and money at less than the current market value, must necessarily be curtailed or entirely stopped. At the last census it was found that over

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7,000 houses were unoccupied, and the margin is probably as great now as then. In these circumstances, what is said about the extreme rents charged by greedy landlords is evidently absurd, as the competition must be, not for houses, but for tenants, which makes all the difference in the world.

If, then, the privileges desired by Dr. Murray resulted in the suggested company being able to let their houses at lower rents than houses built by other people, the result would be not beneficial to the community, but disastrous.

THE FAIR CONTRACTS CLAUSE.

THE special committee of the Manchester City Council appointed to consider the revision of Standing Order 18, Clause 4, known as the Fair Contracts Clause, have proposed the following substitution for the existing Clause 4:—

"Contractors tendering for or executing work under this Council must be paying to the whole of their workpeople (except such as on account of old age are employed at a lower rate) the standard rate of wages in the several districts where their workpeople are actually engaged in the execution of work, and must also be observing the hours of labour as well as the aforesaid rate of wages as respectively agreed upon between the associations of employers and the local organised bodies of workers in the various trades in the several districts where the work is being done. No tender shall be accepted from any firm which prohibits its workpeople from joining trade societies.

"Should the Council have, in its opinion, reasonable grounds for believing that the above conditions are not being complied with, the contractor shall be required to produce proof (to the satisfaction of the Council) of his compliance with the said conditions.

"The contractor shall not assign or underlet the contract, or any part of it, or sub-contract, except with the consent of the Council and upon such conditions as it may think fit; but if the tenderer at the time of tendering states his desire to sublet any portions of the work not usually done by him, the Council will consent provided that the sub-contractor is a person approved by it; the principal contractor shall be responsible, however, for all work done by such sub-contractor, and for its being carried out under the same conditions as if executed by himself.

"Clauses embodying the various points herein named shall be inserted in all contracts for work, and contractors shall be

required to signify their assent to them in writing. Failure to comply with any of the conditions set forth in such clause shall leave it within the power of the Council to cancel the contract.

"This standing order shall not apply to purchases by contractors of materials or patented articles, or of stores and miscellaneous articles."

With a few verbal alterations effecting no material change it was agreed to recommend the Council to adopt this.

The chief alteration lies within the first paragraph, and an effort to render more explicit the statement that contractor "must be paying the standard rate of wages to the whole of their workpeople, and observing the hours of labour recognised by the local bodies of workers in the various trades affected in the districts where such work is being executed."

The following is a copy of a draft amended fair-wage clause for a building contract which was submitted by the President of the Manchester and Salford Master Builders Association to the Corporation committee:—"Contractors executing work under this Council must pay to the whole of their competent or qualified workpeople the standard rate of wages and observe the hours and conditions of labour recognised by agreement between the local organised bodies of employers and operatives in the trade rules and established trade customs of the district where the said workpeople are employed, and must not prohibit their workpeople from joining trade societies. Should the Council have reason to believe that these conditions are not being complied with, they may require the contractor to conform to the said conditions, after giving him notice to that effect; and should he fail to comply with or continue to disregard the said conditions, they may give him one month's formal notice in writing to comply therewith, such notice to give full particulars of any alleged breach of these conditions, and should he not do so after the offence has been proved, they may impose a penalty not exceeding £ per week so long as the offence may continue. The contractor shall not assign or underlet the contract, and shall not sub-contract without the consent of the Council; but if the contractor states his desire to sub-let any portions of the work not usually done by him, the Council will consent, providing the sub-contractor is an approved firm. The principal contractor shall be responsible, however, for all work done by any sub-contractor directly employed by him on the job, and for its being carried out under the same conditions as if executed by himself."

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The Architect.

THE WEEK.

THE retirement of Sir WILLIAM ABNEY from his office in South Kensington was signalled on Tuesday by the presentation of a portrait bust to Lady ABNEY. There can be no question about Sir WILLIAM'S services. Apart from his efforts to reform the Royal College of Art, he has done much towards the application of the science of light, and especially in the improvement of photography. It is also to be remembered that along with Dr. RUSSELL, Sir W. ABNEY carried out a lengthy series of experiments dealing with the physical effects of light on water-colours. They demonstrated that mineral colours are far more stable than vegetable colours; that if moisture and oxygen could be excluded water-colours would have a longer life than they enjoy when freely exposed to the atmosphere of a room. The artificial lights employed in illuminating a room or gallery were found to be less deleterious than had been imagined. It would take a century in galleries lighted like those at South Kensington before any marked deterioration would be visible. But when the light is incandescent an exposure of some thousands of years would be necessary. The investigation of the nature of the chemical changes involved in the fading of pigments was left to a second report which has yet to appear. The hope was expressed by Sir JOHN GORST on Tuesday that Sir W. ABNEY would not abandon his work altogether at South Kensington. A great service would be rendered to art if the contemplated report were completed and published. There would also be opportunities to introduce, if necessary, any modifications which might be made requisite by the improvements in illumination effected during the last fifteen years.

WHEN Coopers Hill College was established the students, as well as their parents and guardians, anticipated fortunate careers in India. Railway and other engineers who had had some experience on Indian public works were not so sanguine. But grumbling is a characteristic of disappointed officials everywhere. The students worked hard, passed their examinations and went to the East with the confidence of Government servants. They found on their arrival that the three P's, Pay, Promotion and Pensions, were delusions. The ordinary civilian engineers, and we may add architects, also discovered to their dissatisfaction that they were to be little more than assistants to military engineers, to whom fell all the desirable rewards of the service. The Coopers Hill men had been instructed to believe they were of a different class, and would be placed at least on a level with military engineers. The Government of India, being apprehensive of the effects of discontent among holders of important positions, have recommended fair play, or, in other words, that the promotion and emoluments will correspond with what was held out to the students. The India Office, on the other hand, say that if there is a grievance the sufferers can apply to the law courts, that the fault lay with Sir G. CHESNEY, who over-recruited the service, and that the requirements of the War Office are compulsory. What is now desired is that a Select Committee be appointed to consider the grievances alleged by the senior Coopers Hill engineers belonging to the Public Works Department of India to exist, as a consequence of their promotion and emoluments falling short of the expectations held out to them when they entered the service. The House of Commons will not, however, agree.

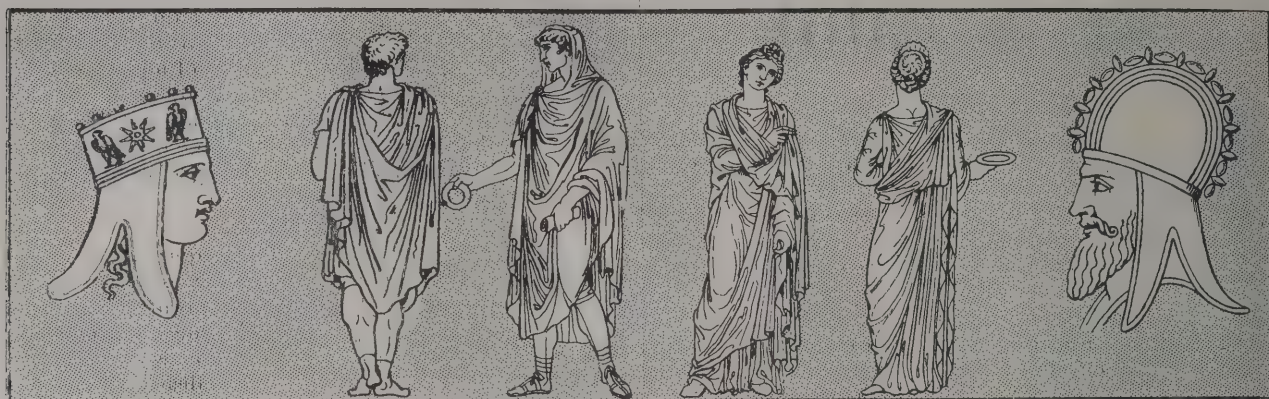
THE French Minister of Fine Arts has acted wisely in ordering an inquiry into the circumstances which led to the purchase of the gold tiara in the Louvre. It is also right that this inquiry is to be entrusted to one of the humbler class of judges, in fact, a kind of police magistrate. The difficulty of the case is increased by the number of claimants for the position of culprit. It is further complicated through some of those men having publicly denied on other occasions that they co-operated in any way with the production of the crown. It suggests modern cynicism that in Paris forgeries of works by French masters have been exhibited as what they are. The judgment of connoisseurs and others is so little valued that a genuine example of one of the masters

of landscape art has been sent to the Salon in the hope of its rejection. A similar joke has been attempted in New York, where models which were copies of forms by MICHEL ANGELO and LEONARDO DA VINCI were submitted to the Art Commissioners. But the last legend has been denied. It has been believed there is an epidemic of crime at times, and it is not impossible that sundry other attempts to entrap the wisest may be made.

At the present time, when the question of finding accommodation for the humbler classes receives so much attention, the National Housing Reform Council have aided the cause by issuing "The Housing Handbook," by Mr. W. THOMPSON, a member of the Richmond Town Council. From it the reader can realise what has been done to meet the demand for block dwellings, cottage dwellings, cottage flats, lodging houses and tenement houses throughout the country. Plans and views are given as well as information about the reason for building. In addition are set forth such documents as Acts of Parliament, by-laws, rules and regulations, &c., and the book is, therefore, entitled to be called "A practical manual for the use of officers, members and committees of local authorities, ministers of religion, members of Parliament, and all social or municipal reformers interested in the housing of the working classes." Mr. THOMPSON must be an enthusiast to have worked so hard in the compilation of the handbook. No architect ought to undertake the preparation of plans for cheap dwellings until he has examined the various attempts exemplified in the handbook.

STANLEY GROVE, in Manchester, will present a remarkable appearance when the new infirmary is erected. It will become a medical quarter. The estate was presented to Owens College by the Whitworth trustees. A part of it had been intended for the erection of a southern hospital, but that portion will be transferred to the infirmary trustees. It will be possible to build not only a much larger infirmary than existed at Piccadilly, but if, as is likely, the pavilion system should be adopted, the buildings can be separated by an adequate amount of open space. The Council of Owens College, who are parting with the ground, have proposed some conditions or requirements which will of course be acceded to.

KINGSTOWN is the first part of Ireland with which the majority of visitors gain an acquaintance. THACKERAY thus describes its appearance in 1843:—"The better sort of houses are handsome and spacious, but the fashionable quarter is yet in an unfinished state, for enterprising architects are always beginning new roads, rows and terraces; nor are those already built by any means complete. Beside the aristocratic part of the town is a commercial one, and nearer to Dublin stretch lines of low cottages which have not a Kingstown look at all, but are evidently of the Dunleary period." Dunleary was the old name for the place prior to the visit of GEORGE IV. The contrast which THACKERAY noted between fine terraces and rows of cottages has become more marked. The cottage property is now mainly slums, and the condition of the poorer quarters of Kingstown is enough to strike terror into the hearts of sanitarians. Application was lately made for authority to raise a loan of 72,000*l.* to be expended on artisans' dwellings. Unfortunately during several years Kingstown has been unable to meet its expenses, and it is doubtful whether an additional burden can be sustained. The difficulty is increased by the fact that the leases are expiring, and the tenants, if they care to remain, will not only be required to pay rents vastly higher than those which prevailed when the town was in an experimental state, but will also have to expend sums on improvements almost equivalent to the cost of rebuilding. There is no doubt that much of the slum property could have been utilised as sites for a far better class of houses, but the leases and sub-leases were obstacles to the acquirement. The Local Government Board have therefore great responsibility, for although the houses proposed to be erected by the Urban Council would not be tolerated if unsupported by authority, the repayment of the loan is less certain than is desirable.



STUDIES OF COSTUME: ROMAN.

THE DISMISSAL OF AN ARCHITECT.

THE judgment by Mr. Justice WALTON on Friday last in *WATERMAN v. London (Riverside) Cold Storage Company, Ltd.*, is of importance to others besides the architect who was the plaintiff in the case. Although we hear much about the defects of the profession, there are very few precedents to guide a judge when, as on the occasion in question, a claim is made by an architect for damages arising from dismissal. Mr. W. H. WATERMAN sought 1,108*l.* 0*s.* 11*d.* for wrongful dismissal and balance of fees due to him. A dispute arose between him and the company about the underpinning of a wall of a wharf. The directors of the company came to the conclusion there was a breach of duty, and Mr. WATERMAN was dismissed. According to Mr. Justice WALTON, it is required in such circumstances to prove that an architect was either unwilling or unable to perform his duties. The directors had failed to do so, and his Lordship accordingly gave judgment for 953*l.* 11*s.* 9*d.* As certain calls on the plaintiff as a shareholder as well as payments by the defendants were taken into consideration it may be said that judgment was given for the sum claimed, which was a satisfactory conclusion.

Mr. Justice WALTON's declaration of the necessity of such grounds for dismissal as unwillingness or incompetence to perform his duties removes a misgiving which has existed to some extent about the status of an architect. In the majority of instances there is no special agreement with a building-owner about the duration of the term of the architect's employment. It is taken for granted that he will be permitted to exercise his skill until the completion of the building and the fulfilling of all the conditions in the contract with the builder. In the formal agreement with an architect which is introduced as a model in Lord GRIMTHORPE's "Book on Building," from being in use by the Commissioners of Works, it is said that if only a part of the works should be carried out the architect shall be entitled to a proportionate part of the remuneration, which is to be a fixed sum agreed on beforehand. If the architect become incapacitated he, or his representatives, shall hand over to the Commissioners all plans and papers relating to the works, and shall be entitled to such equitable proportion of the unpaid part of the said remuneration as may be agreed on. Disputes are to be settled by an arbitrator appointed by the Treasury. That agreement relates to an unusual variety of procedure. The architect is by it recognised as no more than a designer who is to prepare sketch plans, elevations and specifications, all of which documents are to belong to the clients. But in ordinary cases an employer can act towards an architect as he would towards any other agent and determine the engagement at any time without notice. The architect has, of course, his remedy in an action for damages, when it will be necessary for the employer or building-owner to prove, as Mr. Justice WALTON said, unwillingness or inability to perform the required duties. It is, however, not always possible for an architect to enter on a law suit, and one may be avoided by his simply stating in a letter that the writer is prepared to give his services as architect in connection with the building until it is properly erected and completed for such fees as have been agreed upon.

Building-owners, when they desire to act in an arbitrary manner, and take revenge for some slight or imaginary wrong by summarily dismissing an architect as if he were no more than a dishonest servant, fail to realise that they have only the power to partially dismiss him. By entering into a contract the employer has created a dual office for the architect, in virtue of which he becomes an arbitrator or judge to whom the creator of the office becomes subjected. The building-owner may take steps, for instance, to prevent the architect entering on the works in progress, and he might even put up a printed notice to that effect. But the rights of the architect cannot be set aside in that way, for the contractor can insist on his (the architect's) admission to the premises at any time and under all circumstances. A building-owner can, of course, set the law at defiance and incur pains and penalties for his own gratification, but he has only to consult a solicitor in order to discover that the dismissal of an architect is a more serious affair than is imagined. It is possible, as was the practice of the Commissioners of Works, the admired of Lord GRIMTHORPE, to regard the architect simply as a designer. Then, of course, he would have no more claim in virtue of his office to go upon works than the designer of a piece of cotton would possess to enter a factory and interfere with the printing of the pattern. But as soon as a contract is taken in building the architect becomes not only a designer, but much else.

Another case which was heard last week before Mr. POLLOCK, an official referee of the High Court, at Durham, partially resembles that we have just noted. The dismissal was expressed by a demand for the surrender of plans. The plaintiff, Mr. WILLIAM PERKINS, architect, sought to recover 580*l.* from the Bishop Auckland Co-operative Society. The province of such bodies has of late been widely extended. The defendants, in addition to the usual business of competing with ordinary shopkeepers, entered upon building speculations. In 1895 Mr. PERKINS was engaged as architect, the terms being, on works of the value of 1,000*l.*, 5 per cent.; from 1,000*l.* to 2,000*l.*, 4 per cent.; 2,000*l.* to 5,000*l.*, 3½ per cent.; and from 5,000*l.* to 10,000*l.*, 3 per cent. Various works were carried out, including houses and stables. There was occasional friction between the architect and the contractor, but the Society generally took the architect's view of whatever matter was in dispute. To his surprise Mr. PERKINS, on July 7, 1900, received a letter from the secretary of the Society intimating that the committee had become so dissatisfied with his conduct that he was instructed to ask him to deliver to the Society all plans and specifications of buildings erected for them, together with a statement of account, with a view to a final settlement. Mr. PERKINS replied he was unable to understand the letter, but as it had been sent he could not accept any further work from the Society, although he should take his part in seeing that the contracts entered into were carried out. Afterwards he furnished his account, and was informed it would not be paid until his plans were handed over to the Society. In another letter it was stated that his account had been submitted to the solicitor of the Society, who had recommended that 500*l.* should be offered in settlement of a claim amounting to 690*l.* It was added that if Mr. PERKINS did not accept

the offer the money would be paid into Court, and then a writ would be issued for the recovery of all papers and documents—that is to say, the plans which it was asserted belonged to the Society. The question of ownership thus appears under a new phase, and other architects would do well to secure themselves against similar demands by making their clients clearly understand at the beginning what is the usual practice.

It might have been possible to have the dispute between the parties compromised on equitable terms but for a circumstance which arose inopportunistically and which created a prejudice against the architect. There is so much said about illicit commissions and the tendency of architects especially to insist on them that the least pretext for suspicion is often sufficient to convince people that a wrong has been committed. Mr. PERKINS had, it seems, a running account with a firm of ironmongers, and he was allowed 10 per cent. on all articles debited to him. In one of the contracts for houses 200*l.* was entered to provide fireplaces. In another instance the amount for similar articles was 292*l.* The order for them was given to the firm. Plaintiff brought an action against the ironmongers for 33*l.*, which he alleged had been paid in excess, and the firm counter-claimed 89*l.*, an excess of commission which they had paid. Mr. PERKINS believed he was entitled to take the part of a contractor and receive the trade discount paid in ordinary cases. But no sooner was the report of the action in the papers than the Co-operative Society informed Mr. PERKINS that after the revelation they could not be parties to any arbitration in respect of his fees. He replied he was willing to have all his dealings with tradesmen investigated, but the defendants may have thought that he would be afraid to bring an action in the High Court. His counsel advised that the commission should be paid into Court, and that was done. But the Official Referee said that although the action might have been honest the retention of the commission could not be justified. After Mr. PERKINS had been cross-examined an arrangement was arrived at. It was agreed that plaintiff was to receive 350*l.*, and that each side should pay their own costs.

It is evident in this case that the issue was affected by the commission which was given by the tradesmen on account of fireplaces. Whatever may be the custom in the northern parts of England, there is no doubt the receiving of any commissions unknown to an employer is to be reprobated. Here, as in other instances, no loss arose, for if the architect was paid the contractor was not, and there was no allegation that the articles supplied were of inferior quality. Public opinion is, however, becoming more and more unfavourable to secret commissions, and architects are most unwise who will jeopardise their position for the sake of a small sum, but which when discussed in Court assumes alarming proportions.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER VIII. (continued).

IT is a favourite device of some architects, when dealing with a lofty façade, to mask two storeys behind one height of window; but this cannot be commended, whatever plea may be advanced. Where a Mezzanine* floor is introduced the objection is still valid, though perhaps less forcible. In buildings such as club-houses, hotels, &c., there are many rooms required of less height than others by many feet, and where, indeed, it would be inadmissible to carry them to the same height as the principal rooms; and the latter being dispersed over two or three floors, the smaller rooms are worked in double stages. Fig. 65 may make this clear. Cloak-rooms and teachers' rooms in Board schools are often so treated, the cloak-rooms being level with their own departments, and the teachers' rooms being treated as mezzanine-rooms, the one being placed over the other in the inclusive height of school and classrooms.

* Der. Mezza = between, and nino (a diminutive); therefore = a little floor between principal floors.

PALLADIO is usually credited with inventing the "Colossal order" of columniation, the gigantic columns extending for two or more storeys. The main object in the use of these and of gigantic windows is to avoid frittering a lofty façade; as a result, the different storeys are apt to appear dwarfed. Aesthetically, there is not the same objection to the use of colossal columns as there is to "masking windows"; but it can scarcely be commended as the highest form of art.



Plan of Mezzanine

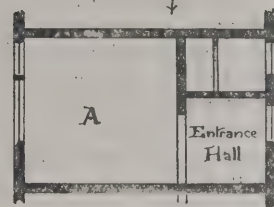


FIG. 65.

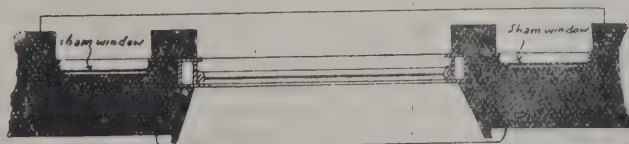
Bearing on the subject-matter of this chapter is the objectionable use of sham windows for the maintenance of symmetry. The writer, in the course of his experience, has met with many instances of this abomination; dummy windows are not, however, in the same category. For example, if a plan necessarily involved an arrangement for lighting, such as that shown in fig. 66, and if it were



The Use of Dummy Windows.

FIG. 66.

deemed advisable for the sake of balance or of quasi symmetry to set in the brickwork along the blank portion of the wall at A..A to agree with the window-reveals at B..B, there would not be any objection, nor would any deception be practised. But sham windows are those that



Plan of Sham Windows existing at Great Ealing School.

FIG. 67.

are set in close imitation of glazed sashes, &c., against a blank wall, either in continuation of, or else to balance, a real window (see fig. 67). Similar treatment was often accorded to doors, and amongst other sinners may be noted the Brothers ADAM, whose sham doors and windows dis-

grace, even whilst decorating, some of the houses in Fitzroy Square, London. St. James's Square, in the same city, has a similar abomination in one of the houses; but as an example of pseudomania, the house whose plan is shown in the accompanying fig. 68 takes a foremost place. It is a curious old house, unpossessed of a principal staircase,

still further modified to meet the artistic requirements of an elevation, by transposing two or more rooms or areas, as long as it can be effected without serious detriment to the plans. The maxim to be regarded in adaptations is that *what is of chief importance must hold sway over matters of minor import*; thus, to give to a morning-room or breakfast-

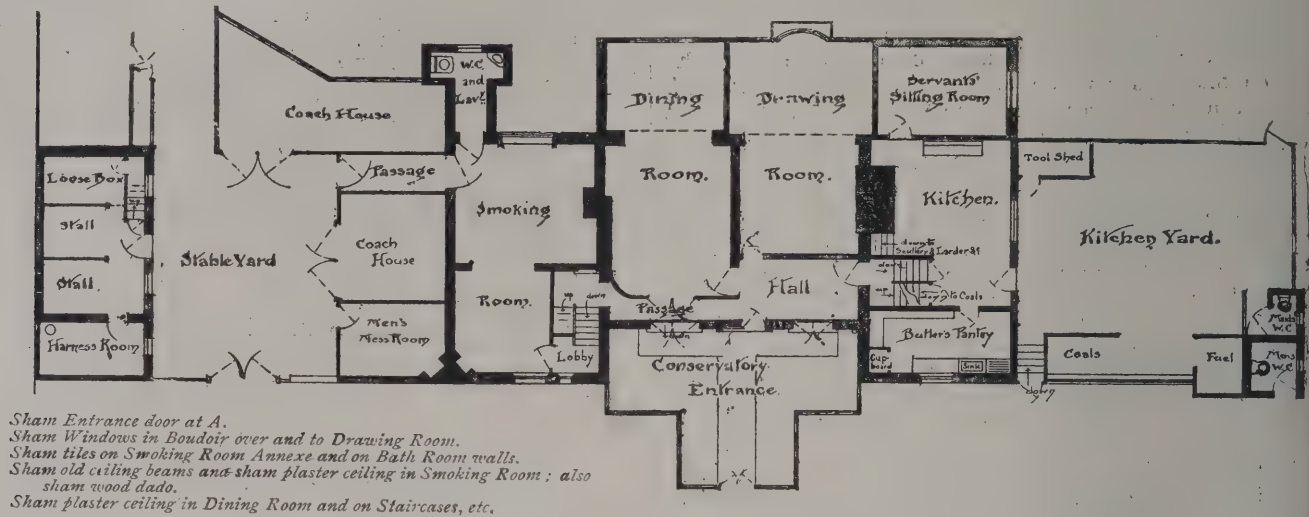


FIG. 68.

but having two of equal "value" (the word "importance" is inappropriate). It came under the hands of the author professionally, and he was thus able to study its weaknesses. It is not at all exaggerating matters to say that it would be unsafe to swing the proverbial cat on either staircase; but small and unimportant as the house is in itself (though it stands in a nice little messuage), there are enough shams and "features" crowded in it to share amongst many and larger properties—sham doors, windows and other accessories, both constructive and decorative, sufficient to demoralise any architect.

The plans of a building will frequently admit of certain modifications for the purpose of helping out the design; but it can only be on minor points, principally with regard to size and disposition of some of the windows. For example, and merely as an illustrative possibility, consider a plan façade such as that shown in fig. 69. It may be that the bay at A is decided upon as being altogether

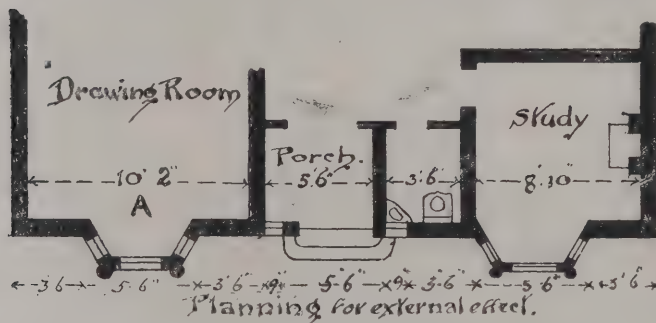
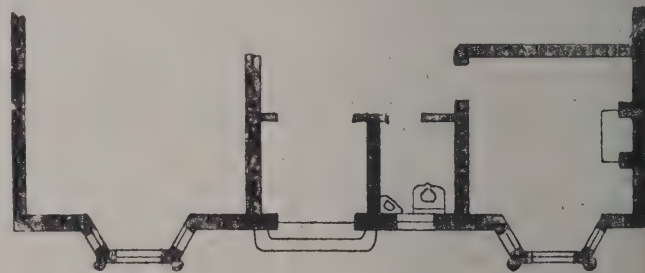


FIG. 69.

desirable, and as belonging to one of the principal rooms is set central with the side in which it appears. The architect (or perhaps the client) may have a predilection for a symmetrical front, consequently a similar window is given to the study, and is disposed symmetrically for the façade, though it entails a lop-sided arrangement for the smaller and less important room. And furthermore, through the same desire for symmetry, the porch might be treated as shown, where, under other circumstances, a full width opening might have been accorded. Such treatment can only have any importance as affecting the elevation, for the internal planning would have been more pleasing if treated as shown in fig. 70. This is a simple illustration, for the purpose of making the point quite clear.

Instances may occur in practice where the plan may be

room north to west aspect, instead of south-east or easterly, in order to cope with some artistic difficulty of elevation, would not be a permissible modification; but the demands of art *might*, at times, justify a modification, substituting a more southerly aspect.



Planning for Internal Effect.

FIG. 70.

Another way of obtaining justifiable modifications is by the architect boldly rejecting some pet or self-approved planning (where he may find it impossible to obtain passable elevations), and substituting a rearranged scheme. This is, of course, a drastic method, but the advice is not to be considered a mere form of words, introduced for the purpose of suggesting alternative methods; it is, in fact, an experience with which any architect may meet.

It is of importance in the earliest stages of a scheme to have a clear idea whether the intention is to design on a Classic, a Gothic, or a Renaissance basis, for the closer the approximation to any particular type, the more successful will be the realisation of the best ideals. There may be some form of plan that acts as a common meeting-ground for all styles; but, by its adoption, typical effects are less easily produced. Bearing this in mind as a background, it may be said that according as the intention is to produce a Gothic, a Classic, or a Renaissance design, so is the plan in outline unrestricted, or more or less restricted. It does not, however, follow from this that symmetrical Gothic plans and unsymmetrical Classic ones are impossibilities (the former, more particularly, are of not infrequent occurrence), but in dealing with principles it is necessary to propound broad generalities, and to leave specialising for individual treatment.

Modifications in design and execution in matters of art may fairly be compared with the military strategy and tactics of a competent general in the field. He prepares

his scheme for obtaining the desired result on certain lines that should meet the requirements of the case; but, if he is confronted at any stage with unforeseen complications, he will then modify his original views to the necessary extent. This military simile may, with advantage, be carried a little further. Where military blunders are made, such as the two historic charges of light cavalry brigades (the one in the Crimean War of 1854-55, the other in the Soudan Campaign of 1898), the brilliancy of the *coup* does not excuse the original blunder. Marshal CANROBERT, on the earlier occasion, remarked, "C'est magnifique, mais ce n'est pas la guerre." Similarly with some architectural blunders—as for example, the Albert Memorial, London.—people may say, "C'est magnifique, mais ce n'est pas l'architecture."

Another cause of modification may arise when the principle of "solid over solid, void over void" is observed. This is apt to fetter a scheme considerably. Constructionally, there cannot be any valid reason for necessarily placing solid over solid, nor indeed for placing void over void; æsthetically there may be something to be said in favour of this principle, though it is apt to produce a very cold and strait-laced effect. The greatest objection to the indulgence of this principle arises from the hampering influences exerted (or liable to be exerted) over the plans.

Modifications of the plan, due to the formation of the site, may be appropriately referred to here from the effects produced on the elevations in many cases. The author believes that it was Mr. ALFRED SAXON SNELL who once called attention to the curious outlines of sites with which an architect is often confronted, and who observed that they called forth the ingenuity of the members of the profession to an admirable extent. That this is true is evident from a perusal of the plans reproduced in the professional magazines. Ingenious as are the modifications in plans in many instances, the accidental (or perhaps it should be incidental) "features" obtained on the elevations are as interesting.

In large towns and in growing districts, the value attaching to the soil necessitates obtaining the maximum of accommodation even on the smallest areas—in fact, the smaller the site, the greater is the importance of utilising it well. As a result, buildings are frequently placed on sites whose natural unsuitability (judging by the amorphous configuration) is only equalled by the dexterity which so often turns them to considerable advantage.

Many urge the importance of beauty in planning—in other words, the *æsthetic design of plan*. This is an entire misconception of correct ideals. A plan may indeed be beautiful on paper, and may receive the general encomiums of those who trouble to look at such plans (the encomiums will be more pronounced if the draughtsman adopts the somewhat meretricious effects of black filling for all sectional portions). But the mere beauty of a plan is not a guide to the practical value of the building; an ordinary-looking plan may, on the other hand, be entirely and practically effective. The point to be remembered—though generally forgotten—is that the actual and complete plan cannot be focussed into a view like the elevations, except in comparatively rare instances. Whilst beauty of plan may be considered as long as it does not necessitate any sacrifice of convenience, to go further would be equivalent to leaving the narrow path of honest conception for the broad avenue of false art.

(To be continued.)

THE SCULPTURES OF THE PARTHENON.*

IT would be an advantage to have records of judgments on famous works of art which were pronounced from time to time. Æsthetics is supposed to be a science; but if so, it does not rest on a firm foundation. We have shifting sand rather than granite. In consequence it is very hard to determine what constitutes beauty, and how far it is embodied in a building, statue, or painting. This inevitable uncertainty was exhibited in a marked way when the Elgin Marbles were offered for purchase by the owner.

* *The Sculptures of the Parthenon.* By A. S. Murray, LL.D., F.S.A., Keeper of Greek and Roman Antiquities, British Museum. London: John Murray.)

It was not discreditable to Englishmen that they were unacquainted with the character of the sculpture, and were doubtful about its value. Greece was then as little known to the majority of the inhabitants of Western and Northern Europe as Abyssinia is at the present day. The existence of temples was admitted, but the vaguest notions prevailed about them.

The Select Committee of the House of Commons appointed to consider whether it was expedient to purchase the marbles on behalf of the public had, therefore, a difficult problem before them. The feeling of the time is suggested by the statement in the report that "the testimony of several of the most eminent artists in this kingdom, who have been examined, rates these marbles in the very first class of ancient art, some placing them a little above, and others but very little below the *Apollo Belvidere*, the *Laocoon* and the *Torso* of the Belvidere." When it is remembered how many of the figures in the frieze are boys and maidens, besides numerous horses and oxen, it is not easy to realise how such a standard as was proposed could be applied. But in 1816 the *Apollo* was judged to be "the highest and most sublime representation of ideal form and beauty which Sculpture has ever embodied and turned into shape." Had WINCKELMANN been able to visit Athens and behold the Parthenon sculpture it is not likely that the supremacy of the *Apollo* would become an article of faith among connoisseurs. It is amusing when we read with what persistency the *Apollo* was brought forward to test the evidence of the witnesses. Old NOLLEKENS was asked whether the *Theseus* was as fine sculpture as the *Apollo*, whether it possessed more or less of ideal beauty than the *Apollo*, whether it was a closer copy of fine nature than the *Apollo*. The same questions were put to FLAXMAN, WESTMACOTT, ROSSI and others. It is superfluous to say there was much difference of opinion about the value of the Parthenon sculpture. WILLIAM WILKINS, the architect of the National Gallery, considered the pieces valuable for those who would have to ornament an architectural building, but as detached and insulated subjects they were not fit models for imitation. The mediocrity of the sculpture of the frieze he attributed to the position it occupied in the temple, for as it could only be seen with difficulty, a finer style was unnecessary. The importance of the figures in the eyes of a great many people he considered arose from the mistaken notion that they were the work of PHIDIAS, and he added, "If you divest them of that recommendation I think that they lose the greater part of their charm."

Among all the witnesses the most enthusiastic was BENJAMIN WEST, although his evidence had to be taken, as it were, on commission. The sculpture, according to the President, was in the first class of grandeur, grand and simple in composition, and although not executed by one hand, was pervaded by one mind. The equestrian groups in the frieze or procession were "without example in the energies of the horses, the grace and beauty of the youths who sit upon them, and the life which is to be found in all. The whole does not appear to be the efforts of the human hand, but those of some magic power, which brought the marble into life." WEST believed that RAPHAEL'S *Expulsion of Heliudorus* and the *Attila* and *Pope Leo the Great* were derived from the frieze, as information about the sculpture had been sent to the painter by his agents in Athens. The comparison with the favourite standards was made by WEST in a few words:—"The *Apollo* of the Belvidere, the *Torso* and the *Laocoon* are systematic art; the *Theseus* and the *Ilissus* stand supreme in art." Whatever were the shortcomings of WEST as a painter, much should be overlooked for the sake of the opinions which he gave the committee, and which, as he was the official head of English artists, must have carried weight.

It was, however, believed, especially on the Continent, that what really turned the scale in favour of the purchase was the advice of VISCONTI. He had been conservator of the museum of the Capitol in Rome, and NAPOLEON had appointed him to be chief administrator of the Louvre and professor of archaeology. His authority was reputed to be supreme on all questions relating to ancient sculpture. He came to England in order to examine Lord ELGIN'S acquisitions, and his memoir on them was translated and published as an official document.

It is consequently not a little remarkable to find the earliest treatise on the subject in 1816 bearing the imprint of JOHN MURRAY, Albemarle Street, as well as the latest, which is the work of Dr. A. S. MURRAY, the Keeper of the Greek and Roman Antiquities in the British Museum. A comparison of the two would serve to demonstrate the progress made in Classical archæology, as well as in æsthetics during a period of over eighty years, but we can only refer to a very few instances.

In 1816 there was an opinion, and it was expressed by WILKINS, that PHIDIAS never worked in marble. According to him PHIDIAS was called by ARISTOTLE *lithourgos*, in contradistinction to POLYCLETUS, who is termed a maker of statues, because he commonly worked in bronze. VISCONTI interprets ARISTOTLE'S criticism in an entirely different manner. He says that PHIDIAS was called *sophos lithourgos*—a skilful sculptor of marble, in opposition to POLYCLETUS, who is said to be simply a statuary, *andriantopoion*, since this latter artist scarcely ever employed his talents except in bronze. Dr. MURRAY does not attempt to define the amount or kind of work which came from the hand of PHIDIAS. He says that artist was renowned for the splendour and wealth of his imagination, and at the Parthenon his office was as director. The two writers refer to the competition between PHIDIAS and ALCAMENES, master and pupil. But while VISCONTI points to it as evidence that statues, before being placed in position, were exhibited in public for close inspection, Dr. MURRAY regards it as a proof that PHIDIAS had advanced on the same lines with his pupil, and likewise bestowed details on single figures which were not required if they were considered as parts of a great composition.

The west pediment of the Parthenon was adorned with a representation of the contest between POSEIDON, or NEPTUNE, and ATHENÉ. The drawing made by CARREY in 1674 is a record that the figures were then in a tolerably perfect condition. In the British Museum there is a torso of the statue of NEPTUNE which Dr. MURRAY describes as grand and true. VISCONTI says the style is sublime, and in the portions which have suffered the least injury the surface expresses the flexibility of the flesh. The ILISSUS, or god of the river in the plain of Athens, which is assumed to be the title of the angular figure on the left of the western pediment, is thus eulogised by Dr. MURRAY:—

He is excited by the contest of the two deities, and raises himself in his channel, pulling back his left foot and raising his right knee; his right hand has caught hold of an end of his mantle, dragging it forward, an action always significant of surprise in Greek art. The somewhat violent raising of himself has necessarily thrown the more mobile parts of the body into a confusion, which might easily have been indicated by a sculptor more expressively than here, but never with a finer conception and with just that degree of truth which is consistent with a lofty ideal. The massive bones of the chest and the ribs remain unchangeable, of course, however the body may turn. The task was to reconcile with them the easily changing forms of the abdomen. For ourselves, the way in which this has been done commands unflinching admiration.

The description by VISCONTI will bear comparison with the foregoing. The Italian wrote:—

This personage, half reclined, seems by a sudden movement to raise himself with impetuosity, being overcome with joy at the agreeable news of the victory of Minerva. The momentary attitude which this motion occasions is one of the boldest and most difficult to be expressed that can possibly be imagined. He is represented at the instant when the whole weight of his body is going to be supported by the left hand and arm, which press strongly on the earth, on which the left foot also rests. This motion causes the whole figure to appear animated; it seems to have a life which is found in very few works of art. The illusion is still more strengthened by the perfect expression of the skin, which, in several parts of this statue, thanks to its situation and position, has been better preserved than any of the others, and which one would be tempted to call perfectly flexible and elastic. If the fragment of a head with its hair in disorder, and bound with a cord or strophium, could, as a great artist supposes, be fitted to this statue, there would not, perhaps, be a more striking work among all the remains of Grecian sculpture.

The adjoining figures of the pediment still remain *in situ*, and they are supposed to represent CECROPS and his daughters with the boy ERICHTHONIOS. SPON absurdly fancied two of them to be the Emperor HADRIAN and his

consort SABINA. VISCONTI maintained the two were VULCAN and VENUS, although they would hardly be introduced in so remote a position in such a crowd. On the right side of the pediment the figures are thought to be the family of ERECHTHEUS, while VISCONTI was of opinion they represented AMPHITRITE, LATONA and her children.

The eastern pediment, it is generally agreed, commemorated the birth of ATHENÉ. Dr. MURRAY believes in a correspondence between the two compositions, viz. "a great central group of deities who were visible only to the inner eye, and two angle groups of secondary beings whom for the moment we may call merely interested spectators." Fortunately for us we possess some of the noble figures which by themselves are well worth the 35,000*l.* paid for the whole collection. One has been long accepted as a representation of THESEUS. The head is slightly defaced, and the feet and hands are absent. TAYLOR COMBE, we believe, was the first to suggest the figure was THESEUS. VISCONTI concluded it was a young HERCULES; not the popular hero, but an earlier being more ancient than ZEUS, of whom he had taken care during infancy. By others the figure was named BACCHUS, and it has also been taken for a statue of PAN. BRÖNSTED said it was CEPHALUS, the mighty hunter, the beloved of EOS. Dr. MURRAY is inclined to believe in the last theory. He points out that the proportions of the figure have been modified to suit its position. Taking "the middle line of the body to start from, we observe that the farther half is not only narrower than the nearer half, but is rendered in a quite general manner—not much more carefully, in fact, than the back of the figure, and in striking contrast with the marvellous beauty of the nearer side. Beautiful as is the structure of the bones of the right knee, which is farther away, it cannot compare with the charms of precise delineation in the bones of the left knee. Or if we measure from the collar-bone to an extreme point on each shoulder, we find a difference considerably greater than is possible in nature." It is in microscopic scrutiny of that kind that Dr. MURRAY'S book prevails over its predecessors. Having the marvels under daily observation he must be familiar with all their peculiarities. The two seated figures near CEPHALUS were taken for PROSERPINE and CERES. Dr. MURRAY prefers to consider them as two of the Horæ. The next figure, once known as IRIS, would then be the third Hora. Towards the angle to the right are three seated figures which must have been of marvellous beauty. VISCONTI assumed them to be the Fates who presided, according to Greek mythology, over birth as well as over death. But WELCKER deemed they were Parthenoi or Dew-maidens, and his view is supported by Dr. MURRAY. The reclining rather than seated figure, he says, is an object of study and admiration. He goes on:—"No wonder she has been sometimes called APHRODITE, nor that recently she has been compared with the *Aphrodite in the Garden* at Athens, by ALCAMENES, a work renowned for its elegance. She has even been claimed as herself from the hand of that favourite pupil of PHIDIAS. But whatever her charms, we must not forget that she is only a secondary figure in a great composition." Dr. MURRAY, we may add, is not opposed to the theory of the use of colour as an aid to the sculpture.

It may be only through the influence of association, but we suppose most lovers of Greek art will maintain that the metopes in the British Museum are superior to those seen elsewhere, or represented in CARREY'S drawings. The contest between the Centaurs and the Lapiths was a favourite myth with the Athenians. VISCONTI maintains that the human combatants were not Lapiths, but Athenians, who wear the same garb and carry the same shields as some of the horsemen in the frieze. He assumes that PHIDIAS was thinking of the groups painted by MICON in the Temple of Theseus, which was erected twenty years before the Parthenon. In other words, the moment selected was one where success remained uncertain. Dr. MURRAY believes that the number of metopes, in which we see only figures of women, was intended to suggest that the contest was but an isolated scene at the marriage feast. The sculpture is in high relief, and one of the figures, it was found, was attached to the background at a single point only. Remarkable skill is observable in some of them, but it is

difficult to resist the conclusion that sculptors of varying degrees of skill were employed upon the work.

It has been questioned whether the subject of the great frieze of the Parthenon is the Panathenaic Procession, and whether there was not more than one kind of procession represented. The complete frieze was 522 feet 10 inches long. If the metopes were included the sculpture extended for over 1,000 feet, in addition to the figures of the pediments. Lord ELGIN was able to obtain 240 feet 6 inches of the frieze. Several slabs have since been discovered, so that it is possible to compile a representation of 415 feet, or about four-fifths of the original work. Many of the slabs are broken at the corners. Dr. MURRAY attributes this to the fine jointing, which allowed of no play when there was a disturbance of the soil or on the occasion of the gunpowder explosion. Besides the figures in the procession and the officials acting as directors we see a number of beings who are seated. They are deities. It was pointed out by VISCONTI that numerous figures of the Parthenon resembled in pose some antique statues, and this he ascribes to the admiration for the works of PHIDIAS prevalent in Greece. Among the statues thus recalled is the broken figure known as the *Torso* of the Vatican, the *Ludovisi Mars*, the *Jason*, or *Cincinnatus*. There has been the usual divergence of opinion in designating the divinities. But to the Athenians there could be no difficulty. The beautiful boy leaning against a woman, which in Bishop WORDSWORTH'S opinion marked by its softness the turning point in Greek art and the indication of an approaching decline, is regarded by VISCONTI as ERECHTHEUS, the son of VULCAN and the Earth. But he is now generally considered to be EROS or CUPID leaning against his mother and carrying her open parasol. This parasol may seem out of place on such an occasion, but as an accessory it was useful for the identification of the goddess. The introduction of a boy god may not have been sanctioned by precedent. It was, however, effective as a link between Athens and Olympus. On looking at the procession in its present ruined state, with so many defaced figures, it is not difficult to imagine, unless we regard the figures attentively, that we have before us a grave ceremony in which elderly men bore the principal parts. But, taken as a whole, the procession is a glorification of youth, although we cannot now realise the effect it produced in its original state. How so much vigour was expressed, not only in equestrians but in oxen and horses, on such shallow slabs, is one of the marvels of Greek sculpture. The contrast with the metopes is surprising. The horses in the frieze are as suggestive of power as the bodies of the centaurs, but there is the greatest difference in the depth of marble available for the sculptors. We have also not merely a procession on one plane, but figures that are two or three abreast. As if to increase the wonder, charioteers are introduced, and while we gaze on them we are so fascinated that we do not think about the width of a chariot—and, indeed, questions of scale are entirely ignored. A modern dealer would be sceptical about the correctness of the representation of the horses, but, as VISCONTI remarks, they not only correspond with XENOPHON'S description of the horses which were most admired, but they prance and curvet in the manner considered as desirable.

To an Athenian the Parthenon would be incomplete without the statue of ATHENÉ. Tradition has established a closer connection between it and PHIDIAS than the rest of the sculpture. So much gold was employed, the sculptor was charged with having purloined a part of it. It has been calculated that the gold must have been worth at least 10,000*l.* or 12,000*l.* No figure has survived which can be assumed as a true copy of the work of PHIDIAS. But some statuettes have been found which, from their general resemblance to each other, may be taken as possessing some correspondence with the great statue. It is not a lovable ATHENÉ that is suggested by the face, but the stern features may have typified power, and given more confidence to an Athenian worshipper.

We have endeavoured to show a few of the characteristics of Dr. MURRAY'S book, by pointing out some of the differences between it and a work which was one of the means of persuasion employed by those who wished to see the Elgin Marbles remain in London rather than have them transported to Munich. But however grateful we may be

to VISCONTI, and however much we may admire the acumen which enabled him to draw so many sound conclusions from a short study of the marbles, it cannot be denied that he and his contemporaries were unable to give adequate illustrations of the sculpture. There was no draughtsman or engraver in Paris who could be as truthful as photography, and with such works truth is the essential quality. The dimensions we have given above show the enormous length of the sculpture. Incredible as it may seem, the representation of the frieze in Dr. MURRAY'S volume occupies over 20 feet on a separate folding plate. In addition are the metopes and many photographs of different parts. If it is remembered it was necessary to obtain illustrations of portions from Athens and from various other sources, it will become evident that the compilation of such immense plates was no easy task.

The Elgin collection is one of our national treasures for which we are envied, and in Dr. MURRAY'S book it is described for the first time with a detail and accuracy which can be accepted as trustworthy. KEATS, in his sonnet to HAYDON, regretted that he was unable to speak definitely of "these mighty things" and did not know where to seek what he wanted to know. With such a volume as "The Sculptures of the Parthenon" before him he would have had all the information he desired, and the pages are adapted not only for the poet and the classical student but for followers of the fine arts.

SURREY ARCHÆOLOGICAL SOCIETY.

THE annual meeting of the Surrey Archæological Society was held at Guildford on the 21st ult., when some interesting particulars were given of the excavations which have been continued during the year at the Cistercian Abbey at Waverley, near Farnham. Lord Middleton, who presided, said the task, when completed, would form the biggest and most important piece of archæological work ever done in Surrey. The Society of Antiquaries have just made a further grant towards the work, which is being carried out under the personal supervision of the Rev. T. S. Cooper and Mr. Henry Horn-castle. The most interesting discovery of the year is a second guest house of the same date as the later portion of the lay infirmary. The dimensions are nearly 44 feet by 21 feet, and the buttress bases and those of the central pillars are in excellent preservation. The building is to the west of the church and almost adjoins on to it, the entrance being on the south side, connected with a large courtyard having an important western gateway. The Society voted thanks to Mr. Rupert D. Anderson for allowing the excavations to take place, and granted a further sum towards the work.

EDINBURGH ARCHITECTURAL ASSOCIATION.

ON Saturday afternoon the members of this Association paid a visit to Darn Hall, near Eddlestone. Permission was kindly granted by Lord Elibank and Mr. John R. Menzies. The house, which dates from about the end of the seventeenth century, occupies an elevated and secluded position in a romantic glen. The surrounding grounds have been laid out with great taste, and form a most pleasing picture. The place was originally known as Haltoun or Blackbarony. The house contains many fine family portraits. The party was under the leadership of Mr. Thomas Ross, architect. Votes of thanks were, on the motion of Mr. A. Hunter Crawford, accorded to Lord Elibank, Mr. Menzies and Mr. Ross. The party having partaken of Mr. Menzies's hospitality, visited the old churchyard, where there are some interesting tombstones.

THE ST. LOUIS EXHIBITION.

IN the exhibition to be held at St. Louis next year there will be a fine arts section, to which American artists may contribute such of their works as may be selected by the juries appointed for this purpose in the United States and abroad. In view of this fact and with the desire to secure adequate representation of the works of these artists, the chief of the Department of Fine Arts, Professor Halsey C. Ives, has nominated in London a jury of selection composed of American artists. The honorary secretary of the jury would be glad to receive the names and addresses of all such artists who—residing or having studios in the United Kingdom—may wish to obtain particulars as to forms, dates and the conditions of admission to the exhibition. All communications should be addressed to the honorary secretary, American Jury of Fine Arts in London, Sanctuary House, Tothill Street, Westminster, S.W.

NOTES AND COMMENTS.

BRIGHTON is not exactly the place where we should expect to find a flourishing technical school. But the Corporation can claim that kind of success. The engineering department especially is expanding at such a rate the technical instruction committee recommend that a loan of 3,500*l.* should be obtained in order to erect a workshop 75 feet by 42 feet. In the report it is said:—"The engineering department of the school is already a marked success. Working all day and every day are about fifty students, and it has interested the committee to find that these students represent very various social grades; young men from well-known public schools, such as Haileybury and Marlborough, working alongside students from York Place School and Steyning Grammar School, with a good proportion also from our own Grammar School and from Brighton College. Sons of clergymen, officers in the army and navy, professional men and tradesmen are competing on equal terms with those whose fathers are postmen, caretakers and artisans. The cost of the students is only about 18*l.* a year in fees and expenses, and each one earns for the school about 20*l.* annually in fees and grants." There would be little opposition to technical education if local authorities followed the Brighton example. The danger at the present time is that the students are led to suppose they need only amuse themselves, and that any skill they may attain is no more than an "accomplishment."

THE annual meeting of Ordained Surveyors will be held in Edinburgh on Monday next. The report of the Council states that at a special general meeting on June 10, 1902, a communication was submitted from the examining board desiring the opinion of the Society as to whether or not candidates should be required to do all their work in the final examination according to Edinburgh methods of measuring. The meeting resolved that it was inexpedient to insist upon the work in the examinations being done according to Edinburgh methods, that the examination should be a test of the candidates' knowledge of the general principles and practice of surveying, and that the examiners should satisfy themselves that the candidates' capabilities were such that they could, if necessary, apply the methods adopted in Edinburgh or elsewhere. During the past year three candidates presented themselves in April for the preliminary examination; two passed and one failed. In October one out of three failed. At one final examination there were five candidates from Edinburgh, Inverness, Kirkcaldy and Dumfries; two only passed. On another occasion three Edinburgh candidates came up; one passed. For the next preliminary examination there are eight candidates, and nine for the final examination. It has been resolved that the schedules and notes lodged by candidates in the final examination must be entirely their own work, and not schedules prepared for and signed by someone else.

TEGEA, which is about four miles from Tripolitza, was at one time of some note amongst Greek cities. The territory lying between those of the Lacedæmonians and the Mantineans, the people were compelled to be soldiers. But they were not neglectful of the arts. The temple of MINERVA ALEA, of which SCOPAS was the architect, comprised, according to PAUSANIAS, the three orders, but differently arranged to the modern practice for Doric was below, then Corinthian with Ionic above. DODWELL found fragments of the different orders, thus confirming the accuracy of the early description. The Doric columns, of which only parts were visible, did not appear to be inferior in size to those of the Parthenon. Their preservation was no doubt due to the weight and the difficulty of the removal. The lighter columns were, it is believed, carried from time to time to Tripolitza. On the front tympanum the legend represented was the Calydonian Hunt, and on the posticum the contest between TELEPHOS and ACHILLES. By order of AUGUSTUS, the ancient ivory statue of the Goddess, as well as the tusks of the famous boar, were sent to Rome. In Tegea was also a theatre erected by PERSEUS, the last king of Macedon.

The site of the temple has been explored by members of the French school, and M. MANTEL has been fortunate in discovering several examples of sculpture which a few weeks ago he was able to describe at a meeting in Athens. At the foot of Mount Aspis, in Argos, the French explorers have been also rewarded by the revealing of two prehistoric settlements, from which several examples of pottery were derived. The cyclopean structures of Argos were often mentioned by EURIPIDES as well as by later writers. It is stated by PLUTARCH that it was by means of the subterranean passes under the Mount CLEOMENES was able to enter Argos. From some inscriptions which were met the site of the temple of APOLLO DEIRADIOTES was indicated. It is only in Crete that English researches are of much account, for the Germans and French elsewhere have succeeded in obtaining the most fruitful sites.

ILLUSTRATIONS.

ST. GEORGE'S GARRISON CHURCH, WOOLWICH.

IF ever Romanesque should be revived the late THOMAS HENRY WYATT deserves to be considered as one of the pioneers. His fine church at Wilton exemplified an early attempt to acclimatise the style in England, and the building we now illustrate was the latest. It depends for effect in a large measure on the coloured materials employed in the interior, in which there is also a concession to engineering by the use of metallic construction. The marble and the mosaic decorations are on the north and south sides of the choir, and consist of inscription tablets of emperor's red marble surrounded by margins of alabaster and surmounted by panels of enamel mosaic. Above the tablets on the west sides of the piers of the sanctuary arch are two panels in Venetian enamel mosaic, one representing the Peacock symbol of the Resurrection, the other the Phoenix symbol of Immortality. Around the arch, north and south side, one leading to the vestry and one to the organ, are twelve narrow inscription panels of emperor's red marble, each separated by circles of Florentine mosaic, and above these the spandrels of the arches are filled with enamel mosaic; on one side the grape-vine with birds resting thereon, and the other side the Passion flower, also with birds.

The whole of the work was executed by Messrs. BURKE & Co., of Newman Street, and we understand the walls of the north and south aisles are to be similarly decorated.

SHEFFIELD DAILY TELEGRAPH OFFICES, FLEET STREET, E.C.

NEWSPAPER BUILDINGS, PORTUGAL STREET, W.C.

KNOLE HOUSE, SEVENOAKS, KENT: THE STONE COURT—FOOT OF GRAND STAIRCASE.

TOM DURFEY, in one of his doggerel verses, says "Knoll most famous in Kent still appears, were mansions survey'd for a thousand long years; in whose dome mighty monarchs might dwell, where five hundred rooms are." The place has a long history. In 1456 Archbishop BOUCHIER, who purchased the property, rebuilt the house and made it his residence. It continued to be one of the sixteen palaces belonging to the archbishops, until HENRY VIII. took a liking to it because it stood on sound, wholesome and perfect ground. CRANMER surrendered it to the king in 1537. It reverted to the archdiocese, when Queen MARY bestowed it on Cardinal POLE. DUDLEY obtained it from Queen ELIZABETH, who afterwards granted a reversion to SACKVILLE, Lord BUCKHURST and Earl of DORSET. He rebuilt and extended the house, and it continues to be in the same family. The structure has been altered from time to time, and may be said to represent the changes in Domestic architecture during four centuries. HORACE WALPOLE wrote of it:—"I worship all its faded splendour and enjoy its preservation, and could wander over it for hours with satisfaction." All who have visited the place would agree with WALPOLE. To illustrate the building would require some hundreds of plates. The portraits alone would be thought sufficient to impart interest to the building.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. John Slater, B.A., vice-president, in the chair.

The Hon. Secretary announced the decease of the late Mr. J. Bond Pearce, of Norwich, elected fellow in 1879, and Mr. S. Stenton Markham, of Guildford, elected fellow in 1856 and placed on the list of retired fellows in 1897.

Mr. H. PORTER, M.A., read a paper on

Fire Prevention and Fire Resistance.

He brought forward for discussion the question not only of the number and value of methods already devised for fire protection, but also of the extent to which these were available for practical use. The fires due to mechanical or constructional causes are the only ones we can hope definitely to prevent. These are worth careful consideration, both on account of their importance and also of the large extent to which they can be guarded against. The Glasgow fire returns for the years 1876-86, *i.e.* before the introduction of the Buildings Regulation Act, give 27·8 per cent. of the fires as due to defective hearths and flues, as against 9·65 per cent. in London during the same period. Defective hearths and flues account for a large majority of fires in the country, especially in old houses. All possible measures of safety in the construction, repair or alteration of chimneys and flues in country houses should be insisted on. In old London houses, too, the flues which were sound enough for the old-fashioned open kitchen range are found defective, in respect of their withes and chimney-backs, for the modern close kitchener, which creates great and concentrated heat. Timber mantelpieces constitute another source of risk from the way in which they are frequently fitted, with the metal of the grate touching the wood. In fixing the mantelpiece there is often left a small pocket in which soot accumulates, and may become ignited. A fire had occurred from this cause in a very expensive London mansion. Wall-plugs for joinery must also be regarded as sources of danger when near flues, especially in old houses where the pargetting of the flues has worn away and the joints of the brickwork have become open. Another risk is due to the practice of boarding-up unused fireplaces, or making them the receptacles of scraps of paper and other inflammable materials, which may easily be set on fire by a spark falling down the chimney from some other flue. The Glasgow Building Act compels all such fireplaces to be stopped up with incombustible material, and the chimney-top as well.

Fire prevention is only practicable in about 25 per cent. of our present outbreaks. Fire resistance, therefore, claims our most immediate attention. The degree of perfection to which this can be carried depends not only on the building itself, but also on its contents and immediate surroundings. This has to be kept in mind, as it is useless to expect owners to spend large sums on "fireproof construction" which they are perfectly aware will benefit their neighbours rather than themselves. The two chief elements in fire-resisting construction are:—(a) The materials used; (b) the general design of the building and details of construction.

As regards building materials, good brickwork is no doubt best for fire resistance. The chemical composition of the clay is the great element in determining both the fire-resisting and weight-carrying properties of a brick, which depend chiefly on the proportions of silica and alumina in the clay, and, secondly, on the oxide of iron, lime, magnesia, potash, &c. Terra-cotta used for structural purposes may be porous or hard-burnt. The porous is made by the addition of some combustible material, such as sawdust or finely-chopped straw, to the pure clay, which is then burnt under great heat. By this means the straw or sawdust is consumed, leaving the clay in a porous state. Hard-burnt terra-cotta is made from pure clay without the addition of any combustible substance. The porous form is non-conductive of heat, but does not carry weight so well as the solid, and if the straw or sawdust has not been thoroughly burnt out of it there is danger of disintegration under the combined effects of fire and water. The hard-burnt terra-cotta has to depend greatly on the hollow spaces with which the blocks are moulded, and is liable to crack on being suddenly cooled. For the protection of girders or columns, where it has little or no weight to carry, the porous form seems the best.

Discussing the fire-resisting qualities of mortar, plaster and cement, Mr. Porter referred to a series of tests with cement mortars carried out in Chicago in 1896. From these it was deduced that concrete floors might, after a fire test, hang together under heavy loads, but they are nevertheless weakened; to what extent depends upon the duration of the heat. Cement mortar can hardly be relied upon to resist high temperatures satisfactorily. Common lime and sand mortar in small quantities has probably greater fire-resisting properties than any other plastic material, and would be a better protection than cement mortar if it were strong enough to be used to a thickness of, say, 4 inches or more.

As regards concrete, tests have been made by which the material has been subjected to as much as 1,976 degrees Fahr. for several hours, and allowed to cool slowly, and also suddenly by application of water. The concrete composed of sand, gravel, or stone mixture crumbled, or gave signs of great weakness, while that composed of cinders showed good coherence, and did not suffer by wetting while hot. The highest degree of coherence was found in a mixture of one part cement to seven of coarse cinders. The conclusion is that where concrete has been made with care and knowledge, it will bear very high temperature for a long time, even with the application of cold water.

Wrought-iron, cast-iron and steel, although non-inflammable, are not good fire-resisting materials, and must be cased in some fireproof covering. Unprotected iron may not itself suffer by fire, but its expansion under great heat may cause serious damage to the building. Steel will expand 1 inch in 125 feet for every 100 deg. Fahr.

Combustible materials for the fitting-up of buildings should be used as sparingly as possible. Shelves might in many cases be made of wire-netting supported on metal uprights; counters might be constructed on the principle of fireproof doors and shutters. The use of wood, however, cannot be eliminated altogether. Careful tests seem to prove that wood can be so treated as to be made efficiently fire resisting; that the treatment does not injure it for structural purposes, and that its effect is permanent. But the process adds about 30 per cent. to the cost of joinery in soft woods, hence it is too expensive at present for general use.

Design, construction and fittings are the most important questions in the problem of fire resistance. Errors in design and construction will cause what might have been a small fire to spread over a large area and work practically unlimited destruction. The Horne Building fire in Pittsburg, and, though less destructive, the recent fire at the Haymarket Stores are cases in point. In both buildings the fire spread through a lift shaft which served as a flue on a large scale. The problem immediately before us is the treatment of all such vertical shafts or openings in the interior of buildings.

The author went on to consider the treatment necessary for the different purposes for which well-holes are required, dealing first with well-holes and light shafts; secondly, with well-holes for stairs and lift enclosures. The use of wire-glass in iron frames for skylights in well-holes is desirable, as it helps to prevent the fire from bursting through from below or burning embers falling in from above. Wire-glass withstands not only great heat, but also the sudden cooling when water is poured upon it. It is not only admirably suited for skylights, but also for warehouse windows overlooking narrow well-holes or streets.

Judged from the standpoint of fire-resisting design, the usual position of staircases and lift shafts in mercantile offices and hotels is wholly wrong. Such well-holes should be enclosed by fire-resisting walls, with access to large floors or corridors by doorways only, which could be fitted with fire-resisting doors. The walls enclosing well holes should be carried through and above the roof in the same manner as party walls, and the skylights over should be of thick plate-glass, or preferably wire-glass. Extra fireproof doors for stairs and elevator openings are recommended. To check the rush of flame up a shaft a system of automatic sprinklers might be fitted round the sides of the opening near the roof, or perforated pipes in connection with an outside stand-pipe would serve the purpose. A staircase made of oak or teak, with 2-inch treads and risers and soffits, and the spandrels filled in solid with some hard wood, the author thought, would be found the most reliable.

Subdivision of large areas, where possible, is an important consideration. A fire in a large undivided area increases both in intensity and volume with much more rapidity than in a smaller one. Where areas are divided into rooms or offices the partitions should be fireproof.

Fire-resisting floors the author classed as (1) concrete, (2) terra-cotta or brick. Some half-dozen exceedingly severe tests have been made of concrete floors, and not one of them failed. Experimental tests show that hollow tile arches of good design and not too long span have a strength sufficient to be safe under any load likely to be brought upon them in any ordinary building; also that their resistance to fire is entirely satisfactory, except that the dense tile is likely to go to pieces if struck by a stream of water when heated.

A satisfactory fire-resisting covering for columns and girders should be a non-conductor of heat, should be able to withstand the action of fire and water, should not break away from the column under the action of fire and water, and should contain no joints through which fire could find its way. The covering may be of plaster, concrete, brick or terra-cotta. Metal lathing should only be used where plaster is adopted for the covering material, and the column should be first wrapped with asbestos lining bound with wire.

The author next described the best forms of fire-resisting par-

titions, dealing with (1) solid plaster partition; (2) hollow plaster partition; (3) terra-cotta or porous brick partition. It is most important that terra-cotta partitions should start directly upon the masonry of the floor, and the terra-cotta blocks should be of sufficient width to secure stability.

Special attention was called to the importance of protecting all openings made through floors for the passage of pipes for steam, gas, or any heating apparatus, and private apparatus as aids for fire resistance—e.g., automatic alarms, automatic sprinklers, stand-pipes and hose—were briefly referred to.

In conclusion, Mr. Porter said he had tried to bring forward one by one the main features in the problem under discussion. The more carefully we go into it the more apparent it becomes that the real problem is not to be solved merely by devising further improvements in the details of materials, construction or design. We are already admirably equipped in these respects, and modern inventions are continually adding to our resources. Fire-resisting construction involves a considerable increase of expenditure, coupled often with a sacrifice of space and artistic effect. The practical problem for architects is how best to minimise these drawbacks. A useful basis for a discussion might be afforded by giving as a subject for a students' competition the designing of a hotel, retail store or mercantile house on fire-resisting principles, having special regard to internal effect in the first two cases, and in the third to economy of space.

Mr. H. D. SEARLES-WOOD read the following report of the science committee of the Institute on the fire offices' regulations for standard fire-resisting buildings:—

In 1898, after the Cripplegate fire, a conference of architects and insurance surveyors held two meetings with a view to ascertain what reduction of premiums the insurance companies would allow if buildings were constructed under the following conditions:—1. If buildings are flat-roofed, with hard fire-resisting material. 2. If floors of iron and concrete, constructional ironwork covered with fire-resisting material, say as required by the London County Council regulations, floors connected only by staircases, which, with the landings, to be enclosed by fire-resisting material, such as cement on metal core, now much used; lights in these partitions to be sheet plate. Teak or oak doors and treads and risers. 3. Similar floors, but pierced for lift, enclosing walls of brick rising through roof, and openings on each floor protected by light iron shutters. 4. Wood floors and joists pugged 4 inches between joists with some fire-resisting material pierced for stairs, constructed as in No. 2. 5. Pugged floors as above, with lift in addition, lift enclosed with fire-resisting partitions as stairs in No. 2, and with iron doors. 6. If the lighting areas or well holes common to buildings in different occupations be carried down to the basement floors and not roofed over by skylights on the ground floor. 7. If windows in front and back wall fitted with iron sashes and frames, but left without shutters. 8. If opposing windows, within, say, 20 feet, are fitted with iron shutters or some fire-resisting material for blinds. Any other heads or points which the offices may desire to note or which are set out in existing tariffs.

At a second meeting a tariff was submitted in which a normal building with a minimum rate was given, and the rate increased to meet ten or twelve different modes of construction. This tariff appeared to be in form and principle exactly what the committee had been endeavouring to obtain from the offices, and they were strongly of opinion that if the insurance offices regulate their premiums on any principle whatever and agree upon a tariff among themselves, that it is only fair to the insurers and their advisers that such tariff with clear definitions should be available for public use, but this was not agreed to. Since this conference some rules for standard fire-resisting buildings, dated February 1902, have been issued by the fire office committee, and the science committee have given them careful consideration. The rules are numbered 1 and 2. No. 1 applies only to cotton mills, flax mills, woollen mills and worsted mills. No. 2 gives rules for standard fire-resisting buildings, not including those scheduled above.

From a careful consideration of these rules it would appear that they have been drawn up without reference to the London Building Act, 1894, and in several points the rules differ from the provisions of the Building Act.

It would greatly facilitate business if these rules could be made to accord with the Building Act, and if the fire offices committee would draw up a tariff which would be available by the public where the normal building should be the type allowed under the Building Act, with ten or twelve varieties of construction or arrangement, whereby the normal rate would be reduced.

We recommend the Council to approach the fire offices committee, to ascertain whether they would meet a committee of the Institute to discuss these rules and tariff, with a view to making them workable. It is the general experience that the rules as at present drawn do not encourage fire-resisting construction.

Mr. T. BLASHILL, in proposing a vote of thanks to the

author, said the paper contained a good deal of matter which was a repetition of principles that had been dinned into the ears of everyone for a very long time, but he thought that it could not be dinned too often into the ears of architects and those who were concerned in the construction of buildings. In alluding to fire tests, the speaker said in his own opinion the tests were valueless. A great number of the tests were made by the manufacturers of the materials which had to be tested. Secondly, the material to be tested was usually drenched in paraffin, and the result could not be accepted as a test under ordinary conditions. There was a Fire Prevention Committee which adopted this fallacious kind of test, but he advised them in future to test materials on the same conditions as they would undergo if subjected to an outbreak from fire when in position. The tests that had been mentioned concerning fireproof floors were very valuable, but the point of greater interest to architects was the behaviour of the earlier fireproof floors. Information on the subject of the modern fireproof floors attacked by an outbreak of fire would be of value. The speaker deprecated the use of wooden floors, and he hoped that time would not be far distant when they would be able to put stronger legal pressure upon constructors in order to make buildings more fire resisting.

Mr. MEAD, of the Sun Fire Office, who seconded the motion, said it was greatly to the credit of this country that the proportion of incendiary fires was small. The offices could form such an opinion not only by the number of fires themselves but by the claims made afterwards.

Mr. LEWIS SOLOMON said the insurance offices after the Cripplegate fire offered little encouragement to the owners to rebuild with fireproof materials. Different owners approached the insurance offices asking for a reduction of premium if the rebuilding was carried out with fireproof materials, but the offices would not do this.

Mr. H. LOVEGROVE said sprinklers were an enormous expense and hideous because of the cistern required. It was doubtful if they were of real value, since in the event of an outbreak of fire the lower building would be deluged with water and the contents spoiled.

Mr. G. LEWIS BAX advocated the use of concrete as a fire-resisting material, and said there was no doubt that it would be more generally used.

Mr. MAX CLARKE said all discussions on fire prevention offered two points—the destruction of the building attacked and the safety of the inhabitants in danger. No discussion was complete without considering the lives of the people who were in peril from fire, and from accidents the result of an outbreak.

Mr. JOHN SLATER, in moving the vote of thanks, said fire prevention and fire resistance were two very different things. The accidental outbreak of fire could not be prevented, but the object of architects was to make the building, so far as possible, fire resisting. Sufficient stress had not been laid upon the importance of making roofs fireproof, which gave greater security to the building and prevented the spread of fire.

VENTILATION AND WARMING.*

(Concluded from last week.)

17. Position of Inlets and Outlets.

WERE it not for the law of gaseous diffusion there would be no doubt as to the best position of the outlets. The CO_2 being the heaviest (half as heavy again as ordinary air) would fall to the floor, and its withdrawal at floor level would be a necessity. In consequence, however, of the law of gaseous diffusion and expansion of the air due to the increase of temperature at which it is exhaled, causing it to rise, it is usual in natural ventilation to place the outlets for foul air at the ceiling level. We may, however, observe the following rules:—

(a) When the air is warmed before it enters the room it should enter at about 7 feet 6 inches above floor level, on the opposite side to the fireplace (if any), and pass out at the floor level on the same side of the room.

(b) When the fresh air is warmed by being heated in the room—by open fires, stoves, radiators, gaslights, &c.—it enters cold about 8 feet from the floor, and it consequently falls to the floor underneath the foul or warmer air that has been longer in the room and which should pass out at ceiling level. In fact it all depends upon the relative temperature of the air entering the room, as that is fresher than the air that has been longer in the room; if that is warmer than the air in the room, then there should be openings provided for the escape of the cooler and denser foul air at the bottom of the room. If, on the

* A paper read before the Society of Architects on March 19 by Mr. B. R. Tucker, member of the Council; (professional) member Sanitary Institute, and late Chief Surveyor, War Office.

other hand, the air entering the room is cooler than the air in the room, then there should be openings for the escape of the warmer and lighter foul air at the top of the room.

In inhabited rooms the windows should open as wide as possible for ventilation, especially for use during the summer months by day, and the bedrooms all the year round by night, except between sunset and bedtime, during when they should be closed to prevent the chilling of the room and its contents. They should be opened only on one side of the room to prevent cross currents which would cause a draught.

Air Space per Individual.

18. Natural ventilation requires more air space per individual than is the case with artificial ventilation. If the air in rooms is to be maintained in freshness equal, or nearly so, to that of the external air, the amount of cubic space must be well considered, or health vigour and mental activity must suffer. The result of breathing impure air is lassitude and sleepiness.

London School Board requires ...	130 cubic feet per scholar.
Common lodging-houses require ...	300 " " person.
Factories and { daytime ...	250 " " "
workhouses { overtime ...	400 " " "
Barracks ...	600 " " man.
Army hospital wards ...	1,200 " " patient.
Standard for living rooms ...	1,000 " " person.
Hospital wards ...	2,000 " " patient.

In buildings occupied for only a short period at a time, such as churches, schools, &c., the air space may be smaller than in buildings occupied for a longer period.

I might mention that it is now universally admitted that heat is wholly and solely motion—rapid movements of the molecules, the degree of temperature being regulated by the rapidity of the motion. This is called the kinetic or motion theory.

Systems of Heating.

19. There are three principal systems of heating rooms and buildings:—

- (a) Hot-water pipes, low-pressure, when the temperature does not exceed 212 degs. Fahr.
- (b) Hot-water pipes, high-pressure, when the temperature is about 350 degs. Fahr.
- (c) Steam—about 350 degs. Fahr.

Heat manifests itself in three ways:—By radiation, by conduction and by convection.

Radiation—I may say that all warmed air (obtained by warm-air apparatus) is debilitating. The best means of warming is by radiation from open fires, or by hot-water coils or radiators. Radiant heat (which passes through the air without affecting it) is supposed to be conveyed by ether, a subtle element which pervades all space. It should be borne in mind that bright surfaces will not radiate so much as those which are dull, such as those produced by dull lamp black. Radiant heat does not warm the air, it simply passes through it; it, however, warms the walls and contents of the room, and these in turn warm the air. Radiant heat from open fireplaces is only suited for small rooms, as it must be borne in mind that the power of radiant heat (like that of light) is only as the square of the distance.

Conduction.—This is the mode by which heat is transferred through a body. Water, fortunately, is a good absorber of heat, which it readily gives out again, but this would be of little avail were it not for the fact that the pipes and radiators in which it is usually conveyed are good conductors of heat; they allow the heat in the water to readily pass through them to heat the air in the rooms. Whilst we are indebted to iron and other good conductors for passing heat through them, we are at the same time, for heating purposes, indebted to bad or non-conductors of heat, such as fibrous material, air, asbestos, &c., for retaining heat, so that it may be conveyed a distance without loss. Confined air between double windows is a good example of its use as a non-conductor. The glass in a single window will cool the air of a room to about the same temperature as the outside air, at the rate of $1\frac{1}{4}$ cubic feet of air per minute for each superficial foot of glass it contains, whereas the glass in a double window, having 5 inches of air between the sashes, will increase the non-ductivity by about 12 deg. Fahr., which is considerable.

Convection.—This is of great interest, seeing that it refers to the transmission of heat from the place of its generation to that of its utilisation. Convection is due to expansion. In the case of water when heated the heated particles begin to expand and being lighter they ascend, and the colder particles being heavier they descend. By this means we get what is termed circulation, or motive-power, both in the hot-water and steam-heating systems.

We will now consider the various modes of warming.

Open Fireplaces.

20. The domestic open fireplace is the most popular. It acts chiefly by radiation. It is extravagant, as much of the

heat passes up the chimney; at the same time it acts as a good ventilator, consequently no inhabited room should be without a fireplace. The Teale slow-combustion grate and others of similar construction are an immense improvement on the register and similar patterns. Fireplaces should be placed in the inner walls of houses, where they warm the house generally.

Closed Ventilating Stoves.

21. These stoves are of great service in large rooms; they are more economical in fuel than open grates, and they distribute the heat much more satisfactorily. They are apt to get too hot, and by so doing burn the organic matter in the air and so produce an unpleasant smell. This description of stove should be lined with firebrick and have air-channels formed in it for heating the fresh air with which it should be supplied by means of a duct communicating with the external air.

Gas Stoves.

22. These stoves have come largely into use. They generally consist of a Bunsen burner which heats lumps of asbestos until they become incandescent. Until gas is supplied at about 1s. 6d. per 1,000 cubic feet (which it could be if required for heating purposes only) heating by gas stoves must be more expensive than by coals. Gas stoves should never be used unless they have a proper flue for removing the products of combustion. They are cleanly and very convenient.

Ventilating Grates.

23. These grates have an open fire and are constructed on the most approved principle; they have a chamber behind for warming the fresh air which is supplied by a duct connected with the external air. The air when warmed in the chamber is conveyed up a flue passing up beside the smoke flue, and escapes through a louvred opening in the chimney-breast. Galton's grate used in barrack-rooms is on this principle. They are most economical in fuel, as all the heat generated in the grate is utilised in warming the room. A certain quantity of heat, of course, passes up the chimney, but that is of service in assisting ventilation by causing the vitiated air to pass more freely up the smoke flue. As they warm only half the fresh air admitted into the room, they cannot over-heat the air generally so as to render it too dry.

Hot-Air Apparatus.

24. In this system the fresh air is admitted into a chamber (generally placed in the basement) where it is filtered and warmed by passing it through a stove, which should be of large area and moderate temperature rather than small, requiring a high temperature which would render the air too dry. After being warmed it is conducted along ducts of proportioned sizes and discharged through grated openings in the floor of the room. This method of warming is sometimes adopted in halls, churches and similar buildings. It is difficult to insure a uniform distribution of the air throughout the building. It requires great attention to prevent over-heating, by which the air would be rendered too dry for breathing. The warmed air is liable to some pollution by being conveyed through dusty ducts or channels on its way to the outlets in the floor. There is another and greater objection to this system of warming, it is that the air is warmer than the walls and furniture, consequently the bodily heat of the occupants is radiated to these, causing, as a consequence, a sensation of draught or chill, whilst the bodily resistance to chill is reduced by the enervating effects of warmed air. To insure the proper working of this system it should be assisted by hot-water pipes and radiators for the purpose of heating the surfaces of the walls and windows.

Hot-Water Low-Pressure.

25. This apparatus consists of a boiler usually placed at the lowest position; from the boiler cast-iron circulating pipes from 2 to 4 inches in diameter pass round the portions of the building to be heated. The principal circulating pipes are called "flow" and "return"; the former convey the heated water from the boiler, and the latter return the cooled water back to the boiler to be reheated. From these pipes the supply pipes to coils and radiators are connected. A supply cistern is placed at the highest point, to replenish any waste in the water and to admit of its expansion when heated. The water is seldom heated above 180 degs. Fahr., and never beyond 212 degs. Care should be taken to remove all air in the pipes by means of air vents or taps. This system is the most general in use; it is safe and efficient, easily worked and economical. It supplies a moderate wholesome heat, and there being a large body of water, the heat is more uniform than in any other apparatus. This system is the only one suited for horticultural buildings.

Hot-Water High-Pressure.

26. This apparatus consists of a continuous circuit of stout pipe, having an internal diameter of from $\frac{1}{8}$ to $\frac{3}{4}$ of an inch, according to the extent or magnitude of the installation. One portion of the circuit, from one-twelfth to one-sixth of its length

according to circumstances, is formed into a coil, which is placed in a stove or furnace, by means of which the apparatus is heated; the remaining portion of the circuit is distributed throughout the several rooms to be heated. The water when heated flows from the top of the coil in the furnace to the highest point of the building, and from thence back to the bottom of the coil to be again heated. Provision is made for the expansion of the water when heated by the insertion of an expansion tube at the highest part of the circuit. This expansion tube is so proportioned that it prevents an undue pressure on the pipes, which might cause them to burst. The expansion tube should equal about one-tenth the capacity of the pipes. The pipes are filled with water and then sealed up and tested to about 2,500 lbs. to the square inch. In practice they are often heated to 350 deg. Fahr., or 9 atmospheres, about 135 lbs. to the square inch.

The advantages of this system are that the pipes are small and neat and may be placed in positions where the larger low-pressure pipes could not be admitted for want of space, such as behind skirtings or in narrow spaces beneath windows. They can also be used for heating apertures for the admission of fresh air in almost any position not possible for larger pipes. The heat by this system is quickly raised in consequence of the small quantity of water it contains, and of course as quickly lowered should the fire slacken. This system is especially suited for drying-rooms and for japanning works. It is not suited for horticultural buildings. All hot-water systems have the advantage of supplying any modified temperature that may be required to suit the varying requirements that exist during spring and autumn.

Heating by Steam.

27. Although this mode of heating may not for general purposes be preferred to heating by hot water, at the same time it is especially suited for very high buildings, where the pressure of heating by water would be too great. Heating by steam is quick in its action; at the same time, should the fire slacken the heat quickly diminishes. Not so with the hot-water low-pressure system, where the heat is more retentive. Heating by steam is more difficult to regulate than by hot water. It, however, has one advantage, it is frost-proof; from the moment it ceases to act the pipes and radiators at once become empty. It is a very economical and useful mode of heating in factories, where the exhaust steam from the engine can be utilised. Heating by steam is very largely used in America. It has a great advantage in that it is suited for groups of buildings that may be considerably scattered or distant from the source of heat. The difference in volume between water and steam allows of smaller pipes, radiators, &c., being used in the case of the latter; consequently it is cheaper to instal. It is important to note that 1 cubic foot of water will produce about 1,600 cubic feet of steam at atmospheric pressure; also to bear in mind the important peculiarity in the quantity of heat required to produce steam—known as the latent heat of steam. To heat water from zero to the boiling point at atmospheric pressure requires 212 degs. Fahr., but to convert the water from boiling point into steam requires four to five times as much heat, although the steam will not appear to possess an increased temperature; however, on its being condensed to water, this latent or hidden heat is given out again and renders good service in the heating of buildings. The heat of the steam is utilised for the purpose of heating by its being condensed to water in radiators. The position and size of the radiators should be carefully considered; they should be placed under windows and in other positions where the greatest amount of cool air emanates. Care should be taken that the condensed water can freely flow back to the boiler, and attention should be given to details, as regards air in the pipes.

Calculating the Surface of Radiators and Pipes.

28. In calculating the superficial area of the pipes and radiators required to heat a room or building, both for hot water and steam, it is important to take into account the area of the glass in the windows, together with the cubic capacity of the room, at the same time taking into consideration the quantity of fresh air admitted per hour, thickness and nature of the walls, &c., and whether the building is exposed or not.

Small Rooms.

29. Open fireplaces of the modern slow-combustion type.

Large Rooms.

Open fireplaces having ventilating grates of the Galton type, assisted by radiators and also by coils placed in cases under the windows. Open stoves of the ventilating type might be substituted for the open grates if preferred.

Churches, Public Halls, &c.

Hot-water low-pressure, if practicable, employing radiators (enclosed in cases if desired) placed under windows and in other places where cool air is met. The heating of churches

and similar buildings requires great care. Usually the heating is by pipes inserted in ventilated trenches, situated in the aisles, and covered by iron gratings flush with the floor. The objections to this mode of heating are—at least 20 per cent of the heat is lost, resulting in a waste of fuel to that extent; also the open gratings admit quantities of dust and dirt, which lodge on the pipes, where they become burnt and so render the air insanitary. A more economical and better arrangement would be to heat the building by indirect radiators placed above the floor. Some should be placed in recesses in the outer walls; flues should be formed from the recesses to the sills of the windows above for the purpose of warming the glass in the same. The large west windows of churches would probably require two radiators of 100 feet superficial heating surface each. The clerestory windows might be heated by a pipe (high-pressure), supported upon a label moulding hollowed out for the purpose. Draughts in churches and similar buildings, which are so frequently the cause of a serious complaint, might be practically abolished if attention were paid to the warming of the glass of the windows, so that it practically offered the same resistance to the cooling effect of the outside air as do the solid portions of the walls of the building. Other indirect radiators should be placed in convenient positions so as to produce sufficient heat to satisfactorily warm the building. The hot-water high-pressure system should be employed in situations where space will not permit of large pipes or radiators being placed. Very high buildings and those placed at a distance from the source of supply of heat should be heated by steam, it being more economical and convenient.

THE RHIND LECTURES.

THE subject selected for this year's course of Rhind Lectures in Edinburgh is "Secular Buildings erected in Scotland from the Earliest Period to the Seventeenth Century." Mr. Thomas Ross, architect, and one of the authors of the works on the Ecclesiastical Architecture and the Castellated and Domestic Architecture of Scotland, is the lecturer. In his first lecture, he said the examples for the very early part of the subject were necessarily incomplete and fragmentary. There were probably no remains of pre-Roman dwelling-houses in Scotland, but there was evidence of great tomb structures, and the opinion was that these were a reflex of the houses. Although the dwelling-houses had thus perished, it was quite possible, and highly probable, that they survived in modern instances in remote places. The earliest surviving type of human habitation built of stone was probably the beehive house, of which there were several examples in the Western Highlands. They were of small size, 7 or 8 feet in diameter, and of a height sufficient to stand upright within, access being obtained by creeping in by the small doorway. An example of an early house from the Long Island showed a group of what might be called twelve beehive houses grouped together, some of which looked like single-roomed houses and others apparently of larger size. Another remarkable group, in the Bay of Skail, Orkney, consisted of a number of rooms or cells knit on to what seemed a common passage, and a modification of this existed at Stanabreck, North Ronaldshay; while at Howmae, in the same locality, there was a complicated plan of what appeared to have been two houses with some separate cells, a workshop and two places for cattle. It was evidently such places, as those that they found referred to by travellers in the North and in the South during the sixteenth and seventeenth centuries, although the examples cited were of greater antiquity. These houses had all a uniform construction, built on the surface of the ground, and with stones without lime or cement, and have converging walls and roofs of stone slabs. Drawings of several tombs and cairns were exhibited and described. Maeshowe, one of the larger chambered tombs, was a building of considerable architectural merit, and it was of great interest to know, from inscriptions, that certain Crusaders returning from Jerusalem to their homes in the North evidently took refuge within this place, and possibly it was pillaged by them, as nothing disclosing the original condition of the place was found when it was opened in the nineteenth century. The lecturer concluded with a brief reference to the underground houses found scattered over Scotland, principally on its eastern side. These kind of houses, he said, were well known, and their uses had been described by Tacitus.

In the second lecture it was stated, says the *Scotsman*, that the next group of prehistoric buildings to be described was that of the Brochs. They were the most outstanding and distinctive of all the early buildings, whether regarded from their size, their identity of plan, their great numbers, their distribution, or the almost total oblivion in which they were involved until about the middle of last century, when their remains began to be investigated. There were somewhere about 400 of them north of Loch Ness, and about half a dozen in the south.

They were thus mostly situated in the part of Scotland which was for several centuries under the power of the Northmen. The sameness of plan was remarkable. It was that of a circular tower, about 60 feet in diameter with walls about 15 feet thick, and their height was probably about 50 feet. There was one entrance on the ground level with one or more closing doors, fairly wide and high for a Celtic building. The interior was open to the sky, with a few small chambers in the thickness of the wall on the ground level with very small doors. The wide entrance on the ground floor indicated a provision for flocks and herds, and the small openings to the chambers seemed to show that they were excluded from them. Above these chambers a series of galleries, about 5 or 6 feet high, in the centre of the wall were continued round the structure, with a continuous stair in the centre, winding round from gallery to gallery. They were entirely built of stone without lime or cement. They represented great skill and labour in construction and a powerful Government able to impose such a great scheme of defence upon the inhabitants of an extensive area. It was now the universal belief that the Brochs were built as places of safety to which the inhabitants could fly on the approach of the ravaging Norsemen. They were peculiar to Scotland, no other people ever having built such defences. This era appeared to have been some time after the departure of the Romans. Roman architecture in Scotland could not be regarded as prehistoric in the sense in which the buildings hitherto referred to were. Still they had no mention of the erection of any works except purely military ones. Of course there was the express statement of Tacitus that Agricola in his first winter in the north induced the natives to erect temples, courts of justice, &c., but it was difficult to attach any express meaning to such a statement. With one solitary exception there was little evidence that the Romans erected buildings here of any architectural pretension till the Society of Antiquaries of Scotland began their investigations some few years ago. Altars and carved stones were numerous, but plans of buildings and precise descriptions were few. Now they had ground plans sufficient to show that they erected many and great buildings, some of which must have possessed distinct and pronounced architectural features. The exception just referred to was Arthur's Oon, or oven, which stood two miles north of Falkirk. It was destroyed in the eighteenth century, but had been described and illustrated by Gordon and Stukeley. The latter pronounced it to be the grandest Roman monument in Britain. It was a circular building, 29 feet in diameter, with a dome roof, and rose to a height of 22 feet. Of course, no such perfect building need be looked for now. All that could be expected were ground plans, with individual stones, moulded or carved—evidences of architecture—and of these all the camps excavated had yielded proof. The kind of buildings which might be expected to be found in the Scottish camps were now pretty well known, as they occurred with considerable regularity in all those excavated. There was the so-called pretorium in the centre, of possibly about 100 feet square. Flanking this on each side a long and narrow buttressed building—the granaries—and beyond each of these was another large squarish building, the whole frontage of these five buildings extending to about 400 feet. There was throughout all the camps a general agreement in the internal arrangements of these respective buildings, indicating a regular official mode of laying them out, as well as of the defences of the camp. Besides these stately edifices there were rows and rows of what were probably soldiers' quarters, extending to from 100 to 200 feet in length. These were sometimes constructed with stone walls and sometimes of timber. In almost all the camps many other buildings supposed to have been villas and baths had been found, a remarkable feature of which was the almost constant presence of apsidal-shaped rooms, several apses occurring in the same building. Many very complete hypocausts, with their pillars sometimes constructed of monolith dressed stones, and at other times of thin brick 8 inches square, had been unearthed, with their tile floors, and flues for conducting heated air; and in one instance—at Inchtuthill—a perfect bath, with its steps graduated and lead escape pipe. Inchtuthill was the furthest north Roman house yet found in Britain, situated north of the Tay, in a very perfect condition, and built in a substantial manner. Its discovery seemed to widen the field for future exploration. A remarkable find lately of architectural details, consisting of stone columns, carved and moulded capitals and bases, raised the hope that our knowledge of Roman buildings in Scotland might yet be considerably advanced. Although little more than a beginning had been made in the study of the Roman occupation of this country by an examination of the sites, sufficient had been done to show that it was only by this method that they could hope for any increase of knowledge on the subject, and many were looking eagerly forward for the results of excavations now on hand.

In the third lecture, having described the various kinds of buildings erected in Scotland in prehistoric times, of which there were no written accounts, the lecturer proceeded

to trace the progress of castle building during the Mediæval period. William the Conqueror secured and held his position, he said, by his rapid movements, and by the construction of temporary castles of timber and earth. Few castles of stone and lime were erected till about thirty years after his death, and most of the Norman keeps in England were built between, say, 1120 and 1180. These castles were built by the usurping Norman lords to defend their conquests, and were thus the outcome of circumstances which did not arise in Scotland. David I., whose reign of thirty years occupied most of the Norman keep building period, had no need of Norman castles to overawe his subjects, and the many Norman families who then came to Scotland appear to have met with little opposition. David was a great church builder, but not a castle builder, and during the twelve years' reign of his son Malcolm the theatre of events was outside the region where Norman influences prevailed, and the country being then in a state of comparative peace, Norman castles were not required, and the period of their duration in England was by this time almost past, and thus it came about that there were no Norman castles in Scotland, so that the first period of stone castle building in England was a blank in Scotland. But as a modified kind of Norman keep ultimately came to be a favourite with the nobility of this country, the plan and arrangements of Norman keeps were explained. While this period of castle building prevailed in England and Ireland also, and nothing similar was going on in this country, it might be asked what kind of castle was in use in Scotland, as, with such a state of society as the twelfth century presented, castles of some kind must have existed. In 1180 there was a reference to the "King's castle of Heryn" having been surrendered to his enemies. This had been identified as Dundurn, a rough, rocky hill at Loch Earn, which, strong by nature, had been rendered more so by the erection of thick uncemented walls. There was nothing about the place having any resemblance to a Mediæval castle, and yet it was called "the King's castle." No other kind of castle except the forts, moats and, it might be, the brochs could have been in use in Scotland during the twelfth century. Considerable light was thrown on the early castles of Scotland by the Bruce and Wallace, and when built of stone this circumstance was always emphasised so as to distinguish them from castles built of "tre." There were many references to strengths and bridges made of timber. Thus, in the Wallace, "a strength thar was on the watter off Cre, within a rock, rycht stalwart, wrocht off tre." From the detailed description which follows, there could be little doubt but this was a wooden castle, partly surrounded by the river and partly by a ditch. Wallace "brak doune the strenth, bath briggs and bulwark all out over the rock, thai gert the temyr fall." Barbour also tells how Earl Douglas set ingenious wrights to construct a "fayr maner," which successfully resisted a siege. Again, there was Blind Harry's description of the taking of the fortified place of Rannock:—"Thus entryt thai within a little space. The yett thai wan, for castell was thar nayn; but mudwall werk, withoutyn lym or stayne." These and many other examples showed how late in the history of this country castles of this kind prevailed, even after the custom of building stone castles had been introduced. Both kinds of castles were familiar to Barbour and to Henry. The former tells us how Lord Soulis was sent "Till his pennance to Dumbertane, and deit thar in a tour off stane;" and Henry says of Wallace that "Agaynis him in Galloway hous was mayne except Wigtoun, byggyt off lyme and stayne." It was thus evident that it need not be assumed that a reference to a castle in the twelfth century in Scotland meant a stone-built structure—the probability being that it did not—and not perhaps till the thirteenth century did stone castles come to be erected in Scotland, and of the type which succeeded the Norman keeps in England, known as Edwardian castles. These were the castles of our first period, and might be briefly described as strongly fortified camps defended by stout, lofty walls and towers. Castles of this type were built in great numbers throughout the West Highlands and islands, and had been vaguely written about as of Scandinavian origin, but they quite agreed in principle and detail with the Edwardian castles of the mainland and of England, so that they were Scottish castles. Attention was drawn to the extraordinary personal and jealous care shown by Edward I. in everything regarding the castles of Scotland, and that he put his trust of holding Scotland largely in them.

The Inscriptions have been completed on the pedestal of the Boadicea group, set up at the end of Westminster Bridge. On the front has been inscribed, "Boadicea (Boudicca), Queen of the Icenæ, who died A.D. 61, after leading her people against the Roman invader;" whilst on one side is "Regions Cæsar never knew Thy posterity shall sway," and on the other, towards the Embankment, "This statue, by Thomas Thornycroft, was presented to London by his son, Sir John Isaac Thornycroft, C.E., and placed here by the London County Council, A.D. 1902."

ARCHITECTURE AT THE SCOTTISH ACADEMY.

THE architectural drawings and kindred works, says the *Scotsman*, are suitably housed this year in the small octagon, which is now perfectly lighted by the removal of the obscuring glass in the cupola. For the first time in the history of the Royal Scottish Academy the Council permitted the architects to be represented by photographs of their works; and of this concession several have availed themselves. It is not at all unlikely that photography will supersede the elaborate perspective drawing which has hitherto been in vogue at exhibitions of architecture. The most prominent object in the room is a model in plaster, reinforced by coloured drawings on the walls, of the design sent in by Sir Rowand Anderson to the national competition for a memorial to the late Queen Victoria. That it was not accepted was not due to any defect in the design, which is of a truly Imperial character, but simply because something else caught the eye of the adjudicators. The design has a certain grandiose character appropriate to a memorial which was to represent the might of empire in the Victorian era. It is essentially an architectural conception, with which has been happily combined the art of the sculptor. The central feature is a massive pedestal, rising out of the square into the round, with groups on projections at the angles representing the army and navy and the arts of peace. Higher, and clustered round the pedestal, are figures symbolical of those jewels of the British Crown, India, South Africa, Canada and Australia, while on a broad band near the top is a circle of lions in relief, representing the growing colonies. The whole is appropriately crowned with a figure of the late Queen, with her hand on the head of a lion. The memorial is approached by a flight of steps, and is set within a low, circular, balustraded wall, on which historical figures are placed at intervals. The drawings on the walls show how, in connection with the central design, it was proposed to treat the approach to Buckingham Palace. The design, with its fine breadth of conception and its many interesting details, has attracted much notice. Mr. Hippolyte J. Blanc sends the elevation for the property at present being reconstructed at 60 Princes Street, which promises to be a further adornment to this fine thoroughfare. It has a Renaissance front, the decorative effect being secured by the use of mullioned and transomed windows, and by finishing it off with a gable top. Mr. G. Washington Browne contributes a case of photographs showing a group of executed works which have commended themselves not less by their agreeable design than by their adaptability to the purposes for which they were built. These include the Sick Children's Hospital, the Edinburgh Public Library, Redfern, &c. Mr. John Honeyman exhibits a design for a Gothic cathedral, with square tower rising over the intersection of nave, transepts and choir. It is well proportioned, though the details are not all of equal merit. He also shows a drawing of Skipness Castle, Argyllshire, in the Scottish Baronial style, which constitutes a fine group. Mr. John Kinross shows views of dairy buildings at Manderston which suggest the thought that the cattle there must be very elegantly housed. The work is of an academic order. Excellent photographs are shown by Mr. William Flockhart, a London Scotsman, of the mansion-house of Rosehaugh, Avoch. This handsome pile is in the picturesque château style of architecture. The prominent feature of it is a central tower with high-pitched roof, around which is grouped in an effective manner the rest of the building, which shows well-arranged terraces and balconies and quiet spaces between the transomed windows. The building altogether is admirable in its conception and details. The Associate-elect, Mr. R. S. Lorimer, sends a case of photographs of his work. One of these gives a view of a simple, well-proportioned house, with the decoration neatly applied; another is a pleasing view of the interior of the Church of the Good Shepherd, Murrayfield, and the rest of the photographs show artistic treatment of domestic interiors. The Erskine United Free Church, Burntisland, is an agreeable Gothic design by Mr. J. B. Wilson; the Carnegie Library, Coatbridge, is a compact, Classic building by Mr. A. Cullen. One is not very much in love with the elevation of the Bruntsfield Higher Grade school, Warrender Park Crescent, by Mr. J. A. Carfrae, and may hope that it will work out better in stone and lime. The new offices for the Glasgow Parish Council and the competitive design for the Springburn Hall, by Messrs. Thomson & Sandilands, Glasgow, are both ornate Renaissance buildings. Messrs. Dunn & Findlay show sections of the bold and effective architectural and sculptural treatment they are putting upon "The Scotsman" buildings. Messrs. Hamilton, Paterson & Rhind exhibit a picturesque design for a summer residence at Dunbar, with a nice verandah and an effective disposition of the gables. Mr. J. A. Campbell, Glasgow, has an attractive case of photographs of artistically treated interiors of dwelling-rooms, and of the fitting up of a billiard-room, in a luxurious style.

Messrs. Honeyman, Keppie & Mackintosh, Glasgow, show a boldly treated warehouse front; Mr. A. N. Paterson, Glasgow, drawings of houses in a pleasing style of modern Scottish, and photographs of the carriage porch at Auchendennan, Dumbartonshire, which does not strike one as being in so perfect taste as the interiors of the same mansion-house. Messrs. Simon & Crawford sent flat drawings of a house at Peebles, nicely proportioned in its parts, and to which a decorative aspect has been given by mullioned windows, dormers and red-tiled roof. The winning design for the Tite prize of 1901 is exhibited by Mr. Walter Fairbairn. It takes the form of a massive Classic arch with flanking arcade, and is a pleasing study in proportion and grouping. Mr. R. F. Sherar, Edinburgh, exhibits the accepted design for the Queen Victoria Memorial, Allahabad—a bold and striking work, with arched and groined base, campanile tower and crown cap. It is apparently to be executed in grey stone with coloured bands. Messrs. Cooper & Taylor exhibit their pleasing design for the new offices of the Queen's Rifles Volunteer Brigade, Forrest Road. Among work in colour shown is a drawing by Mr. Scott Morton, of St. George's Chapel, Windsor, with the details of the stalls and roof set off by the gay colours of the banners of the knights. There are also coloured designs for the decoration of the banqueting-hall of the Glasgow Municipal Buildings by Mr. W. Leiper, and of pleasing interiors by Mr. Andrew Ednie, Mr. John Ednie and Mr. A. W. Lyons.

ART FRAUDS IN LONDON.

IN a letter to the *Times*, Mr. John MacWhirter, R.A., writes:—The paragraphs in the *Times* of Monday last, headed "Alleged Art Forgeries in Paris," suggested to me that it is time to expose certain art frauds in London and England generally. I will speak of landscapes only. For years I have known that there must exist a sort of manufactory of spurious pictures. I myself have seen dozens; but there are hundreds of copies or imitations of works by Turner, Constable, Corot, Müller, &c., sold as genuine, and many of these in well-known collections in London, Glasgow, &c. Müller (being second-rate) is perhaps not so much mimicked as the greater men. But the Corot and Constable frauds are notorious.

Turner, the greatest of the landscape-painters, is not easily imitated—his subtle qualities, his refinement and exquisitely suggested detail are far beyond the reach of the imitator—nevertheless there are plenty of attempts.

Corot's early works are thorough, highly-finished and precise (as the early works of all artists should be). His later works are always charming, graceful, fluent and full of light. Nevertheless, they can be easily imitated in a flippant way. The copies, of course, have not the light touch and the silvery light. The forgeries of this master are extremely numerous.

Constable, especially in his later works, used the palette knife freely and glazed over broken colour. This sort of thing is easily mimicked by a clever rogue. These things are sometimes very clever, sometimes clumsy; but in all cases the fraud can be detected by a nature lover. The obvious want of knowledge of tree growth and plant life gives them a coarse and ignorant look—a contrast to Constable's masterly way of making clouds move, trees grow and plants live. He was a student of nature all his life (see the beautiful pencil drawings of trees, &c., in South Kensington Museum).

Very likely, in spite of this warning and more that I could add, collectors will continue to buy "deceased masters," real and sham, with closed eyes as long as it is the fashion, and so-called art experts will advise.

I hope a capable figure painter will follow this up.

HISTORICAL CONGRESS AT ROME.

THE *Times* correspondent in Rome, writing on March 28, says:—The principal subjects for discussion at the International Congress of History, which is shortly to be held here, are as follows:—The teaching of history in different countries and in different grades of schools (speakers, M. Fredericq for Belgium, M. Blok for Holland, M. Gertz for Denmark, Herr Bresslau for Germany, MM. Monod and Sagnac for France, Señor Altamira for Spain, Mr. Putnam for the United States, and others). There will also be discussed at session 1 a proposal for an international association for the publication of Greek *papyri* (speaker, G. Vitelli), Latin lexicology (speaker, Ramorino), bibliography of Greek and Latin classics (speakers, E. Stampini and R. Sabbatini); session 2, proposal and agreements for a *Corpus Inscriptionum Italicarum* (speaker, Father Novati), proposal and agreements for a *Corpus Chartarum Italicarum* (speaker, L. Schiaparelli), the institution of a Venetian-Levantine museum (speaker, G. Gerola); session 3, literary, bibliography (speakers, A. D'Ancona and

Fumigalli); session 4, first group, the Bronze Age, the Mycenaean period, Venetian-Illyrian civilisation, the drawings of antiquity, ancient geography of Italy (speakers, Colini, Orvi, G. Ghirardini, R. Lanciani, L. Pigorini); second group, the use of national languages in the inscriptions of coins (speaker, S. Ambrosoli); the arrangement of collections of coins (speaker, S. Ricci); third group, the history of art (speakers, Venturi, Apolloni and others); fourth group, editions of the *Scriptores Musici* (F. Ramorino), museum of dramatic art (L. Rasi), questions concerned with the teaching and the bibliography of musical art (Tabaldini and Villanis); session 5, the new historical methods applicable to the evolution of modified law (Saleilles), the practical organisation of a course of history of law (Altamira), functions and limits of law history in academical teaching (P. del Giudice); session 6, the preparation and publication of an historical atlas of Italy (G. Dalla Vedosa); session 7, *Corpus* of the Byzantine philosophers (L. Stein), the application of present historical ideas to the history of philosophy (G. Barzellotti), the most efficacious means for promoting monographs on the history of the philosophy of the Renaissance (F. Tocco), what were the reasons for the departure of Buddhism from India, and how it was received by populations of a different race, like the Mongolian, exercising such an influence on them as to modify their primitive tendencies (C. Puini), the contribution of Italy to the critical edition of the Mahabharata (P. Pavolini); session 8, the use of Oppolzer's rule of eclipses in verifications of an historical character (E. Millosevich), bibliography of exact sciences (P. Giacosa), in what manner and measure can the history of exact sciences become a subject of university courses (D. Barduzzi, G. Loria and P. Giacosa).

THE ROYAL ACADEMY.

A CORRESPONDENT of the *Glasgow Herald* writes:—A number of statements, purporting to be authoritative, have within the past week or ten days appeared in print to the effect that the Royal Academy has as a body definitely determined to reduce the number of works which non-members can submit for the consideration of the selecting committee. Far and wide the tidings have been accepted as of a *fait accompli*. That a change in this direction is inevitable, if only to reduce somewhat the unnecessarily arduous labours of the Council each spring, that for long it has been contemplated, that recently definite shape has been given to the proposal—these are matters of more or less common knowledge. On the other hand, the projected change, despite all announcements to the contrary, has not as yet taken definite shape. The Council of the Royal Academy consists this year of the two latest elected R.A.'s—this is the invariable custom—Messrs. G. F. Bodley and G. J. Frampton, as well as Sir Laurence Alma-Tadema, Messrs. T. G. Jackson, Val Prinsep, J. W. Waterhouse, Henry Woods, W. F. Yeames, and the Scotsmen, John M'Whirter and W. Q. Orchardson. The foundational truth in the published statements consists in the fact that this Council has passed a resolution to the effect that "outsiders" shall be permitted to send in two works only, instead of eight as heretofore; that members and associates shall be entitled to exhibit six works only, instead of eight. But the resolution does not become operative until it has been further ratified, as will be seen from the following clauses, which form part of the "instrument" of the Royal Academy:—

"All laws and regulations which may from time to time be made by the Council shall be confirmed at a subsequent meeting of the Council before they be presented to a general assembly of the Academy for their consent."

"If at a general assembly of the Academicians five members object to any law or regulation made in the Council for the government of the Society they shall deliver their objections in writing, signed with their respective names, which done, the law or regulation objected to shall be referred to the Council to be reconsidered."

In addition to the assent of the general body of members and associates, moreover, the formal concurrence of the King, accorded by his signature, is necessary.

Between the "thick and thin" upholders of the Royal Academy, on the one hand, the critics who assail it, no matter what it does or what it refrains from doing, on the other, unbiassed observers are somewhat mystified. A few facts in connection with the projected change are not, then, out of place at this moment. The public announcement of the inaugural exhibition of the Royal Academy was issued in March 1769 and dated from the erstwhile auctioneers' chambers in Pall Mall, near Old Carlton House. It ran as follows:—

"The President and Council give notice that their exhibition will open on April 26 next. Those artists who intend to exhibit with the Academicians [not till later were associate members admitted] are desired to send their several works to the Royal Academy, in Pall Mall, on Thursday, April 13, or

before six o'clock in the evening of Friday, the 14th, after which time no performance will be received. N.B.—No copies, nor pictures without frames, will be admitted." Of the 136 works brought together no fewer than 57 were by outsiders. An apology was published anent the charge of 1s. made for admission. It was the desire of those responsible for the conduct of this institution, "supported by royal munificence," to make exhibitions free, but in order that the rooms might not be filled by "improper persons to the entire exclusion" of those for whom the show was intended, the 1s. entrance fee was charged. It remained open for four weeks and four days, and the receipts amounted to 699*l.* 17*s.* 6*d.*, leaving a surplus of 583*l.* 3*s.* 4*d.*, out of which grants amounting to 145*l.* 1*s.* were made to 26 artists unconnected with the institution. This demonstrates that the Royal Academy in the first year of its existence was generous in its acceptance of work by non-members and in the distribution of its profits. At the second exhibition of 1770, of the eleven works omitted for lack of space eight were by Academicians who waived their privileges to make room for others—among their number was Paul Sandby. The receipts amounted to 971*l.* 6*s.*, out of which grants of 173*l.* 5*s.* were made, albeit this left a net deficiency of about 725*l.* defrayed from the privy purse of the royal founder. Perhaps the most noteworthy incident connected with the refusal of a picture—at any rate in the earlier days of the Academy—is that which caused Dr. Johnson on April 12, 1783, to write to his friend, Sir Joshua Reynolds, and to James Barry about Mr. Lowe's "The Deluge." The first-named letter is worth quoting:—

"Sir,—Mr. Lowe considers himself cut off from all credit and all hope by the rejection of his picture from the exhibition. Upon this work he has exhausted all his powers and suspended all his expectations, and certainly to be refused an opportunity of taking the opinion of the public is in itself a very great hardship. It is to be condemned without trial. If you could procure the revocation of this incapacitating edict you would deliver an unhappy man from great affliction. The Council has sometimes reversed its own determinations, and I hope that by your interposition this luckless picture may not yet be omitted. JOHNSTON."

Johnson's advocacy was effective, but the unfavourable judgment of the Council was confirmed by the public when they saw the canvas in an empty room at Somerset House, where, from 1780 to 1867, the annual exhibitions were held.

The table which follows shows the number of works included in the first twelve exhibitions of the Academy, and thereafter in those arranged at the opening of each decade up to the present time, as well as in 1889, when high-water mark as to numbers was reached. In a few cases I specify the nature of the works and the number rejected.

Year.	Pic- tures.	Water- colours and mini- atures.	Archi- tec- tural Draw- ings.	Engrav- ings.	Sculp- tures.	Total.	Omitted.
Pall Mall.							
1769	—	—	—	—	—	136	—
1770	—	—	—	—	—	234	11
1771	—	—	—	—	—	256	20
1772	—	—	—	—	—	310	14
1773	—	—	—	—	—	359	26
1774	—	—	—	—	—	355	9
1775	—	—	—	—	—	390	10
1777	—	—	—	—	—	416	7
1778	—	—	—	—	—	404	25
1779	—	—	—	—	—	395	6
Somerset House.							
1780	—	—	—	—	—	489	—
1790	—	—	—	—	—	703	—
1800	—	—	—	—	—	1,100	—
1810	—	—	—	—	—	905	—
1820	—	—	—	—	—	1,067	—
1830	—	—	—	—	—	1,278	—
1840	—	—	—	—	—	1,240	—
1850	—	—	—	—	—	1,456	—
1860	—	—	—	—	—	1,096	—
Burlington House.							
1870	—	—	—	—	—	1,229	—
1880	—	—	—	—	—	1,586	—
1889	1,264	412	200	138	182	2,196	—
1890	1,172	400	234	137	176	2,119	—
1895	887	384	201	137	104	1,713	—
1900	1,090	436	233	153	145	2,057	11,405

The great space afforded by the new galleries at Burlington House, opened in 1869, effected a steady increase in the number of contributions. In 1868, for instance, the last year of the exhibitions in Trafalgar Square, 3,011 works were submitted; in 1888 members exhibited 177, and non-members submitted 9,385, of which 7,485 were rejected; and in 1900 the maximum of 13,462 works were examined by the Council in order to produce an exhibition of less than one-sixth of that number.

A final word as to the projected change. I learn on good authority that if the "outsiders' maximum was halved—that

is to say reduced from eight to four—it would result in a diminution of no more than 2,000 submitted works, and that the cutting of this maximum down to two will still leave the selecting committee with about 10,000 works whence to select about 1,500. In other words, artists who, by “sweeping their studios,” submit from three to eight works, contribute a total of but two-sevenths of the aggregate. Reform was bound to come on the lines suggested by Mr. Frith as long ago, if I mistake not, as the eighties; and it seems hardly worth while interfering at all unless the total submitted number be reduced by 4,000 or 5,000. It remains to be seen, of course, whether at a general assembly, where associates interested in many outside friends possess a preponderance of voting power, the scheme will be carried.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

AT the concluding meeting of the session of the Leeds and Yorkshire Architectural Society Mr. Butler Wilson, F.R.I.B.A., was elected president for the third successive year. Following the election of officers, a lecture was delivered by Mr. Robert P. Oglesby, entitled “Sir John Vanbrugh, Dramatist and Architect.” Vanbrugh was charged with introducing indecorous elements into his plays, and the essayist quoted his pamphlet of vindication, in which the dramatist said:—“The business of comedy is to show people what they should do by representing them upon the stage doing what they should not. The stage is a glass for the world to view itself in. People ought, therefore, to see themselves as they are. If it makes their faces too fair they won't know they are dirty, and by consequence will neglect to wash them”—a defence which Mr. Oglesby characterised as witty if not strong. As a comic writer he was “something between English and French, without being over nice or giving too much praise to virtue as a convention,” and it was added that the license of the period was responsible for the plainness of speech which his high spirits did not tend to repress. Of feeling, in the sentimental sense, he possessed little, but his plots were always interesting and free from complexity. Whatever ideas he borrowed from other writers he seemed to change into something better by sheer sleight of hand. Incidentally, the essayist read a dialogue from “The Provoked Wife,” in which he said Vanbrugh forestalled Swift in his philosophy of clothes, and anticipated Carlyle's “Sartor Resartus.”

The line which divided Vanbrugh's work as a playwright and his career as an architect was clear and decided. There was, in a sense, a slight overlapping of vocations, inasmuch as his first completed architectural work was a theatre in the Haymarket. This sudden leap from the drama to architecture was taken as a glorious joke by his brother wits and litterateurs, who forthwith let loose such a flood of sarcasm and raillery upon his architectural efforts as would have crushed with ridicule any ordinary individual. A house that Vanbrugh erected for his own occupation on the site of the ruins of old Whitehall was dubbed by the wits the “Goose-pie.” The first great scheme of this imaginative but unschooled architect was the design and erection of Castle Howard, Yorkshire, for the Earl of Carlisle, in 1702. His want of training was here observable on all hands, but his genius for the picturesque atoned for many defects.

The Earl of Carlisle was so satisfied with the designs for Castle Howard that he created Vanbrugh Herald Clarenceux King at Arms. Walpole declared that the mausoleum there “would almost tempt one to be buried alive.”

In the east wing of the south front of Castle Howard there are, contrary to Classic law, an even number of subdivisions, viz. eight, whereas to the west wing are allotted nine such spaces. This curious fact appears to have escaped the notice of Vanbrugh's numerous and most recent commentators. Mr. Oglesby advanced the theory that Carr, of York (the architect of Harewood House), in completing the west block, added another space, thus correcting Vanbrugh's want of training.

Among other notable buildings designed by Vanbrugh were Clarendon Building, Oxford; Seaton Delaval; King's Weston, near Bristol; Fleurs Castle, Roxburghshire; Kneller Hall, Hounslow; Grimsthorpe, Lincolnshire; and Stowe, Buckinghamshire. Reserved to the last was Vanbrugh's greatest work, Blenheim, erected by a grateful nation for that famous son of Bellona, John Churchill, first Duke of Marlborough, in commemoration of his glorious victories over her enemies.

The plan of Blenheim at once stamped Vanbrugh as a man of powerful imagination, and, concluded the essayist, notwithstanding his glaring want of refinement and taste, he would, had he lived longer and further studied, have become a really great architect. His ponderous extravagances, however blamable in detail, were never contemptible in the whole; but it was this love for the ponderous in architecture that inspired Dr. Evans's witty and not inappropriate epitaph:—

Lie heavy on him, earth! for he
Laid many heavy loads on thee.

All the buildings of this unschooled architect were conceived on such a huge scale that it has been quaintly remarked that their ruins will have far greater effect on the minds of posterity owing to the additional piles which conjecture will supply in order to give meaning to the whole.

A vote of thanks was accorded to the lecturer, on the motion of Mr. G. F. Bowman, seconded by Mr. H. S. Chorley.

GENERAL.

The King has commanded Mr. Emil Fuchs to paint his portrait. Sittings are to be given to the painter in a studio specially arranged at Buckingham Palace.

Her Majesty the Queen has selected two miniatures by Mr. C. P. Sainton, viz. *A Summer's Thought* and *the Spirit of the Marsh*, for purchase.

An International Exhibition of artistic, scientific, industrial, commercial and Colonial productions, &c., is to be held at Liège in 1905. The exhibition will open in the month of April and will last for at least six months.

The Pile-driving around the foundations of the Campanile Venice, is likely to be commenced on the 25th inst., the festival of St. Mark. The King of Italy is expected to be present.

The Society of Architects will hold their annual dinner at the Prince's Restaurant, Piccadilly, W., on Friday, May 15. Mr. Silvanus Trevail, J.P., will take the chair.

A General Meeting of the Surveyors' Institution will be held on the evening of the 20th inst., when amendments and additions to the by-laws will be considered. The next country meeting will be held in Dublin on May 7 and 8, to be followed by excursions.

Mr. A. Wright has been appointed managing consulting electrical engineer to the Marylebone Borough Council, and will receive 4 per cent. on an estimated capital expenditure in erecting a new generating station, &c., of 500,000*l.*, this rate of pay being spread over eight years.

Mr. Deputy Baddeley has offered to place a statue of John Milton in front of the church of St. Giles, Cripplegate, a building which is now visible, as the old shops which stood in front of it have been taken down.

The Partnership existing between Frederick Wheeler, F.R.I.B.A., of 6 Staple Inn, W.C., and Horsham, and Percy Dean Lodge, F.M.S.A., of Horsham, practising in Sussex as Frederick Wheeler & Lodge, architects, Bank Chambers, Carfax, Horsham, was dissolved on March 31. The practice will now be carried on solely by Frederick Wheeler at both the above London and Horsham addresses.

Mr. Bertram Blount announces that owing to the death of his late partner, Mr. W. Harry Stanger, the firm of Stanger & Blount is dissolved. The business of the late firm is being temporarily conducted at 2 Broadway, Westminster, but at an early date Mr. Blount will remove to other premises in Westminster.

“Vox Populi,” the vigorous painting by the late Charles Verlat, president of the Antwerp Academy, is included in the exhibition of the Royal Society of Artists, Birmingham, which opens to-day. It represents the scene in Jerusalem when Barabbas was preferred. A large illustration of it has appeared in *The Architect*.

The Art Gallery Committee of the Manchester Corporation have obtained ground for an extension of the buildings but some of the members consider that in view of the probability of the erection of a more extensive building for the purpose on the site of the infirmary, it will be prudent to delay the contemplated extensions.

An Ancient Aqueduct at Palma Nova, which was regarded as one of the Italian monuments, collapsed on Tuesday last.

Papers will be read at the Society of Arts' Wednesday evening meetings after Easter as follows. April 22.—“Modern Bee-Keeping,” by Walter Francis Reid, F.C.S. April 29.—“Automatic Waggon Couplings,” by T. A. Brockelbank. May 6.—“The Construction of Maps and Charts,” by G. T. Morrison. May 13.—“Preservation of Big Game in Africa,” by E. North Buxton. May 20.—“Fencing as an Art and an Historic Sport,” by Egerton Castle, M.A.

Sir William Emerson has presented his report on the seventeen designs for the baths, tramway offices, &c., to be erected on a part of the site of the old St. George's Dock, Liverpool. The first place is awarded to the joint design of Messrs. Stones & Stones, Blackburn, and Mr. W. E. Sproat, Glasgow; the design by Messrs. Briggs & Wolstenholme, Liverpool, is placed second; and the design by Mr. Huon A. Matear, Liverpool, and Messrs. Simon & Crawford, Liverpool and Manchester, third. The report states that all the designs would require modifications.



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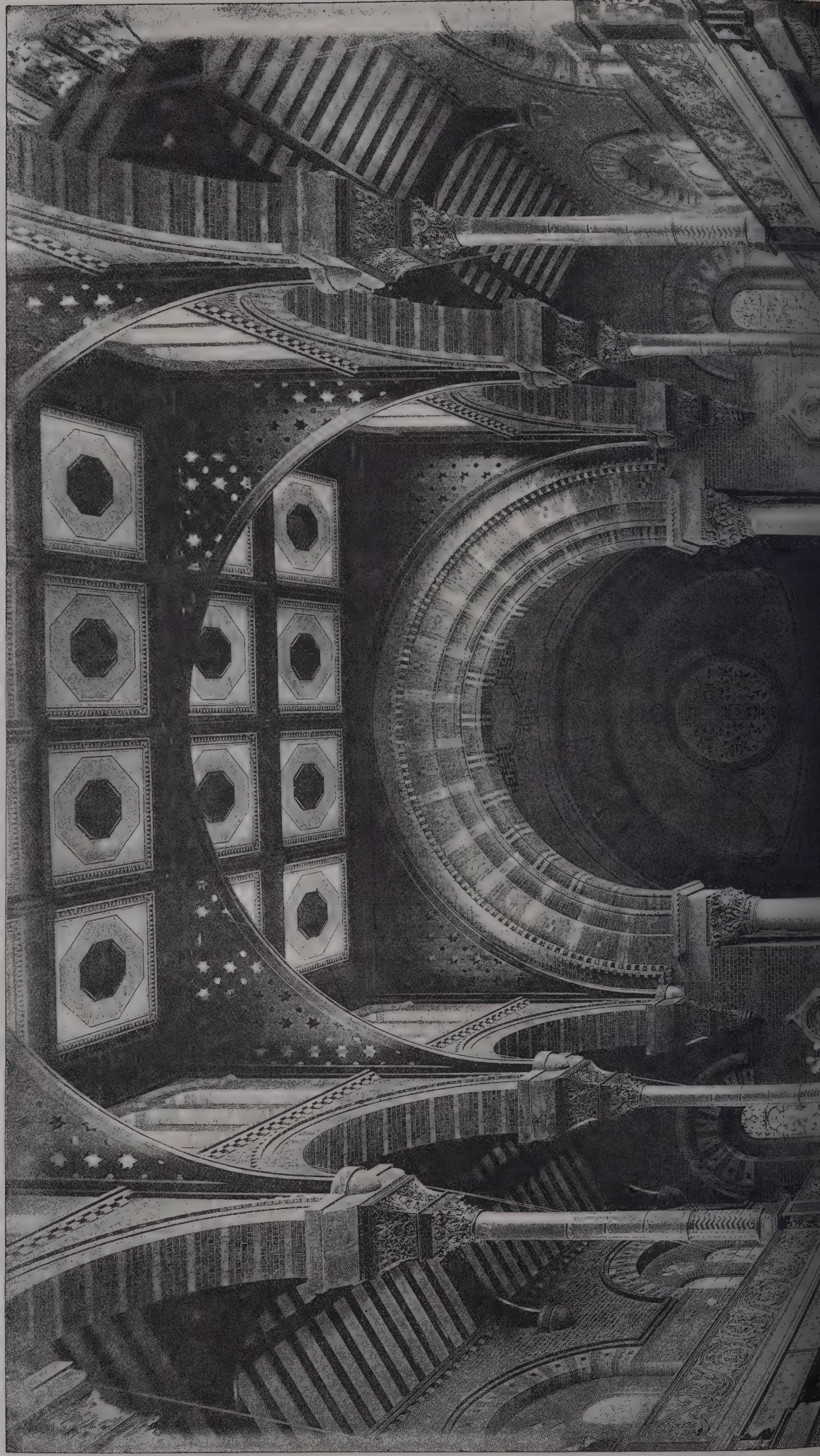
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THE STONE COURT.

The Architect, April 3rd 1903





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The late THOMAS HENRY WYATT, Architect.

THE

Architect and Contract Reporter.

NOTICE.

Next Friday being Good Friday, THE ARCHITECT will be published on Thursday. All Advertisements intended for this Number must reach the Office not later than 4 P.M. on Wednesday, April 8.

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding £15,000. Premiums of 60%, 25% and 15% will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60% and 30% are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed £14,000. Premiums of 75%, 50% and 25% respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

STOCKTON-ON-TEES.—May 13.—Designs are invited for a girls' high school, to be erected as a memorial of Her late Majesty Queen Victoria, at a cost not exceeding £5,000. Premiums of 25%, 15% and 10% respectively will be awarded. Mr. C. J. Archer, 77 High Street, Stockton-on-Tees.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100%, 50% and 25% will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

WALES.—A competitive plan is required for a new church at Caerphilly. The Rev. E. Bush, St. Martin's Road, Caerphilly.

YEovil.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ALDERSHOT.—April 9.—For supply and erection of the necessary plant, &c., for the proposed extension of the Council's electricity works. Plans and specifications of the engineer and surveyor to the Council, 126 Victoria Road, Aldershot.

ALDERSHOT.—April 14.—For erection of proposed public offices and fire-station at Aldershot. Mr. C. E. Hutchinson, architect, 11 John Street, Bedford Row, London.

BARROW-IN-FURNES.—April 9.—For erection of a Wesleyan Methodist chapel at Greengate, Barrow-in-Furness. Messrs. Sames & Henshaw, architects, Oxford Chambers, Abbey Road, Barrow.

BEDALE.—April 6.—For erection of a court house and police station at Bedale. Mr. Walter H. Brierley, county architect, 13 Lendal, York.

BENTHAM.—April 8.—For erection of the Bentham Wesleyan chapel and schools. Mr. John F. Curwen, architect, 26 Highgate, Kendal.

BILLERICAY.—For addition to reading and recreation rooms. Mr. J. W. Waylett, High Street, Billericay.

BOLLINGTON.—April 11.—For construction of a circular covered service reservoir, to contain 100,000 gallons, and for connecting up the same to the present water-main, with all necessary fittings and appurtenances. Mr. W. H. Radford, engineer, Albion Chambers, King Street, Nottingham.

BOLTON PERCY.—April 8.—For erection of two gardeners' cottages at Nun-Appleton, Bolton Percy, Yorks. Messrs. Walker & Collinson, architects, Swan Arcade, Bradford.

BRADFORD.—April 6.—For erection of a foundry, press-plate shop, &c., at White Abbey Works, Bradford. Messrs. Geo. Buckley & Son, architects, Tower Chambers, Halifax.

BRADFORD.—April 7.—For pulling-down and re-erection of the Dudley Hill Board school. Mr. William Bailey, architect, Tanfield Buildings, Bradford.

BRIDLINGTON.—April 7.—For erection of a house, Station Road, Bridlington. Mr. A. T. Martindale, architect, 66 Wellington Road, Bridlington.

BRISTOL.—April 8.—For supply of—(1) feed and general service pumps; (2) exciter dynamos; (3) motors; (4) pipework; (5) extension of coal conveyor; (6) arc lamp standards. Mr. H. Faraday Proctor, City Electrical Engineer's Office, Temple Back.

BURNLEY.—April 15.—For erection of a post office at Burnley. Conditions and form of contract may be seen on application to the Postmaster at Burnley.

COVENTRY.—April 8.—For alterations and additions to Earlsdon school. Messrs. George & Isaac Steane, architects, 22 Little Park Street, Coventry.

DRIFFIELD.—April 6.—For construction of a brick and iron girder bridge over the trout stream at Sunderlandwick, near Driffield. Mr. Alfred Beaumont, county surveyor, County Hall, Beverley.

DURHAM.—April 11.—For alterations and additions to Langley Park branch, for the Annfield Plain Co-operative Society, Ltd. Mr. G. T. Wilson, architect, &c., 21 Durham Road, Blackhill.

DURHAM.—April 16.—For erection of a branch store at Ferryhill. Mr. F. H. Livesay, architect, Bishop Auckland.

ECCLESHILL.—April 7.—For erection of a gymnasium at Eccleshill Congregational school, Yorks. Messrs. T. H. & F. Healey, architects, Tyrrel Street, Bradford.

EXMINSTER.—May 1.—For erection of female observation ward, male infirmary, and No. 5 male ward, at the Devon county asylum, Exminster. Mr. E. H. Harbottle, County Chambers, Exeter.

FINCHLEY.—April 11.—For supply and erection of section 7, steam, exhaust, feed and drain piping, auxiliary plant, chequered plating, tools and sundries; section 8, main switchboard (two booster sets), testing instruments and apparatus. Mr. E. Calvert, electrical engineer, Broadway.

GUILDFORD.—April 6.—For new flood gates, together with the erection of new buildings over same, and over turbine forebay at the waterworks, Millmead. Mr. C. G. Mason, borough surveyor, Tuns Gate.

HALIFAX.—April 7.—For extensive additions to Kingston Confectionery Works, Queen's Road, Halifax. Mr. Medley Hall, architect, 1 Harrison Road, Halifax.

HALIFAX.—April 18.—For additions to Pioneer Works, Parkinson Lane, Halifax. Mr. Medley Hall, architect, 1 Harrison Road, Halifax.

HAMPTON.—April 7.—For erection and completion of isolation hospital on the Council's land at Uxbridge Road, Hampton Hill, Hampton, Middlesex. Mr. Sidney H. Chambers, surveyor, Public Offices, Hampton, Middlesex.

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HARTLEPOOL.—April 15.—For erection of twenty-five houses in Hart Road, Hartlepool, for the North-Eastern Railway Company. Mr. William Bell, company's architect, York.

HASTINGS.—April 14.—For labour only in building the brickwork for the engine and boiler-houses at the Brede pumping-station, about seven miles from Hastings. Mr. P. H. Palmer, waterworks engineer, Town Hall, Hastings.

HAYFIELD.—April 6.—For erection of a three-horse stable. Plans and specifications may be seen at the Hayfield Co-operative Society.

HUDDERSFIELD.—April 9.—For erection of four shops in Buxton Road, Huddersfield. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

ILKLEY.—April 9.—For erection of school buildings at Ilkley. Messrs. Adkin & Hill, architects, Prudential Buildings, Bradford.

IRELAND.—April 7.—For erection and completion of a home for boys at Nazareth Lodge, Ravenhill Road, Belfast. Mr. J. J. McDonnell, architect, 27 Chichester Street, Belfast.

IRELAND.—April 11.—For erection of cottages in various townlands of Londonderry. Mr. J. J. S. Barnhill, engineer to the Rural District Council, 1A Strand, Londonderry.

IRELAND.—April 12.—For rebuilding business premises and residence at Main Street, Letterkenny. Mr. J. P. M'Grath, architect, Commercial Buildings, Foyle Street, Londonderry.

IRELAND.—April 13.—For erection of cottages in the following townlands:—Buncrana electoral district, one block of two cottages; Tulnaree, Glenegannon electoral district, one block of two cottages; Drumaweir, Moville electoral district, one block of two cottages. Mr. Robert Moore, clerk, Workhouse, Carndonagh.

IRELAND.—April 17.—For erection of a Presbyterian church at Convooy, co. Donegal. Mr. John M'Intyre, architect, Letterkenny.

IRELAND.—April 18.—For erection of a Presbyterian church at Roseyards, co. Antrim. Mr. S. J. M'Fadden, C.E., architect, Queen Street, Coleraine.

KEIGHLEY.—April 6.—For erection of residence at Holycroft, Keighley. Messrs. W. H. & A. Sugden, architects, North Street, Keighley.

KENDAL.—April 17.—For erection of a paper mill adjoining the present mill at Burneside, near Kendal. Mr. John Hutton, architect, Kendal.

KING'S LANGLEY.—April 8.—For erection of a home for female attendants at the Leavesden Asylum, King's Langley, Herts. Messrs. Newman & Newman, architects, 31 Tooley Street, London Bridge, S.E.

LEEDS.—April 15.—For erection of a new sorting office at Hunslet, Leeds, for the Commissioners of H.M. Works and Public Buildings. Mr. H. G. Nixon, H.M. Office of Works, Infirmary Street, Leeds.

LICHFIELD.—April 6.—For erection of eight dwelling-houses in Frog Lane, Lichfield. Mr. William Perry, architect, 39-41 Bore Street, Lichfield.

LIMEHOUSE.—April 7.—For erection of two blocks of workmen's dwellings upon the King John's Court area. Mr. Geo. W. Clarke, town clerk, 15 Great Alie Street, Whitechapel, E.

LITTLEHAMPTON.—April 9.—For alterations and additions to the town offices, Beach Road. Mr. Arthur Shelley, town clerk, Littlehampton.

LONDON.—For demolition and removal of old buildings, chimney-stacks, &c., on their estate at Bruce Grove, Tottenham, for the Governor and committee of the Incorporated Society of Licensed Victuallers. Mr. George Treacher, architect, 73 Moorgate Street, E.C.

LONDON.—April 8.—For erection of a temporary shed for motor ambulance waggon at the Mead ambulance station, Fulham, S.W. Mr. T. Duncombe Mann, Embankment, E.C.

LONDON.—April 20.—For construction of underground conveniences in Offord Road by Caledonian Road, N. Mr. J. Patten Barber, Town Hall, Upper Street, N.

LONDON.—April 22.—For erection of a disinfectant house and greenhouse and the formation of a drying-ground and refuse-stalls at the Tooting Bec Asylum, Tooting Bec Common, S.W. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

LOWESTOFT.—April 16.—For erection of a Wesleyan school-chapel in Lorne Park Road, Kirkley, Lowestoft. Mr. E. E. Smith, architect, 145 Victoria Road North, Southsea.

LYDD.—April 7.—For repair of the roof and two upper stages of Lydd Church tower. Rev. A. Hardy, Lydd.

MACCLESFIELD.—April 18.—For erection of the superstructure of the new infirmary annexe for 206 patients at the Parkside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

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MANCHESTER.—April 15.—For erection of cottages on the Blackley estate. Drawings may be seen at the office of the City Architect, Town Hall.

MANSFIELD.—April 9.—For erection of mixed and infant school at Pleasley. Mr. Jos. Perkin, architect, Main Street, Shirebrook.

MORECAMBE.—April 7.—For erection of a disinfector shed, &c., near the refuse destructor. Mr. John Bond, borough surveyor, Morecambe.

NETHERNE.—April 14.—For excavating and levelling site and foundation works for new asylum at Netherne, Surrey. Messrs. George T. Hine & Co., architects, 35 Parliament Street, Westminster, S.W.

NEW BARNET.—April 7.—For erection of stables, &c., in the rear of the offices, Station Road, New Barnet. Mr. Henry York, surveyor, Station Road, New Barnet.

NEWCASTLE-UPON-TYNE.—April 6.—For construction of an underground public convenience at the corner of Derwent Place and Scotswood Road. Specifications, bills of quantities and forms of tender can be obtained at City Engineer's Office, Town Hall, Newcastle.

NORMANTON.—April 6.—For erection of an infants' Sunday school and additions to chapel, Wakefield Road, Normanton. Mr. Arthur Hartley, architect, County Chambers, Castleford.

NORMANTON.—April 6.—For erection of new Sunday schools at Hopetown, Normanton. Mr. Arthur Hartley, architect, County Chambers, Castleford.

NORTHALLERTON.—April 6.—For erection of a new county hall at Northallerton. Mr. Walter H. Brierley, county architect, 13 Lendal, York.

NOTTINGHAM.—For erection of a detached and pair of semi-detached villas on Lenton Sands. Mr. Frank H. Collyer, architect, 8 Bridgesmith Gate, Nottingham.

PERRANZABULOE.—April 13.—For certain repairs to the tower of the Perranzabuloe Church, Cornwall. Specifications can be seen at the Vicarage.

PLYMOUTH.—April 9.—For erection of proposed headquarters for the 2nd Devon Royal Garrison Artillery (Volunteers) near Plymouth Citadel. Mr. T. Rogers Kitsell, architect, 1 George Street, Plymouth.

PORTSLADE-BY-SEA.—April 7.—For setting-back about 100 yards of boundary wall, and for paving, kerbing and channelling in front thereof. Full particulars can be obtained

on application to the Surveyor, 46 St. Andrew's Road, Portslade-by-Sea.

PRESTON.—April 17.—For erection of a stone base for a bandstand, Avenham Park, Preston, Lancs. Drawings may be seen, and specification, bills of quantities and form of tender obtained, at the office of the Borough Surveyor, Town Hall, Preston, Lancs.

PRESTON.—April 18.—For erection of a refuse-destructor, extension of stabling, storeyard, &c., off St. Paul's Road, Preston, Lancs. Particulars may be obtained at the office of the Borough Surveyor, Town Hall, Preston.

ROWLEY REGIS.—April 20.—For erection of the Siviter's Lane Board school at Rowley Regis, for 300 boys and girls mixed and 300 infants, with cookery, laundry and manual training-rooms, &c. Messrs. Meredith & Pritchard, architects, Bank Buildings, Kidderminster.

SCOTLAND.—For erection of a school at Milton, Old Kilpatrick. Messrs. Smellie, Taylor & Browne, surveyors, 167 St. Vincent Street, Glasgow.

SCOTLAND.—April 6.—For improvements to offices at Myreside, Drumtochty. Mr. Sydney J. Gammell, Estate Office, Drumtochty Castle, Fordoun.

SCOTLAND.—April 6.—For erection of duty-free warehouse at Cameronbridge, Fifeshire. The Distillers' Company, Ltd., Cameronbridge.

SCOTLAND.—April 6.—For erection of (1) coach stables at Upper Lodge, (2) kennels at Upper Lodge, (3) small offices at Upper Lodge and (4) farm offices at Ballochdui; also slater and plasterer's work of (5) cottage at Belmont Croft. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

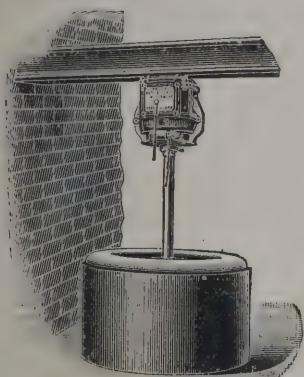
SCOTLAND.—April 9.—For construction of a brick gas-holder tank at the works of the Stranraer Gaslight Company. Application to be made to the Manager at the works, Harbor Street.

SCOTLAND.—April 9.—For erection of an organ chamber for New Pitsligo parish church. Messrs. D. & J. R. McMillan, architects, 211 Union Street, Aberdeen.

SCOTLAND.—April 14.—For erection of parish cottages at Carr Bridge. Mr. Thomson, stationer, Grantown.

STOCKPORT.—April 15.—For erection of club premises, Napier Street, Hazel Grove. Mr. Councillor Hallam, London Road, Hazel Grove.

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ST. MABYN.—April 8.—For erection of a wain house at Haywood and fixing new iron roof at Littlewood; various repairs and hedging at Trevisquite and repairs at Treveglors, Cornwall. Mr. George Gow, Tregothnan Office, Truro.

STEPNEY.—April 7.—For erection of two blocks of workmen's dwellings on the King John's Court area, Limehouse. Mr. Geo. W. Clarke, town clerk, 15 Great Alie Street, Whitechapel.

STOCKPORT.—April 9.—For erection of a public convenience in Reddish Road, Reddish. Mr. John Atkinson, borough surveyor, St. Petersgate, Stockport.

SUNDERLAND.—May 1.—For erection of Whickham Street, electrical sub-station and engine foundations, &c., at the Hylton Road electric-lighting station. Mr. John F. C. Snell, borough electrical engineer, Town Hall, Sunderland.

SWINDON.—April 20.—For erection of the engine-house, boiler-house and chimney at the waterworks at Ogbourne St. George, Wilts. Specification, &c., can be obtained on application to the Borough Surveyor, Town Hall, Swindon.

TAMWORTH.—April 20.—For erection of an infirmary at the workhouse. Mr. Jas. Wm. Godderidge, architect, 4 Bolebridge Street, Tamworth.

UTTOXETER.—April 7.—For erection of new vagrant wards, attendants' room, waiting-rooms, &c., at the union workhouse, Uttoxeter, and alterations to porters' room. Mr. Edward Forsham, Balance Street, Uttoxeter.

WALES.—For erection of two semi-detached villas, Brynmawr Place, Maesteg. Mr. W. Beddoe Rees, architect, 37 St. Mary Street, Cardiff.

WALES.—April 6.—For erection of twenty or more houses at Nelson. Mr. Geo. Kenshole, architect, Bargoed.

WALES.—April 6.—For extension and alterations to the stores, 19 Union Street, Dowlais, for the Dowlais Workmen's Co-operative Society, Ltd. Particulars can be obtained from the President of the Society.

WALES.—April 6.—For erection of a 12-horse stable and other outbuildings, and repairs to the Navigation, Gilwern, and alterations and repairs to the Bridge End inn and the Lion Hotel, Govilon. Mr. B. J. Francis, architect, Abergavenny.

WALES.—April 6.—For the conversion of the present three departments at Ynyshir, Ystradyfodwg, into one for boys. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—April 7.—For the following work at marine collieries new coke plant, near Cwm station, Great Western Railway:—(1) excavating 3,350 cubic yards, more or less, to a depth of about 6 feet; (2) mixing and laying 5,350 cubic yards, more or less, of concrete; (3) the labour for building retaining walls round the above concrete, foundations and main culverts. Mr. Wilputte, Ebbw Vale, Mon.

WALES.—April 8.—For erection of a church at Radyr, near Cardiff. Mr. G. E. Halliday, architect, Cardiff.

WALES.—April 9.—For erection of twenty cottages at Aberbeeg. Mr. G. C. Hillard, architect, Market Chambers, Abertillery.

WALES.—April 11.—For erection of a pair of villas in Standard Street, Crickhowell. Mr. B. J. Francis, architect, Abergavenny.

WALES.—April 11.—For erection of a villa at Canning Street, Ton. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Rhondda Valley.

WALES.—April 11.—For additions to Llechwen, parish of Llanfabon. Mr. A. O. Evans, architect, Pontypridd.

WALES.—April 11.—For extension and alteration of chapel and vestry at the Nebo Congregational chapel, Blaengarw. Mr. John M. Jones, secretary, 54 King Edward Street, Blaengarw, R.S.O., Glam.

WALES.—April 16.—For conversion of five dwelling-houses at Bargoed into business premises. Mr. D. S. Jones, grocer, Bargoed.

WALES.—April 20.—For erection of a Congregational church and school at Pontypool. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

WATFORD.—April 15.—For erection of destructor buildings and chimney-shaft. Mr. D. Waterhouse, surveyor, 14 High Street, Watford.

WHITBY.—April 6.—For erection of semi-detached villas at Sleights, near Whitby. Mr. A. Percival Stanton, architect, Glaisdale, Grosmont, Yorks.

WINTERTON.—April 15.—For restoration of Winterton Church, Lincs. Mr. C. Hodgson Fowler, architect, The College, Durham.

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G. H. COOP, Stamford Street (*accepted*) . . . £1,135 0 0

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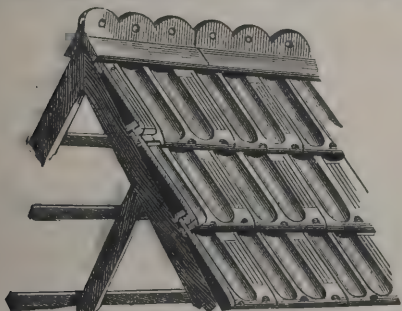
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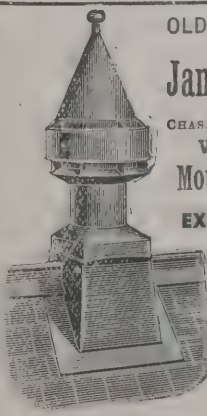
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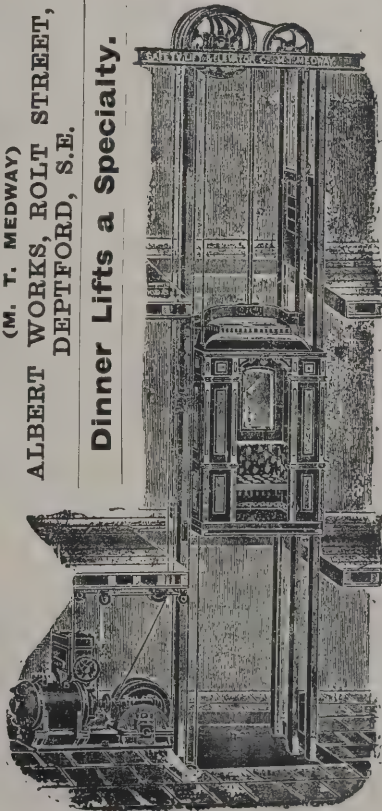
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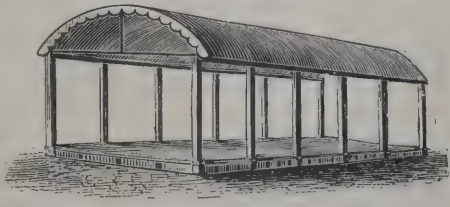
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LONDON OFFICE—
5 FENCHURCH STREET, E.C.

LONDON SCHOOL BOARD—continued.

For painting interior and exterior, Lyham Road.

Martin, Wells & Co., Ltd.	£625	0	0
Maxwell Bros., Ltd.	599	0	0
W. Johnson & Co., Ltd.	519	0	0
Hudson Bros.	500	0	0
S. E. Musgrove	496	9	0
E. P. Bulled & Co.	483	0	0
J. Smith & Sons, Ltd.	467	0	0
Johnson & Co.	450	0	0
C. Gurling	400	0	0
Holliday & Greenwood, Ltd.	371	0	0
W. Read	359	0	0
G. Kemp	330	0	0
W. KING & SON (accepted)	320	0	0

For painting interior, Holmes Road.

Bate Bros.	£856	0	0
G. Kirby	532	0	0
M. Pearson	516	0	0
McCormick & Sons	495	0	0
H. Wall & Co.	490	0	0
Stevens Bros.	478	0	0
Marchant & Hirst	455	0	0
VINEY & STONE (accepted)	414	0	0

For painting interior (iron buildings), Glaucus Street.

D. Gibb & Co.	£65	0	0
J. F. Holliday	51	7	0
A. E. Symes	45	0	0
E. Proctor	39	10	0
A. W. Derby	36	0	0
A. J. SHEFFIELD (accepted)	35	0	0

For painting interior and exterior (iron buildings), Brook Green.

F. Chidley	£207	0	0
C. Curd & Sons	205	0	0
C. F. Kearley	191	16	6
S. Polden	187	0	0
G. H. Sealy	180	10	0
W. Chappell	175	0	0
Spencer, Santo & Co., Ltd.	173	0	0
W. Hammond	168	16	0
F. T. Chinchin & Co.	158	10	0
W. R. & A. Hide	145	15	0
BRISTOW & EATWELL (accepted)	141	10	0

LONDON SCHOOL BOARD—continued.

For painting interior, Alton Street.

A. E. Symes	£452	0	0
Turnbull & Son	355	0	0
A. J. Sheffield	344	0	0
J. Haydon & Sons	322	14	0
J. F. Holliday	317	12	0
D. Gibb & Co.	313	0	0
CORFIELD & Co. (accepted)	302	10	0

For painting interior, Ricardo Street.

W. J. Howie	£542	0	0
W. Silk & Son	500	0	0
Vigor & Co.	335	0	0
D. Gibb & Co.	333	0	0
E. Proctor	330	0	0
W. Banks	310	10	6
A. W. Derby	294	0	0
H. GROVES (accepted)	280	10	0

MANSFIELD WOODHOUSE.

For erection of a house and shop, with outbuildings, at the corner of Debdale Road and Sherwood Street, Mansfield Woodhouse. Mr. J. H. KEBLE FISHER, architect, Crosswell, near Mansfield.

A. R. Roe	£985	0	0
R. Wood	950	0	0
T. J. CLATWORTHY, Mansfield Woodhouse, Mansfield (accepted)	762	0	0

MARGATE.

For construction of a new iron high-service tank at Woodlands, Adisham, Kent. Mr. A. LATHAM, engineer, 15 Cecil Square, Margate.

G. Browning	£2,328	0	0
Paramor & Sons	2,120	15	6
W. J. Adcock	2,061	16	0
T. T. Denne	1,993	8	8
W. W. MARTIN, Ramsgate (accepted)	1,928	14	0

NUNEATON.

For laying-out an addition to the cemetery.

W. BOON & SONS, Nuneaton (accepted)	£170	0	0
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C. B. N. SNEWIN & SONS, LTD. MAHOCANY, WAINSCOT, AND TIMBER MERCHANTS.

BACKHILL, HATTON GARDEN; & RAY ST., FARRINGTON ROAD. Telegrams, "Snewin, London." LONDON, E.C. Telephone, 274 Holborn.

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Over 100,000 super. yards of our Pavings laid in Liverpool. References for Durability on Application. Telegrams, "Walkers, Concreters, Pudsey."

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SELF-SUSTAINING HAND-POWER TRAVELLER,

In sizes from ½ to 10 tons.

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TIMBER YARDS,
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FOUNDRIES,
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WORKSHOPS GENERALLY.

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OVERHEAD ELECTRIC
CRANES,
OVERHEAD ROPE
CRANES,
OVERHEAD PLATFORM
CRANES.

SINGLE GIRDER TROLLEY CRANE

In sizes from 3 cwt. to 5 tons.

VAUGHAN & SON, LTD., Royal Iron Works, West Gorton, MANCHESTER

Telegrams, "VAUNTING, MANCHESTER."

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American Maple Flooring

TONGUED, GROOVED, AND BORED FOR SECRET NAILING.

The Best & Cheapest Flooring yet Introduced

D. WITT & COMPANY, 168 TO 176 DRUMMOND STREET, N.

Telephone No 773 King's Cross. Telegraphic Address, "Veneer, London."

For Index of Advertisers, see page x.

NUNHEAD.

For street works in Bellwood Road and Hawkslade Road.
Mr. W. OXTOBY, borough engineer.

Bellwood Road.

A. C. Soan	£1,331	7	6
T. Adams	1,097	3	0
Lawrence & Thacker	1,088	7	6
H. Woodham & Sons	1,010	3	9
W. Pearce	995	3	10
W. Griffiths & Co., Ltd.	982	11	8
G. J. Anderson	967	1	0
J. Mowlem & Co.	922	4	5
J. & E. Etheridge	848	3	6
FRY BROS., Greenwich (accepted)	840	9	6

Hawkslade Road.

A. C. Soan	768	5	1
T. Adams	755	7	9
W. Griffiths & Co., Ltd.	671	18	10
Lawrence & Thacker	669	5	9
H. Woodham & Sons	651	3	6
J. Mowlem & Co.	631	13	1
G. J. Anderson	610	5	7
W. Pearce	567	14	1
J. & E. Etheridge	567	4	1
FRY BROS. (accepted)	507	3	3

OLDBURY.

For taking-up and reconstruction of about 2,658 lineal yards of pipe sewers, varying from 9 inches to 21 inches in diameter, together with the alteration and reconstruction of manholes, &c. Mr. J. T. EAYRS, engineer, Clarence Chambers, 39 Corporation Street, Birmingham.

Curral, Lewis & Martin	£6,420	16	10
Johnson & Langley	4,325	18	3
J. White, jun.	3,939	16	10
Fitzmaurice & Co.	3,726	16	4
E. BOORE, Bearwood Road, Smethwick (accepted)	3,110	18	4

PECKHAM.

For erection of factory premises at 57, Glengall Road. Mr. C. COLLAS ROBIN, architect, 203 Strand, W.C.

Josolyne & Young	£2,697	0	0
Carmichael	2,685	0	0
Shurmur & Sons	2,619	0	0
H. L. Holloway	2,515	0	0
Sheffield Bros.	2,497	0	0
J. Anley	2,440	0	0
Lascelles & Co.	2,410	0	0
G. Packer	2,334	0	0
W. NASH, New Cross (accepted)	2,278	0	0

PORTSMOUTH.

For constructing a galvanised iron shelter with w.c. in the Stamshaw Recreation Ground.

G. P. Banbury	£165	0	0
W. W. Learmouth	140	0	0
W. T. DUGAN, 8 Prince George Street, Portsea, Portsmouth (accepted)	120	0	0

For erection of an engine-room, annexe, pumping station, &c.

Smith & Son	£1,549	0	0
S. Salter	1,355	0	0
Coltherup	1,280	0	0
Clark & Son	1,267	0	0
W. T. Dugan	1,230	0	0
W. W. Learmouth	1,200	0	0
T. W. QUICK, Portsmouth (accepted)	1,120	0	0

RUGBY.

For supply of granite during year ending March 31, 1904, and carting it from the several stations and wharves on to the district roads.

MIDLAND GRANITE COMPANY, Nuneaton (accepted).

SHENFIELD.

For erection of a country house, Warrin Road, Shenfield, Essex. Mr. HUGO R. BIRD, architect, High Street, Brentwood.

Dix & Rogers	£735	0	0
BURTWELL & JARVIS (accepted)	715	0	0

SOUTHWARK.

For installing the electric light, wiring, &c., at the new town hall extension.

J. WILSON, Ferrier Works, Wandsworth (accepted)	£195	12	6
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COMBE DOWN.
STOKE GROUND.
WESTWOOD GROUND.
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HAMPSTEAD ROAD, W.

(Continuation North of Tottenham Court Road.)
60 & 61 GRAFTON STREET, DUBLIN; 75 UNION STREET, RYDE.



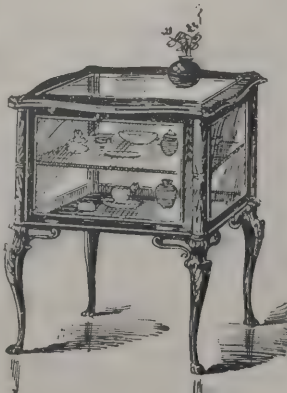
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With 3 drawers, writing-flap lined with leather, and the interior fitted for stationery, 2 ft. 6 in. wide, £3 15s.



Axminster Door Mat.
Handsome Designs and Colouring.
30 in. by 15 in. 3s. 3d.
33 in. by 15 in. 3s. 9d.



Gilt Carriage Clock.
In case, 11s. 9d. each.



Handsomely Carved Chippendale "Aquarium" Curio Case, with plate glass top, sides, and shelf, £3 7s. 6d

STIFFORD.

For alteration of the existing schools, a new infants' school and two houses for the headmaster and caretaker, for the Stifford School Board, Essex. Mr. CHRISTOPHER M. SHINER, architect, 6, 7 and 8 Crutched Friars, E.C., and Grays, Essex.

J. Brown	£7,350	0	0
J. S. Hammond	7,050	0	0
Wm. Smith	6,977	0	0
S. Parmenter	6,957	0	0
Davey, Ltd.	6,914	0	0
Wm. Potter	6,842	0	0
E. West	6,781	0	0
H. R. Rons	6,697	0	0
S. E. Moss	6,290	18	0
Pavitt & Son	6,225	12	8
C. Wall	6,050	0	0
H. J. CARTER (accepted)	5,755	0	0

STOKE-UPON-TRENT.

For erection of a chimney-stack and foundations for refuse-destructor works. Mr. AMOS BURTON, surveyor.

Blackburn, Starling & Co.	£1,942	15	10
E. Rees	1,705	10	6
Ball & Robinson	1,590	15	0
Universal Engineering Co.	1,519	0	0
D. Adamson & Co.	1,517	8	8
D. Lee	1,372	18	7
R. E. James	1,146	5	1
Smith Bros.	1,100	0	0
Meiklejohn & Son	1,068	0	0
J. BAGNALL, King Street, Fenton, Stoke-on-Trent (accepted)	918	10	0
Alphons Custodis Construction Co.	705	0	0

TILBURY.

For erection of five shops in Dock Road, Tilbury Dock. Mr. CHRISTOPHER M. SHINER, architect, 6, 7 and 8 Crutched Friars, E.C., and Grays, Essex.

J. S. Hammond	£2,389	0	0
S. E. Moss	2,060	15	0
J. Brown	1,974	0	0
J. J. Lawrence	1,925	0	0
G. BROWN (accepted)	1,675	0	0

WALES.

For conversion of the Rechabites' Hall, New Tredegar, into council offices, &c. Mr. J. H. LEWIS, surveyor, Blackwood.

W. Williams & Sons	£152	10	1
H. Rowlands	121	1	6
D. WILLIAMS, New Tredegar, Cardiff (accepted)	116	15	10

WHITBY.

For sanitary alterations in the workhouse.

J. O'CONNOR, Church Street (accepted)	£59	19	0
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WIMBLEDON.

For erection of a central fire brigade station in Queen's Road.

Mr. C. H. COOPER, surveyor.
J. BURGESS & SON, Wycliffe Road (accepted).

WOOLSTON.

For street works in ten roads, about three miles in length.

Mr. T. A. COLLINGWOOD, surveyor, Woolston.

J. Trueinan	£6,770	0	0
Streeters & Todhunter	6,476	0	0
F. W. Pettit	5,446	0	0
F. Osman	5,285	0	0
DOUGLAS & RICHARDS, Southampton (accepted)	4,592	0	0

For street works in Avenue and Manor Roads. Mr. T. A.

COLLINGWOOD, surveyor, Woolston.

Streeters & Todhunter	£530	0	0
J. Trueman	528	0	0
F. W. Pettit	496	0	0
F. Osman	462	0	0
DOUGLAS & RICHARDS, Southampton (accepted)	354	0	0

WRANGATON.

For construction of a covered reservoir, and other works connected therewith, at Blackadon asylum, Wrangaton, Devon. Mr. FRANK HAWARTH, engineer, Municipal Buildings, Plymouth.

A. N. Coles	£3,809	0	0
R. H. B. Neal	2,083	0	0
G. B. Andrews	1,867	17	11
Dart & Pollard	1,691	0	0
E. Pike	1,676	17	3
LAPHORN & CO, Plymouth (accepted)	1,625	0	0

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HIGH-CLASS ENAMELS

For all DECORATIVE WORK.

"O" QUALITY "INDIAN" QUALITY
FOR INSIDE USE. FOR OUTSIDE USE.

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BRILLIANT GLOSS AND HARD SURFACE.

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SHEFFIELD DAILY TELEGRAPH OFFICES, FLEET STREET, E.C.

NEWSPAPER BUILDINGS, PORTUGAL STREET, W.C.

KNOLE HOUSE, SEVENOAKS, KENT: THE STONE COURT.—FOOT OF GRAND STAIRCASE.

THE BERKEFELD FILTER.

WHEN the filtering of water was first attempted the arrangements adopted were of a most primitive kind. It used to be stated in books on sanitation that a most effectual filter could be made by any one who would put some sand and gravel in a common flower-pot. We may now smile at so rude an apparatus, but it corresponded with the state of knowledge relating to water. Nothing was known about bacteria, and the analysis for dangerous constituents was very simple. The progress of science has convinced people that the solid impurities, the salts and mineral ingredients found in water, are not the greatest evils. The organic impurities, the disease germs, are most to be feared, and to remove them requires something more than served for filtering a few years ago. The Berkefeld patent filter is essentially a scientific one, and corresponds with the latest knowledge on the subject of bacilli. Dr. Sims Woodhead, the director of the Research Laboratories of the Royal College of Physicians and Surgeons, aided by Dr. Cartwright Wood, after several experiments, observed "that the test organisms are completely arrested, so that we must conclude that the Berkefeld filters may afford an efficient safeguard against the passage of disease germs." In a second report representing further experiments during three years the same experts said:—"We must accordingly conclude from the extensive series of experiments carried out with these Berkefeld filters that they afford complete protection against the communication of water-borne disease." The filters are produced in forms to meet all requirements, including those supplied to troops in the field and to explorers. There are glass-ware filters, stone-ware filters, house filters of various kinds, laboratory and experi-

mental filters, filters for surgical operations, restaurant filters, and filters on a large scale for the water supply of villages or towns. The Berkefeld Filter Company, Ltd., have laid themselves out to meet all cases in which pure and germ-free water is desired, and the works may be looked on as a scientific establishment in which water not only becomes "the liquid crystal" described by the old poets, but a fluid from which all dangers are rigorously eliminated.

THE ASSOUAN DAM.

THE King has been pleased to give and grant unto Sir John Aird, Bart., His Majesty's royal license and authority that he may accept and wear the Grand Cordon of the Imperial Ottoman order of the Medjidieh, conferred upon him by His Highness the Khedive of Egypt, authorised by His Imperial Majesty the Sultan of Turkey, in recognition of his valuable services in connection with the recently completed Nile reservoirs.

The King has been pleased to give and grant unto Maurice Fitzmaurice, Esq., lately superintending engineer of the works on the Assouan Dam, in the service of the Egyptian Public Works Department, His Majesty's royal license and authority that he may accept and wear the Insignia of the Second Class of the Imperial Ottoman Order of the Medjidieh, conferred upon him by His Highness the Khedive of Egypt, authorised by His Imperial Majesty the Sultan of Turkey, in recognition of valuable services rendered to the Egyptian Government.

AMERICAN COMPETITION IN THE IRON TRADE.

THE conference on American industrial conditions and competition, organised by the British Iron Trade Association, was held on Tuesday at the Westminster Palace Hotel.

Mr. E. Parkes, M.P., presided, and moved a resolution welcoming the announcement of the Government that it was about to institute an inquiry into the constitution and functions of the Board of Trade and expressing the belief that such an inquiry could hardly fail to be serviceable to the interests of British trade and commerce. There had been a feeling that the Government had been rather supine upon commercial questions and that they needed waking up on that important subject. What the trading people felt was wanted was more

The **ROMAN CATHOLIC CATHEDRAL,**
WESTMINSTER, London, S.W.

The **NEW BARRACKS and MILITARY**
HOSPITAL at MILLBANK, London, S.W.

The **BRITANNIA NAVAL COLLEGE,**
DARTMOUTH, Devonshire.

The **TOOTING BEC ASYLUM, TOOTING,**
London, S.W.

The noted **T.L.B.** Facings and Rubber
Bricks were used for the above impor-
tant public works.

THOMAS LAWRENCE & SONS, BRACKNELL, BERKS.

acting in concert, more promptness and perhaps more alertness in discussing and settling the questions of trade which came before the Government departments from time to time. He believed the Government realised to some extent the state of confusion in which trading questions were at the present time in the different departments, and felt the necessity for some new action. In the first place, the co-operation of the great trading organisations of this country with members of the House of Commons was necessary in order to give effect to the feelings and opinions of the trading community of the country; and, until they had some organisation for making their wishes felt in the Government departments, they would have very little chance of being listened to. He hoped the result of the promised inquiry would be that men who understood the real requirements of the trading community would be appointed as consuls. Trade was not in a very flourishing position at the present time. At any rate, the experiences of most manufacturers in the iron and steel trade were not very encouraging. The condition of trade in this country was, generally speaking, one of long depression with occasional "booms." People of late years had been looking round for the cause, and some attributed it to lack of education. Education had not saved Germany from bad trade and low profits, but they must all recognise the enormous strides which Germany had made in the last few years in equipping herself for the trade of the world. With regard to America, he had been struck by the fact that many of the positions of responsibility in that country were filled by Englishmen who had gone out many years ago for the purpose of improving their position. And he thought they could say with confidence that the best American workman was not better than the best English workman. No better workman existed anywhere than the steady, self-respecting English workman. But he was prevented from taking full advantage of his opportunities by reason of the restrictions which were imposed upon him. Americans were past-masters in labour-saving appliances. Englishmen, though they realised the value of these appliances, were unable to adopt them to any great extent owing to want of capital. Given equal opportunities and capital, he believed the English could produce anything equal to the Americans. This idea of the necessity of new machinery had laid hold of the people of this country during the last few years, and many splendid installations had taken place and were at the present time taking place in England and Scotland. The question of economy of production was one to which they would have to

turn their attention in the future, even more than that of protective tariffs. The principle of dumping down the surplus manufactures of other countries in this country, which had an open door, and which it was said could not retaliate, was extending, and it was not to be wondered at that the English manufacturers complained of the industrial conditions. It was almost impossible for them to compete successfully with other countries in the present state of affairs.

Mr. Clarence Bird seconded the motion.

Papers were afterwards read by members of the British Iron Trade Association Commission which visited some of the industrial centres of the United States in October 1901, and presented a long report on the American industrial conditions.

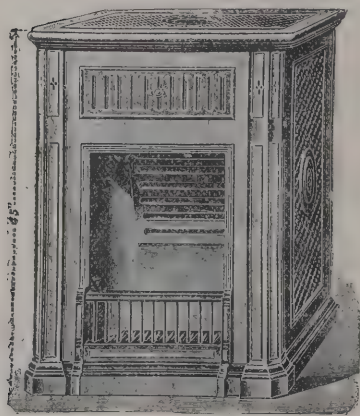
NEW CATALOGUES.

A VERY useful book of sections is now being issued by the Glengarnock Iron and Steel Company, of Glengarnock, Ayrshire, whose agents in London are Messrs. Rogers, Twentyman & Co, Leadenhall Buildings, Leadenhall Street, E.C. In this book is clearly set forth a considerable amount of information such as is required by structural engineers, architects and builders engaged in designing structural work and buildings. It gives a number of the different rolled steel sections manufactured by this firm, and also a large variety of sections compounded into girders and stanchions. The sections shown are those in general use, and will aid the designer in determining the form and combination of sections which will be the most economical or convenient for his particular purpose. A number of tables of loads and strains also find a place, as well as a report of tests by experts.

WE have received the new catalogue which Messrs. Oates & Green, Ltd., of Halifax, are just issuing of their sanitary specialties. It is divided into six sections, carefully printed on art paper and illustrated by good, clear blocks.

Section I. illustrates urinals, floor tiles, &c., all of which are manufactured in a highly glazed, heavy fireclay. The prices are all plainly marked, which is an advantage to architects and builders. The "Wyvern," one of Messrs. Oates & Green's latest patents, is a particularly good design, and offers a great advantage in its sloping back, which in consequence insures a thorough cleansing at each discharge of the cistern. It is made of highly glazed, heavy fireclay, with back, sole, channel and pier all in

THE LONDON VENTILATING STOVE



**Specially Adapted for Hospitals, Infirmarys, &c.
ECONOMISES FUEL. MADE IN TERRA-COTTA.**

A continuous current of fresh air is admitted through a shaft beneath warmed by contact with the chambers at back, and discharged into the Ward or Dormitory at an agreeable temperature.

In use at the Cambridge Hospital, Aldershot, Bank of England, &c., &

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Admitting Cold Water first into Bath, economises Hot, and prevents damage to Bath or injury to Bather. Upwards of 5,000 in use.

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JENNINGS' PATENT BED-PAN FLUSHING SINK, invaluable in Contagious Disease Hospital



INSPECTION OF NEW SHOWROOMS CORDIALLY INVITED.

GEORGE JENNINGS LIMITED

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LAMBETH PALACE ROAD (opposite St. Thomas's Hospital), LONDON, S.E.**

Telegrams, "Jennings, London."

Telephone 680 Hop.

one piece, an important point in connection with its construction which will be readily understood.

Section II. is devoted to pedestal closets and hospital specialties. The hospital bed-pan sink, illustrated on page 31, is worth attention, and it is easily cleaned; the underside of trap is kept well above the floor-level, enabling easy access for cleaning purposes.

Section III. is devoted mainly to lavatory fittings. Attention may be drawn to the "Skolla" lavatory, which is very reasonable in price, but at the same time fully efficient.

Section IV.—This section contains particulars of trough closets and latrines. The "Isolt" latrine is the latest introduction in this department, and is specially designed for schools and institutions where it is necessary to have absolute isolation. The latrines are complete in themselves, and absolutely cut off from each other by the trap, which is formed with the latrine in one piece of fireclay. For still further protection a trap is also placed at the end of the drain, thus insuring a perfectly isolated sanitary latrine.

Section V. is devoted to baths, washtubs, sinks, &c., all of which are manufactured in the best fireclay.

Section VI. contains many examples of gullies, pipes, channel syphons, grease-traps, &c., all manufactured by the firm at their works at Halifax.

Messrs. Oates & Green, Ltd., are also manufacturers of enamelled and salt-glazed bricks; drawings and prices of these are fully illustrated and described in their catalogue. Space will not permit of our referring at any length to the salt-glazed ware which Messrs. Oates & Green are introducing for stables, but it is obvious how valuable from a sanitary point of view these fireclay mangers, troughs, &c., must be. Where care is paid in connection with the sanitary arrangements of the stable the owner is well repaid, and has made in every way a good investment.

TRADE NOTES.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have just supplied to the isolation hospital, Southall, Middlesex, their patent Manchester stoves with descending smoke flues.

ON Saturday last, the 28th ult, the inhabitants of Haxby celebrated the opening of a new clock and bell, erected at the schools to commemorate H.M. the King and Queen's Coronation. They were supplied by Messrs. Wm. Potts & Sons, clock manufacturers, Leeds and Newcastle.

MESSRS. AUSTIN & Co., engineers and founders and patentees and manufacturers of haulage, lifting, hoisting and elevating machinery, of Newcastle Elevator Works, Newcastle-on-Tyne, announce that, owing to the rapid extension of their business, they have had to remove into larger and more convenient works. These new works, in which they are now fully installed, are equipped in a thoroughly up-to-date manner, to enable them to deal with the best and largest class of work. Various specimens of the goods they turn out are illustrated in the attractively got up catalogue which Messrs Austin are now issuing, wherein their various forms of passenger and goods lifts, hydraulic cranes, &c., are depicted and fully described. We may mention that Messrs. Austin have branches in London, Birmingham, Glasgow, Melbourne, Liverpool, Manchester, Edinburgh and Capetown.

THE report for the year ended October 31 of Wm. Griffiths & Co., Ltd., shows that, after providing for expenses and wages at the branches and works, a gross profit of 51,583 $\frac{1}{2}$ was earned, as against 40,499 $\frac{1}{2}$ in the previous year. After deducting trade expenses, salaries and other expenses, maintaining the plant, machinery, tools, &c, there is a balance of 29,651 $\frac{1}{2}$, as against 22,270 $\frac{1}{2}$. Including the balance brought forward, there is a total disposable profit of 33,225 $\frac{1}{2}$, out of which an interim dividend at the rate of 10 per cent. per annum on the ordinary shares for the half-year to April 30 has been paid. The directors recommend a further dividend on the ordinary shares at the rate of 10 per cent. per annum for the half-year to October 31, making 10 per cent. for the year, leaving 16,906 $\frac{1}{2}$ to be carried forward.

THE wards and rooms throughout the buildings of the West Ham new infirmary are heated by D. O. Boyd's patent warm air ventilating stoves and grates. The stoves are fixed in the centre of the wards, fresh air from outside being drawn in through ducts in the floors, and warmed by circulating round the back of the fires. It then finds its way through gratings into the ward, and the volume may be regulated according to the temperature required. The smoke from the fires is also conducted under the floors to the chimney. Thus the system gives all the advantages of open fires, which are always so cheerful in a sick room; and in addition to the radiated heat of fires, there is a continuous flow of pure warm air which finds its way into every corner of the room and displaces the foul air through ventilators provided for the purpose. The stoves are cased with large marble slabs on top and sides. This gives a very handsome appearance to them and offers the least

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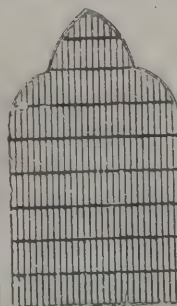
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FULL LIST, and dates when they appeared, of THE CATHEDRALS which have been published on Application to The Publisher.

possible facility for the lodgment of dust. The grates in the smaller rooms are built into the walls as usual, but have the warm air circulation just like the stoves. They have been made and fitted throughout the buildings by Messrs. Hendry & Pattison, Ltd., heating and ventilating engineers, 11 Hills Place, Oxford Street, W., and the same firm have carried out all the ventilation as well, using their patent double-action ventilators which exhaust from the wards through specially constructed air flues.

BUILDING AND BUILDERS.

WORK has now been commenced on the new Calvinistic Methodist chapel in Garth Road, Bangor.

THE competition recently held for the Baptist church, Beverley Road, Hull, has been decided in favour of designs submitted by Messrs G. & R. P. Baines, architects, 5 Clement's Inn, Strand, London, W.C.

THE house-painters of Preston struck work on Wednesday in consequence of the masters refusing to advance wages from 8d. to 9d. per hour. During last year, when trade was good, the masters conceded an extra halfpenny, but subsequently served notice upon the men intimating that they would revert to the old rate at the end of six months. This reduction the men accepted, but on the expiration of the term served notices on the masters for an increase of one penny, making the rate 9d. per hour. The masters declare their utter inability to pay the advance, having regard to the present state of trade.

A LECTURE was delivered on the 25th ult. in the rooms of the Building Trades Exchange, Limited, George Street, Edinburgh, by Mr. John Ritchie, whose subject was "An Apparatus for Determining Strains on Cranes and other Structures." There was a large attendance of those interested in the building trade, and the chair was taken by Sir Thomas D. Gibson-Carmichael. In the course of his address the lecturer, by the aid of diagrams, showed how strains on cranes and roofs were calculated. He produced a specially constructed model of a crane, which, by an arrangement of springs, acted both under compression and extension, and the strains on every part of the structure, due to a given load, were registered by a graduated index. This enabled the person employed at a crane to know the effect produced by various weights. The subsequent portion of the lecture was devoted to the nature of strains caused in slinging certain materials.

VARIETIES.

THE belfry of the fine old cathedral at Chartres has been found in a condition which leaves no time to be lost before taking measures for its preservation. By the winds of centuries and the vibration of the bells the masonry had become dangerously insecure. Repairs are to be promptly set on foot.

THE new schools provided for the Ashbourne Road Wesleyan chapel, Derby, were formally opened on the 25th ult. The cost will be about 4,500l.; the architect is Mr. Antliff of Draycott, and the builder Mr. Henry Vernon, of Derby.

THE municipal buildings at Dumbarton, N.B., were formally opened on Saturday last. The buildings, which are in the Scottish Baronial style, are constructed of red sandstone, and form an imposing pile. They front College Park, and there is also a fine elevation to Church Street. The council chamber is spacious; the various municipal departments are handsomely housed, and accommodation is also provided for the police establishment. The architects are Messrs. Baird & Thomson, Glasgow, and the cost of erection was about 19,000l. The buildings occupy a central position on the site formerly known as College Park, which was purchased by Lord Over-toun at a cost of 4,500l. and presented to the burgh. In addition his Lordship had the spacious grounds which surround the buildings fenced and laid off at a cost of 3,600l. The portion of the grounds at the front elevation is very artistically arranged, and the effect is heightened by the Denny statue, which stands in front of the main entrance to the buildings.

THE Runcorn cottage hospital was opened on Saturday. The hospital has been constructed after the style of the old Cheshire buildings, and is prettily situated at Higher Runcorn. It stands on a portion of 2½ acres of land, and faces the south. On the ground floor there are three wards with accommodation for ten beds. The hall, with the addition of a window, becomes a day-room for convalescent patients, and there is also a small operating-room lighted from the top and sides. On the first floor, which is reached by a staircase from the hall, is situated the matron's-room, and there is also a kitchen, pantry, bath-room, &c. On the top floor there are two bedrooms. The building and laying-out of the grounds has cost about 1,500l. and the land 600l. It is estimated that the furnishing will cost about 300l., making 2,400l. Mr. Wilding, surveyor to the District Council, has personally conducted the operations as hon. architect.

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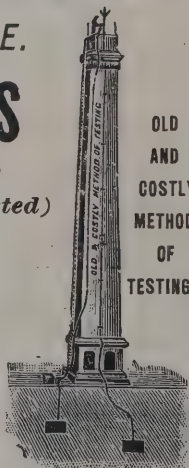
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For Index of Advertisers, see page x.

BRIGHTON MASTER BUILDERS.

Tuesday the members of the Brighton Master Builders' Association and visitors held the tenth annual dinner. The Chairman, Alderman W. Botting, J.P., presided.

Mr. H. F. Gates proposed "The Corporations of Brighton and Hove." The position of Brighton and Hove might be compared to the occupants of two semi-detached dwellings who recently been fighting about the common drain, and when the dispute was finally settled perhaps they would agree to make internal communication, join hands and "run the show on one establishment."

The Mayor of Brighton said he was sure he was only doing the wish of every member of the Brighton Corporation when he said they were anxious to join hands with Hove. The Mayor pointed to the waterworks, electric lighting and tramway as undertakings the municipality should be proud of possessing, and expressed the opinion that the Corporation enjoyed the support and confidence of the vast majority of the ratepayers. The rates had not increased in a greater ratio than those of other towns of similar size. The Corporation were very good customers to the builders, although perhaps they had occasionally entered into competition with them. When they did build their own houses they had to comply strictly with the by-laws, which were sometimes waived in other cases.

Mr. J. K. Nye proposed "The Association of Master Builders." He took quite a parental interest in it, having been present at its birth and assisted at its christening and confirmation, and also at the formation of their insurance company. Ever since its inception the Association had been a success and had been in smooth waters, and apparently there were no dangers ahead. Their motto was "Defence, not offence," and it was gratifying to know that they were at peace with all their workmen, and that they recognised their services and were willing to pay them a good wage for a good week's work. So successful, indeed, was the Association, and they had so much money, that they had reduced the subscription to one-half of its former extent.

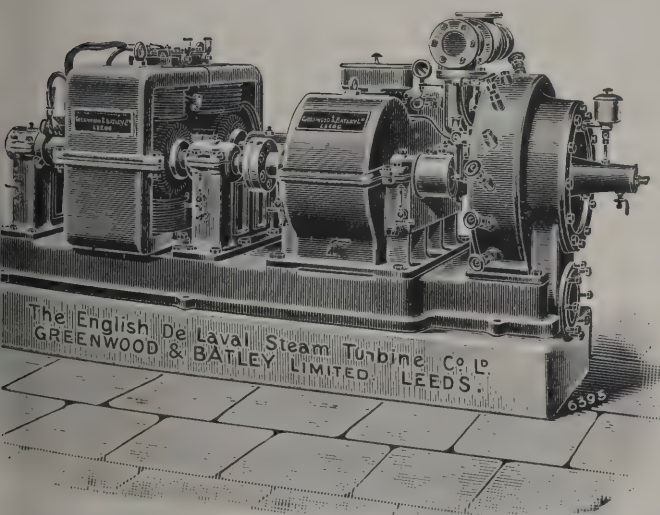
The Chairman, in responding, said that when the Association was called into existence ten years ago, they had great trouble in the town. The men all struck, and were determined to get the masters at defiance and to decide everything in their own shops. That would have been such a serious thing that the masters resolved to fight it out. It took eighteen weeks,

and was a very serious matter for them, but having fought it out very successfully they had had peace ever since, and he thought that both workmen and masters had been very much happier. Brighton could say what no other town of its size could, and that was that they had no rules in their workshops; the master was master, and he decided what should be and should not be. He believed they would have peace for a long while to come. In every way their Association had met with great success. They had plenty of funds, and during the last two years had been able to reduce their subscriptions 50 per cent. At the same time they intended to do the best they could for their men, pay them a good wage, and make their lives as happy as they possibly could, and in return they expected them to serve them well. The insurance company which they started in connection with the Association had flourished so much that at this moment if it was stopped they could give everyone 27s. or 28s. for every 4s. share. They had between 5,000l. and 6,000l. to meet any claim that might be made against them. In both their Associations they had been guided by Mr. J. K. Nye, who had given them very good advice.

LAMBETH BRIDGE.

THE bridges committee of the London County Council have prepared a report which states that they were desirous of bringing before the Council the question of the reconstruction of Lambeth Bridge, in respect of which they were of opinion that powers should be obtained in the next session of Parliament. The present bridge was a stiffened suspension structure, the principle of construction being a combination of iron cables with lattice girders. The bridge was erected about the year 1861, and was freed from toll in 1879 at a cost of 36,000l. Although about 3,000l. had been spent in strengthening the structure, the bridge was still of inadequate strength and had to be used under restrictive conditions, and, having regard also to the increasing traffic, the building of a broader and more substantial bridge was imperative. Bearing in mind the resolution passed by the Council that the new Vauxhall Bridge should be built of masonry, the kind of bridge to be erected in place of the present construction had necessarily been engaging their attention. The question of the gradients practically decided whether it was to be constructed of steel or

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masonry. At present the gradients were very steep, being 1 in 19 and 1 in 22 on the north, and 1 in 20 and 1 in 23 on the south. Under an agreement the Council could not raise the level of the centre of the road at the junction of the bridge approach with Lambeth Road and the Albert Embankment more than 3 feet 10 inches above the present level, and as a result that height fixed the level of the beginning of the road over the bridge. Their attention had been drawn to the fact that, even if the restrictions placed upon the Council with regard to Vauxhall Bridge were considerably relaxed in the case of Lambeth Bridge, a masonry structure could not be built with a better gradient than 1 in 25, which was about the same as the northern approach to Southwark Bridge, which, on account of its steepness, was so little utilised for vehicular traffic going southwards. On the other hand, a steel bridge with a gradient of 1 in 30 could be obtained and better facilities for navigation afforded during construction than at Vauxhall Bridge. As it was most desirable that a satisfactory understanding should be come to between the Council and the Thames Conservancy before Parliamentary powers were sought, they had submitted to that body a drawing showing generally the possible headways and waterways, both temporary and permanent, which could be provided under a granite or masonry bridge having a road gradient not steeper than 1 in 25. As the result of a conference between the Thames Conservancy and representatives of the river traffic interest certain conditions had been imposed, one of which was "that the headway of the openings of the temporary works in the two side arches adjacent to the centre arch should not be less than 15 feet above Trinity high-water mark." This, the engineer informed them, was incompatible with the construction of a granite or masonry bridge with reasonable gradients. In the circumstances it appeared to them that there was no alternative but to erect a steel bridge, and they had accordingly submitted to the Thames Conservancy an alternative sketch which they had reason to hope would prove acceptable, and upon which they would be in a position to report at an early date.

NORWICH MASTER BUILDERS' ANNUAL DINNER.

THE fourth annual dinner of the Norwich and District Master Builders' Association took place on the 23rd ult. at the Maids' Head hotel, Norwich, Mr. James S. Smith presiding.

Mr. J. Youngs submitted "The Imperial Forces," and the Mayor responded. In the course of his speech he said there was a little dream or ideal of his, and this was, Why should Norfolk not become a station for an Army Corps or a military centre? As far as he could see they were going downhill that respect. There was talk of doing away with Norwich a military centre, but he thought it would be a great pity if the citizens even allowed the city to develop into a dépôt for a regiment. He thought they should say it should become the headquarters of an Army Corps. There would, however, be the question of the additional rates, but upon this there would probably be a very keen consideration when the War Office were communicated with.

The Chairman proposed "The Mayor, Sheriff and Corporation of Norwich," in the course of which he congratulated the Corporation on the acquisition of the electric-light works, believing it would result in a remunerative undertaking. In regard to the housing question, he hoped that whatever the Corporation did in that matter would be suitable to the class requiring the buildings. Let them not build flats.

The Mayor, in reply, said:—I think myself peculiarly fortunate in being permitted to dine with the Builders' Association of Norwich, as they are a unique body, and one, I am told, who are the largest employers of labour in the city. You ought to be proud of your city, as you are the people who have helped to rear, at any rate, some portion of it, but surely you must feel it a duty in some sort to justify that pride that is to say, to give yourselves a right to be proud of. Before, however, you boast of your city, or rather, the part which you have assisted to erect, before even you venture to call it yours, ought you not to scrupulously weigh the exact share you had in adding to it or adorning it, to calculate seriously the influence upon its aspect which the work of your own hands has exercised? Mind you, I do not say this even when you regard your city in this scrupulous and testing spirit you have not considerable ground for exultation. But please remember that it is chiefly by private, not public effort that your city must be adorned. It does not matter how many beautiful public buildings you possess, if they are not supported by, and in harmony with, the private houses of the town. It is in your private houses that the real majesty of Norwich should consist, and, what is more, it must be by your own personal interest that the style of the architecture which arises around you must be principally guided. Do not think that you can have good architecture merely by paying for

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not by subscribing liberally for a large building once in years that you can call up architects and inspiration. You will answer, you cannot feel interested in architecture, you do not care about it. About such architecture as is built to-day no mortal ever did or would care. You do not feel interested in hearing the same thing over and over again. You, then, should you feel interested in seeing the thing over and over again, were the thing even best and most beautiful in the world. Well, but what are we to do? You will say to me, We cannot make architects ourselves. Pardon me, you can; and you ought. Architecture is an art for all men to learn, because all are concerned with it; and there is no excuse for not being acquainted with its primary rules any more than for ignorance of grammar or of spelling. The first thing to be required of a building is that it shall answer its purposes completely, and at the smallest expense. If it is a house it should be just of the size convenient to its owner, containing just the kind and number of rooms that he wants, with just the number of windows he wants put in the places he wants. If it is a church it should be just large enough for its congregation, and of such a shape and disposition as shall make them comfortable in it, and let them hear well in it. If it is a public office it should be so disposed as is most convenient for the clerks in their daily avocations, and so on, all being utterly irrespective of external appearances or æsthetic considerations of any kind, and all being done simply, securely, and at the smallest necessary cost. The fulfilment of any of these first requirements to external appearance is absurd. Rooms must not be darkened by naked ranges of windows symmetrical. Useless wings must not be added on one side to balance useful wings on the other. But observe in doing all this there is no fine art, as it is commonly called, fine art required at all. There may be much science, together with the lower form of art or "handicraft," but there is no fine art. But when the church or other building is thus far designed, then comes the divine part of the work, namely, to turn these dead things into living ones. And that is to be done by ornamentation. Ornamentation is, therefore, the principal part of architecture. If only one could follow these precepts in all modern houses what a unique city would old Norwich be, you can anyhow in the future endeavour, as far as possible, always to follow in the same groove, but try when conducting your building operations to instil a little ornamentation

into your buildings, no matter how humble their destiny, and you will at any rate have the satisfaction of knowing that your work will be admired by future generations. I have now only to thank you, gentlemen, for the patience you have shown in listening to my presumptuous remarks, which have only emanated from my desire to see the city we all love so well keep the characteristics it has always borne of a beautiful and quaint old city.

The Sheriff also replied.

Mr. G. E. Hawes proposed the health of the "Architects and Surveyors" in felicitous terms, and it was responded to by Mr. E. T. Boardman, F.R.I.B.A., and Mr. A. C. Havers; and the remaining toasts were those of "The Merchants of Norwich," proposed by Mr. W. Stacey Daws, acknowledged by Messrs. Porter, C. Cunnell and E. Jewson; "The Norwich and District Master Builders' Association," proposed by Mr. E. Reeve and responded to by the Chairman; and that of "The Visitors," given by Mr. B. E. Scarles and replied to by Messrs. W. Gunton and A. R. Bannister.

The harmony of the evening was contributed to by Dr. Lowe, Mr. H. D. Abbott, Mr. E. Holmes, Mr. H. Haylett, Mr. T. A. King, Mr. H. Hawes, &c.

HOUSING IN GLASGOW.

EVIDENCE was given before the Glasgow Municipal Commission on the Housing of the Poor by Mr. John Paterson, builder, which is reported in the *Glasgow Herald*. He said that he had been in business in Glasgow for over forty years. Previously he had worked as a tradesman, so that his experience extended over fifty years. He was a house-builder, brickmaker, contractor and quarrier. When he started business the wages of skilled tradesmen were from 25s. to 27s. per week. The wages of the men employed by his firm were as follows:—Bricklayers, 42s. 6d. per week of 51 hours; masons and hewers, 40s. 4½d. per week of 51 hours; builders, 10d. per hour, or 42s. 6d. per week of 51 hours; joiners, 10d. per hour, or 42s. 6d. per week of 51 hours; cartwrights, 8d. per hour, or 37s. 4d. per week of 56 hours; blacksmiths, 7½d. per hour; labourers, 5½d. per hour, or 23s. 4½d. per week of 51 hours; navvies, 24s. 4d. per week of 56 hours; cranemen, 32s. 6d. per week; fitters, 4cs.; watchmen, 20s. to 21s. per week. These were the wages agreed upon by the Masters' Association and the men, and were

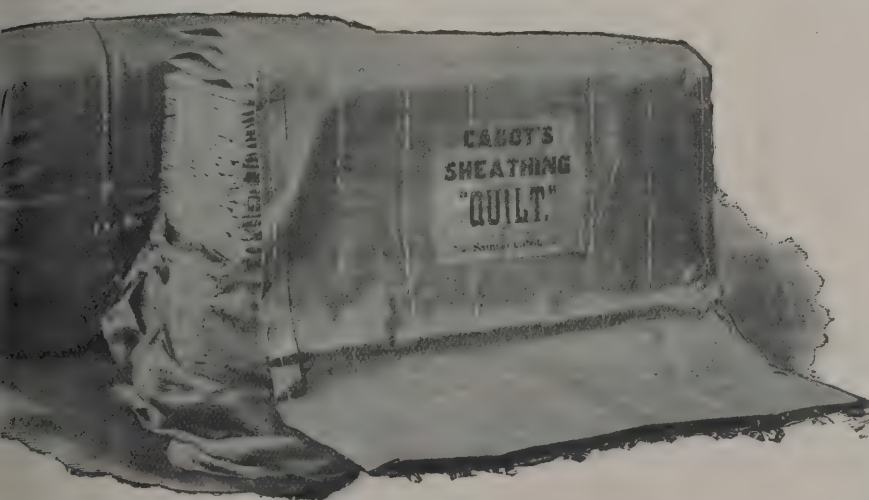
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applicable to all building trades. In the brickworks men made 27s to 30s. a week. Women made 15s. to 16s. a week; girls, 15s.; boys from sixteen to twenty years of age 18s. a week. The work done by the women was not heavy work. Some of the women employed were married women. It sometimes happened that a man and his wife and family worked in the field together. They carried on a section of the work in winter, mostly stovework. Women, girls and boys worked during the winter, but their earnings were sometimes smaller on account of the shorter day. They very seldom stopped the stovework in winter time. The lowest wage paid in the list quoted by him was 21s. per week, which was the wage of a watchman.

Do you know of any able-bodied men in Glasgow receiving wages at the rate of 18s. a week or under?—I know of no such men, nor do I know of any reason for such men to work for such a small wage. In fact, we have rather a scarcity of men in the North Side. Continuing, witness said that recently his firm sent for some of the unemployed men who sought Corporation relief work. These men were not as good workmen as their own navvies, but he had no doubt they would become as good with practice. So far as he knew there was always plenty of work.

He thought there was an improvement in the circumstances of workmen to-day as compared with forty years ago. He thought men were more temperate now, their work was lighter, their hours were shorter, and their wages were better, and they took advantage of these conditions and lived better. He knew of men earning large wages who lived in the slums, and he recalled a visit he paid to like localities about forty years ago when he was in search of a squad, and on that occasion his experience was somewhat similar to that of the Commissioners who recently visited the slums. The rents of labouring men had risen about 1s. a week and their wages had risen 1s. a day. In the case of skilled men, who occupied better houses, rents had risen 1s 6d a week and wages 1s. 6d a day. He did not know that it was more expensive for working men to live than it was forty years ago. Groceries were not dearer.

He remembered the city improvement displacements.

Do you think, if the Corporation were to remove the slum areas which remain, that private enterprise could meet any reasonable demand for houses?—I think it would if the ground could be got at reasonable rates. Let the Corporation buy the ground, and sell it at reasonable rates to builders.

What would you call reasonable rates?—For the erection

of rooms and kitchens, not more than 10s. a yard. In a front street you might get a little more.

Would you make provision for the Corporation acquiring the land and making up the deficiency instead of building themselves?—I would suggest that course with the view of improving the condition of the working classes. The suburbs are not convenient.

If the Corporation bought as cheaply as they could, and removed the whole of the buildings, would they not arrive at the market price if they sold in the Faculty Hall?—They should sell at the market price which the ground would bring, with restrictions put upon it as to the character of the buildings to be erected.

If the ground were so restricted there might be a difference between the real value and what the Corporation would get for the ground hampered by conditions?—There might be a difference, and it should be made up by the ratepayers.

If the ground were restricted to small houses do you think it would be practicable to restrict the builder or the proprietor to a particular rent?—I think that would regulate itself because there would be more than one builder.

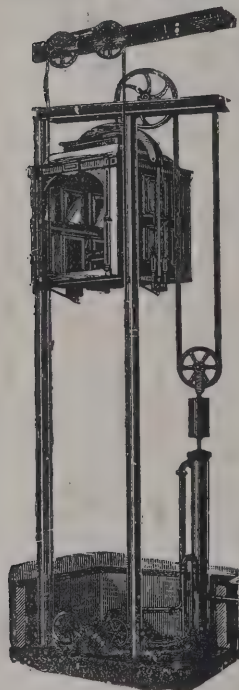
It was a difficult problem to know what to do with the class of people who polluted their houses, but he thought increased power should be got by the sanitary authorities. Sober men were more uniformly sober now than they were 40 years ago, and the drinkers were more utterly drunken. Tenants should be forced to keep their houses clean. On one occasion he had a property in Polmadie. His factor told him that one of the tenants was likely to pollute the whole building. He knew the husband was a decent man, and he got the sanitary inspector to visit the house. The woman was greatly put about and threatened him with an action, but the remonstrance had the desired effect.

Do you think the Corporation should try that policy?—I would not like to make any suggestion; but I think something should be done. They should endeavour to get the law on their side. Continuing, witness said that a great deal of building was going on in the suburbs just now—particularly in Partick and Govan.

The wages in the brickmaking trades were taken from his own pay-sheets. Before the women workers became what they called good hands, they required to be a season at the business.

As a builder he considered that the work done by building operatives to-day was better than it was forty years ago. He did not think they got as much work done, but there was an

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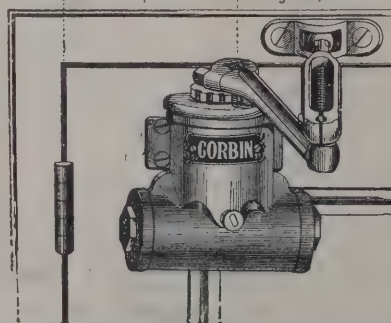
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GLAZED BRICKS.

provement in the quality of the work. He was not aware that a large number of masons were idle during the winter. He did not think the Corporation should supply houses for the working classes. Water and gas were different things. He did not think municipal credit should be used for any purpose but would bring the Corporation into competition with private builders. He did not know how the Corporation could discriminate between the deserving poor with limited incomes and others not so decent. He objected to the Corporation building houses for the working classes. There was no scarcity of houses for any section of the community in Glasgow.

Of course you know that the Corporation have held their hands for some time in the closing-up of insanitary houses, and that there is a probability that they will resume activity and close a great many within the next few years.—They are bound to do so, for it is desirable and necessary that overcrowding and insanitary conditions should be ended. Who will supply the cheap houses as a substitution for those so closed? The supply will always meet the demand; at least, it has been my experience for the last forty years.

He knew there were a great many back lands in Glasgow. He would clear them all away, and if the front land was a substantial building he would gut it out and redivide it. He would take stringent measures with the undesirables. If they would not get them dislodged from their old haunts he would acquire ground in the country, to which he would take them and make them work.

You say that builders have been busy for the past five years, that they have not been paralysed by the proposals of the Corporation?—They have been building a different class of house. Rents of room and kitchen houses had increased within the last ten years, but builders had been putting in galleries and kitchen ranges, and these extras increased the rent. There might be a class of people who had a wage of 18s. a week. He could give no information about the class.

The Chairman: In regard to this scheme of yours for the Corporation purchasing ground, condemning unworthy houses, and selling it for what it would bring, for the purpose of erecting workmen's houses, and debiting the difference to the ratepayers—is that not making the ratepayers pay for giving comfortable houses to these people?—Not necessarily.

If this ground is worth 5/., and the Corporation only get 3/., the ratepayers have to pay the 2/., i.e. of difference. Is that not just the ratepayers giving cheap houses to these people?—I agree.

I thought you objected to the ratepayers paying in another way?—Yes; they should leave it to the builders.

What is the difference between the two?—I think there is a great difference. I would not make the municipality builders. I do not think the municipality can build as cheaply as builders.

Would you be surprised to learn that about 1888 the rate under the Improvement Act of 1866 was 2d. per 1/., on the rental of the city, and that since the Corporation began to build there has been no rate at all?—But you have not provided for the class you displaced.

You are anxious that the authorities should deal with dirty tenants. What solution have the landlords for dealing with this class?—The landlords would willingly co-operate with the authorities in removing all nuisances.

INDUSTRIAL PARTNERSHIP.

ON Monday at a special meeting of the Council of the Charity Organisation Society, Sir George Livesey read a paper on "Industrial Partnership and the Prevention of Distress." He said that the question as to how industrial partnership was to prevent distress was difficult to answer. Industrial partnership was more than simple profit-sharing, which was but the first step in that direction. In its complete and ultimate form, as he understood it, it was a real partnership—beyond mere salaries and wages—of capital and labour, of employer and employed in the business in which both were engaged; it was a partnership in capital and therefore in the profits on capital, in responsibility and in actual management. He thought that when this became general the whole class of workmen would have been lifted to a higher plane, and they would be owners of property and would be thus removed from the risk of distress due to temporary depressions of trade. But this was a dream, and any man who thought it might come true would be regarded as a dreamer. The first step was to dissipate that pessimistic opinion. When the Gas Workers' Union was master in the retort houses of the South Metropolitan Gas Company in the autumn of 1889 he thought that possibly at some future time they might be again free. Within three months that was realised, but it never occurred to him as possible that in a dozen years or so nearly every man would be a shareholder in the company, that some 4,000 men would possess in the ordinary stock or on deposit with the company 170,000l., or over 40l.

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per man on the average; that numbers of working-men who said that they could never previously save a penny were possessors of 100*l.* or more, a good few having become owners of their houses; that three employes—two workmen and one clerk, elected by their shareholding comrades—would be sitting on the board and taking part as directors with credit to themselves and with advantage to the company; that since 1889 a dispute or a difficulty or a difference of any kind between the workmen and the company had been unknown, and that such a spirit of co-operative goodwill should prevail on the part of the men generally as entirely to relieve all who had to do with them from every trace of anxiety. This was, however, an isolated case. He went on to give other particulars, showing that co-partnership of capital and labour was no mere dream, but a practical solution of a very difficult problem, namely, the reconciliation of those two apparently diverse but really identical interests. Speaking generally, the great weakness of this country was that our great working population had no share in its vast accumulated property, which was the cause of the thriftlessness of the English. The French, he said, were thrifty because they were property owners. He was of opinion that this difficulty would be removed, and that the twentieth century would do for the English working or wage-earning class what the nineteenth century did for the middle class. The wonder was that the wage-earners, having no stake in the country, were so patriotic. But they were not contented with their lot, and that discontent would grow until it became a real danger to the State unless those who had the power and influence to remedy it—namely, the employers—took the matter seriously in hand. The trend of the working classes seemed to be strongly towards Socialism, which meant ruin all round, but if they were made property owners all that would be changed and they would certainly become thrifty, and having a real interest in the country they would take their part in its government with credit to themselves and to its general advantage. In fact he saw no other way of combating Socialism. Given the opportunity and such encouragement as was possible, our working men were not so thriftless as was commonly supposed. Their thriftlessness was due to the fact that they regarded as hopeless any attempt to accumulate, and therefore did not try. When the South Metropolitan Gas Company started their profit-sharing system they gave the men the option of leaving their annual bonus in the company's hands at interest, and, to the surprise and pleasure of all, no less than 45 per cent. did save it. This percentage had gradually increased until at the

distribution last year it had risen to well over 80 per cent. saved. This was the strength of the system. If the annual bonuses had been regularly withdrawn, no permanent good would have resulted to the workmen, and the profit-sharing system would have been a failure and would certainly have been abandoned long ago. If industrial partnership was to be so general an agent in our industrial life, and incidentally in the prevention of distress, how was it, he asked, to be made general, and what were the difficulties in the way of its adoption and success? The first chief difficulty was that employers generally did not see its importance, and were not, therefore, disposed to take it up to give the necessary time and attention to secure success. If employers could be enlightened on the subject, the joint-stock system, by which all great industries were now worked, was just the thing. It was a partnership, and all that was necessary was to include the wage earners. This could be done, recommended by the Labour Co-partnership Association, by paying the profit-sharing bonus partly or entirely in shares in the company. Another difficulty to the introduction of the system was the dislike of the trade unions, for the ultimate success of co-partnership meant that employers and employed would be one, and therefore there would be no need for the trade union as it now existed. It would, in fact, be superseded by a superior system. Partnership in businesses, such as railways and other companies where employment was regular and constant, was, he believed, quite possible and practicable; but where employment was casual and uncertain the co-partnership system was at present scarcely applicable, and unfortunately from the fluctuating businesses mainly came the distress caused by want of employment. Of course, there were many and great difficulties, but there was also great danger to the industrial community and to the State. Something must be done, and it appeared clear that it must be in the direction of co-partnership, which he thoroughly believed was the goal of British industry. Employers were doubtless in many cases fearful of the result of bringing their workmen into partnership, which need cause no surprise; but, so far as his experience went, working men responded most satisfactorily to the trust reposed in them. If and when the working class became possessors of property, one indirect effect in the prevention of distress would be that employment would be more regular and constant, for they would not be merely labourers but, by virtue of their thrift and savings, active promoters of productive industry.

A discussion followed.



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The Architect.

THE WEEK.

THE definition of the "sky sign" in the London Building Act is more comprehensive and elaborate than usual, for it means "any word, letter, model, sign, device or representation in the nature of an advertisement, announcement or direction, supported on or attached to any post, pole, standard, framework or other support, wholly or in part upon, over or above any building or structure, which or any part of which sky sign shall be visible against the sky from any point in any street or public way, and includes all and every part of any such post, pole, standard, framework or other support." But a case was brought before Mr. FRANCIS, at the South-Western Police Court, by the Battersea Borough Council, which failed on account of the vagueness of one word in the definition. Does "upon" mean contact with the outer part of a thing or "up on" it? The advertisement in question projected from the front of a building at a considerable height from the ground, but not above the roof, in Northcote Road, Clapham Junction. The theory of the Borough Council was that the words "wholly or in part upon" brought the sign within the scope of the Act, for when seen from beneath it appeared against the sky. On the other side, the contention was that "upon" signified above a building. The magistrate, after visiting the building, came to the conclusion that the board was not a sky sign, for to come under the Act the sign must be on the top of a house. If the Borough Council were right then every advertisement board in London is a sky sign, and would have to be removed. The summons was therefore dismissed with costs. Mr. FRANCIS's decision is justified by the declaration of the Act that sky sign is not to include "any sign on any board, frame, or other contrivance securely fixed to or on the top of the wall or parapet of any building, on the cornice or blocking course of any wall, or to the ridge of a roof, provided that such board, frame or other contrivance be of one continuous face and not open-work, and do not extend in height more than 3 feet above any part of the wall or parapet or ridge to, against, or on which it is fixed or supported."

It is not surprising that after the revelations about the so-called tiara of SAITAPHARNES, now in the Louvre, the authorities of other museums should endeavour to exculpate themselves from the charge of having negotiated for its purchase. An announcement has been made in Berlin which is evidently inspired by the EMPEROR on the subject. All knowledge of the tiara in the Louvre is repudiated. It is admitted, however, that in the summer of 1895, before the tiara found its way to Vienna or Paris, a gold crown with an inscription which it was pretended was found in South Russia was offered to the Berlin museum. The purchase of it was seriously considered. Before the money was paid, ERNEST CURTIUS, the director of the excavations at Olympia, a scholar whose name will always be identified with Greek archæology, examined the work. He was able to announce in July 1895 to the Berlin archæologists that the crown was a falsification. The purchase was not concluded. The crown could therefore not be said to have been acquired for the museum, and further knowledge of it is not acknowledged.

THERE are five grades in the Legion of Honour, viz. chevaliers, officers, commanders, grand officers and grand croix. The last is, however, restricted to those who have rendered extraordinary military or political services. Grand officer may therefore be considered to be the highest decoration obtainable in France. The centenary of the French School at Athens and of the utilising of the Villa Médicis in Rome as a school of art has been celebrated by the elevation of two painters and two archæologists to the rank of grand officers. One is M. WILLIAM ADOLPH BOUGEREAU, who in 1850 won the Prix de Rome at the same time as the late PAUL BAUDRY. After a long career of success M. BOUGEREAU, who is a native of La Rochelle,

is president of the Society of French Artists. His works are generally on a large scale and are pleasing to all classes. M. JEAN JACQUES HENNER was born at Bernwiller, and is therefore an Alsatian. His paintings are comparatively small, and he has a preference for heads and figures in profile. But the smallest of them always asserts itself in any gallery in which it may be placed in the Salon. Although his pictures are highly prized, the artist is not ambitious to gain a reputation for productivity. The name of M. PERROT must be familiar in England through the translation of his great "History of Art in Antiquity," which he prepared in co-operation with the late M. CHIPPIEZ, the architect. But that work is only one of his claims to distinction. For several years he has directed the Ecole Normale, which is the most advanced of the educational institutions for literature. M. LEON HEUZEY, the fourth grand officer, is the professor of archæology at the Ecole des Beaux-Arts. His life has been devoted to Greek work, and his authority is unquestioned on whatever relates to antiquity and which can be supposed to have any bearing on Greek art.

THE trustees of the Manchester Infirmary on Friday last formally accepted the offer of 400,000*l.* by the Manchester Corporation for the site of the existing buildings. Authority was also given to the Board of Management to obtain plans and estimates for the erection of new buildings on the Stanley Grove site. Mr. JOHN THOMSON, chairman of the Board of Management, said they proposed to invite architects who desire to prepare plans to send in applications, together with particulars of their experience in hospital construction. The Board will then select a number, perhaps ten or twelve, of the most likely names, not confining themselves to Manchester, and will ask the selected architects to submit drawings and estimates, allowing to each firm a sufficient sum to cover expenses. Expert advice will be obtained for judging the merits of the designs submitted. The plans which may be pronounced the best will be laid before the trustees as soon as possible for consideration. The competition it will be seen will be limited, and will not be restricted to architects living in Manchester. Whoever is successful will, it is to be hoped, be more fortunate than those who gained in the last competition, but who were not enabled to see their designs realised.

RANWORTH CHURCH, in Norfolk, is being restored under the direction of Mr. J. T. MICKLETHWAITE, F.S.A. A sum of about 1,900*l.* has been expended, and 2,441*l.* will be required in addition. As one means towards obtaining the money an account of the rood-screen has been published by Messrs. JARROLD & SONS. It is written by Mr. E. F. STRANGE and illustrated by Mr. H. P. CLIFFORD. The screen is remarkable. There is no doubt it supported a wide loft of which only a part exists, and for that purpose two timber buttresses of graceful form were introduced which give novelty to the structure. In the panels are figures of saints painted in vigorous style. They are suggestive of florid German work, and Mr. STRANGE concludes they were derived from a set of prints by a German artist. There is no information forthcoming either about the maker or the donor of the screen. It is an interesting example, and when in a perfect state must have caused delight to all who looked on it. The description of the screen is worth possessing as an archæological essay, and the purchaser has the satisfaction of knowing that any profits from the sale will help the restoration fund.

REINHOLD BEGAS is one of the sculptors of whom Berlin should be proud. His group *Borussia* at the Exchange, his statues of SCHILLER, A. VON HUMBOLDT, BISMARCK, and especially the great monument of the Emperor WILHELM, are among the most important ornaments of the city. He has held the appointment of director of the chief atelier for sculpture in the Academy, and many prominent artists were benefited by his skill. Herr BEGAS, after twenty-five years' service, has resigned the office to Professor LUDWIG MANZEL. His departure is likely to cause a secession, and it may be that a rival institution will be set up.



TYPES OF COSTUME: ANGLO-SAXON AND NORMAN.

OPTICAL REFINEMENTS IN ST. MARK'S, VENICE.

SOME of the shortcomings of the churches which represent Italian Gothic have been occasionally pointed out. It was found, for example, that the arching which so often forms the principal decorative element of the exterior of many a building was, without any apparent reason, not throughout of uniform radius in the same arcade. The lines of the panelling or decorative arching were not always continuous from base to roof. Shafts of columns occasionally varied in length, and then there could not be uniformity in the capitals. Many other peculiarities, or rather irregularities, were noted. Indeed, it has been supposed the style owes its character to travestying Classic forms. The absence of unity is explained by saying that an Italian church was not often commenced and completed under the same supervision. It must be admitted, however, that, compared with other styles, little attention was given to the study of Italian Gothic. It was rarely used as a direct source of inspiration in this country, and did not in consequence receive that scrutiny which comes from measurement in detail. At a later time, when photographs could produce more exact views than were hitherto possible by drawings, any aberrations which presented themselves were ascribed to defects in the lenses.

The discoveries of PENNETHORNE and PENROSE might be supposed to be suggestive of the possibility of discovering deviations from exact perpendicular and horizontal lines in Italian churches. There was no reason why similar efforts to compensate for the weakness of vision should be abolished with Paganism. The early Christian masons and their successors were not, perhaps, distinguished by their knowledge or skill, but they might be considered as having sufficient ability to continue a practice which at an earlier time was adopted. It would be wrong to assert that the modification which consisted in the substitution of one kind of line for another was unknown in Italy in the Christian period. Only a general knowledge is to be obtained of the characteristics of the buildings, for, as we said above, men do not investigate structural peculiarities unless they have some confidence they will be able to turn their researches to account. As a rule it will be found that English architects rarely become enthusiastic over the class of work which was produced in Italy for a long time prior to the Renaissance. Until JOHN RUSKIN made St. Mark's the subject of his impassioned prose-poetry, we believe most English visitors would agree with JOSEPH WOODS when he asserted that the exterior of the building surprises by its extreme ugliness rather than by any other qualities. The countless columns, he said, were the spoils of Constantinople and the Levant, but the capitals were so rude he thought they could be only home manufactured.

In spite of Mr. RUSKIN's eloquence, it has been difficult to utilise St. Mark's or any of the older churches as models for English buildings. If they could have served in that way it would not have been left to an American professor to disclose the remarkable refinements, illusions and examples of constructive asymmetry in so many

Italian buildings. But he deserves credit for his earnestness when so many people were indifferent. French architects are reputed to be familiar with all the subtleties of their art, but it was reserved for Professor GOODYEAR to demonstrate there were horizontal curves in the Maison Carrée at Nîmes as well as in the Parthenon. That discovery does not seem to have earned for him much gratitude from Frenchmen, and no notice appears to have been taken by any of the English architectural societies about what he has succeeded in revealing concerning Italian practices. We have already on more than one occasion endeavoured to suggest what Professor GOODYEAR has accomplished. But as St. Mark's, Venice, has of late attracted increased attention through its escape from destruction by the fall of the Campanile, we desire to return to the subject, especially as that building has been made the subject of his most exhaustive investigation.

In 1870 Professor GOODYEAR noticed that the casing of certain piers in St. Mark's had been cut obliquely so as to fit and correspond with a system of vertical inclinations which receded outwards. The leans of the pillars could therefore, he thought, not be less ancient than the casing itself. He subsequently came to the conclusion that the Venetian basilica was no solitary instance of a departure from verticality. But not until 1895 was he able, with the aid of an engineer, to make a special survey of the phenomena in St. Mark's. The results when systematised confirmed his former conclusions. They also recalled what JOHN EVELYN wrote in 1666 about Old St. Paul's, viz.:—"Finding the main building to recede outwards, it was the opinion of Mr. CHICHELEY and Mr. PRAT that it had been so built *ab origine* for an effect in perspective in regard of the height; but I was, with Dr. WREN, quite of another judgment, and so we entered it; we plumbed the uprights in several places." Apparently neither WREN nor EVELYN believed in deviations to obtain the effect of verticality.

The matter received so little attention from preceding observers—for even RUSKIN judged of irregularities without any elaborate measuring—we can understand why Professor GOODYEAR was anxious to have his discoveries certified by the engineering architect of St. Mark's. When the proposal was unfolded to him, Signor SACCARDO was "politely sceptical as to constructive widening or spread." On examination with the Professor, "he frankly acknowledged that he had not previously realised the full amounts of the outward leans as these were made known to him through the published measurements of 1897." The difference is not slight. The north walls lean back about 16 inches and the south 15½ inches. No settlement of foundations could produce so large a deviation without a collapse. Signor SACCARDO at once realised that the leaning must have been intended for constructive purposes.

Afterwards he prepared a statement or certificate testifying to the accuracy of the demonstrations. According to him the inclination of gables and pinnacles, which was not unusual in Mediæval architecture, is visible in the principal façade of St. Mark's. It is otherwise on the lateral façades, owing to the architect who restored them thirty years ago, not understanding the artifice, and arranging the pinnacles

in an upright manner. It is also observable in the neighbouring Porta della Carta, which is of Renaissance construction. The principal façade of St. Mark's is besides laid out on an inward curve. The pinnacles are of unequal height and rise towards the centre. Signor SACCARDO gives credit to Professor GOODYEAR for discovering the forward leans of the lower columns of the façade, while those over them are perpendicular, the leaning inward of the interior piers supporting the larger domes, and the convex curvature of the parapets of the galleries connecting the arcades of the transept. Although some distortion may have been caused or, at least, augmented by the pressure of the masonry on the yielding soil, the deviations are too uniform to be regarded as purely accidental.

Signor SACCARDO accorded permission for the closest examination. Professor GOODYEAR undertook a series of plumbing experiments in order to ascertain how far different parts of the building varied from the perpendicular. This was undoubtedly an onerous task, and the full report of the results is to be found in one of the memoirs of the Brooklyn Institute of Arts and Sciences. Drawings and photographs show the very numerous points at which the observations were taken.

Professor GOODYEAR believes that the refinement of widening the vertical lines in the rising direction is nowhere so consistently applied as in St. Mark's. He thinks it originated in the belief of the builders that it was an improvement. We have become so accustomed to "absolutely rectilinear buildings, with mathematically accurate measurements of construction and with absolutely symmetrical correspondence in all architectural members and features, which has even exalted these things as an ideal of perfection in building; that the whole subject of architectural refinements is a matter of difficult apprehension." At St. Mark's there is no doubt that the effect of spaciousness in the upper portion of the church is much enhanced by the arrangement. It is also clear that the graceful bend of the verticals is preferable to the rigidity of the straight line.

It is remarkable that with the Renaissance there came indifference to the old method. It was practised, however, as late as the time of PALLADIO. Professor GOODYEAR has discovered the phenomenon in the façade of St. Ambrogio, Genoa. Signor DE ANDREIS, an engineering architect, says that the lower part of the façade has a vertical inward inclination of about 20 centimetres in a height of 50 metres. The church was erected about 1590 from the design of a Jesuit priest. Probably it is the only Renaissance example of the treatment existing in Italy. The adoption of the practice was different in an earlier time. Thus the architect in charge of Pisa Cathedral has testified to the correctness of Professor GOODYEAR's statements that the façade of the Pisa Cathedral was intentionally inclined in the original construction; that all the curves of this building, both the horizontal and the vertical, were intentionally made in the original construction; that the oblique lines of the interior galleries were built as they now appear; that the main exterior cornice is oblique by construction. In the ancient church of St. Ambrose, Milan, it was found by plumbing that a pier in the nave nearest to the choir receded 6 inches at the capital. Many similar instances are also cited.

It is hardly to be expected that Professor GOODYEAR's discoveries will have any immediate effect on modern architectural designs. But if it can be realised that true lines were not always formerly adopted the peculiarity should be respected. In Mediæval structures some deviations of the plan have been considered symbolical, but it is doubtful whether DURANDUS himself would be able to interpret the widenings and forward inclinations as having any reference to mysticism. The Greeks being mathematicians there is no hesitation in considering their variations as evidence of great skill in construction. Why there should be any hesitation in the case of the Mediævalists is not easily explained.

A Site in Cathedral Avenue, Calcutta, has been recommended for the Victoria Memorial Hall. In order to have the building fully displayed it will be necessary to remove the existing goal. The sum of 50 lacs of rupees having been subscribed, the work is likely to be soon commenced.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER IX.

FENESTRATION AND PORTALAGE.

A TREATISE of this nature, though essentially devoted to the principles of design, would scarcely be fulfilling reasonable expectations in the absence of some notes on fenestration and portalage. The former is, indeed, a matter of great importance since the repeal of the window tax—within the memory of many still living. To say that light comes as well and efficiently through a square hole as through artistic dressings would be an unworthy plea for neglected consideration of fenestral decoration; such a plea being established, *mutatis mutandis*, objection should not seriously be raised to the sack as the staple article of clothing.

Window treatment has been, of course, a matter receiving consideration even from early days, but with its history this treatise is not concerned.

Some remarks on window treatment have already been made in an earlier chapter. In continuation, it will have been gathered from the general trend of these articles, fenestration should be ancillary to the plan, to the extent that the building's requirements call for certain general dispositions. But such requirements being satisfied, the disposition of the windows should be guided by the artistic demands of the elevations, and to this extent the latter will guide the plan.

It is generally allowed as a theory, that the superposition of windows should be in a graduated scale from heavy to light, from the lowest storey upwards. That many disregard this maxim is a matter of common knowledge, and truly it may be carried to excess, whilst containing a principle of fundamental value. One point that it is of importance to remember, is to vary the window head sufficiently to prevent monotony, but not to an extent that will create an appearance of restlessness. In this connection, it may be noted that whilst the Italian palaces possess considerable artistic merits, some of them show unvaried repetition of detail to the very limits of tedium.

It may be also noted with advantage that an excess of square window heading is preferable to an excess of semi-circular treatment; the preference depending merely on the form, as referred to earlier. Sometimes the elevations, as treated, create the impression that their designers pin their faith for obtaining elegance (an abominable quality) on the minimum use of squareness; a certain meretricious pleasingness (the word may pass muster for the occasion) is often obtained, but is as far removed from good design as it can possibly be.

Fussiness is not design, nor is emasculation. Some people think—and of that number is the writer—that the Apollo Belvedere is a greater *chef-d'œuvre* than the Venus de Medici. In other words, the highest beauty results from a well-considered combination of strength and grace. And whilst these are effective in latitudinal combination, they are also, as has been intimated above, to receive attention in graduated treatment in a vertical direction. The Greeks and Romans were pioneers in fine art, more particularly the Greeks, and a study of their methods will well repay for the time so devoted.

As is sufficiently well known, however, the ancients did not develop window treatment to a large extent, but the principles apply as for general decoration.

Everything else being equal, it is advisable to contract the width of the window openings to a slight extent in proportion as they are placed at levels above that of the average spectator; but this contraction in width may well be accompanied by multiplication in number, and by this means due balance will be preserved.

Whether the window openings shall be flush with the wall surface, or whether they shall project or retreat must be decided in each case on its merits, and its possibilities—similarly as to the "style."

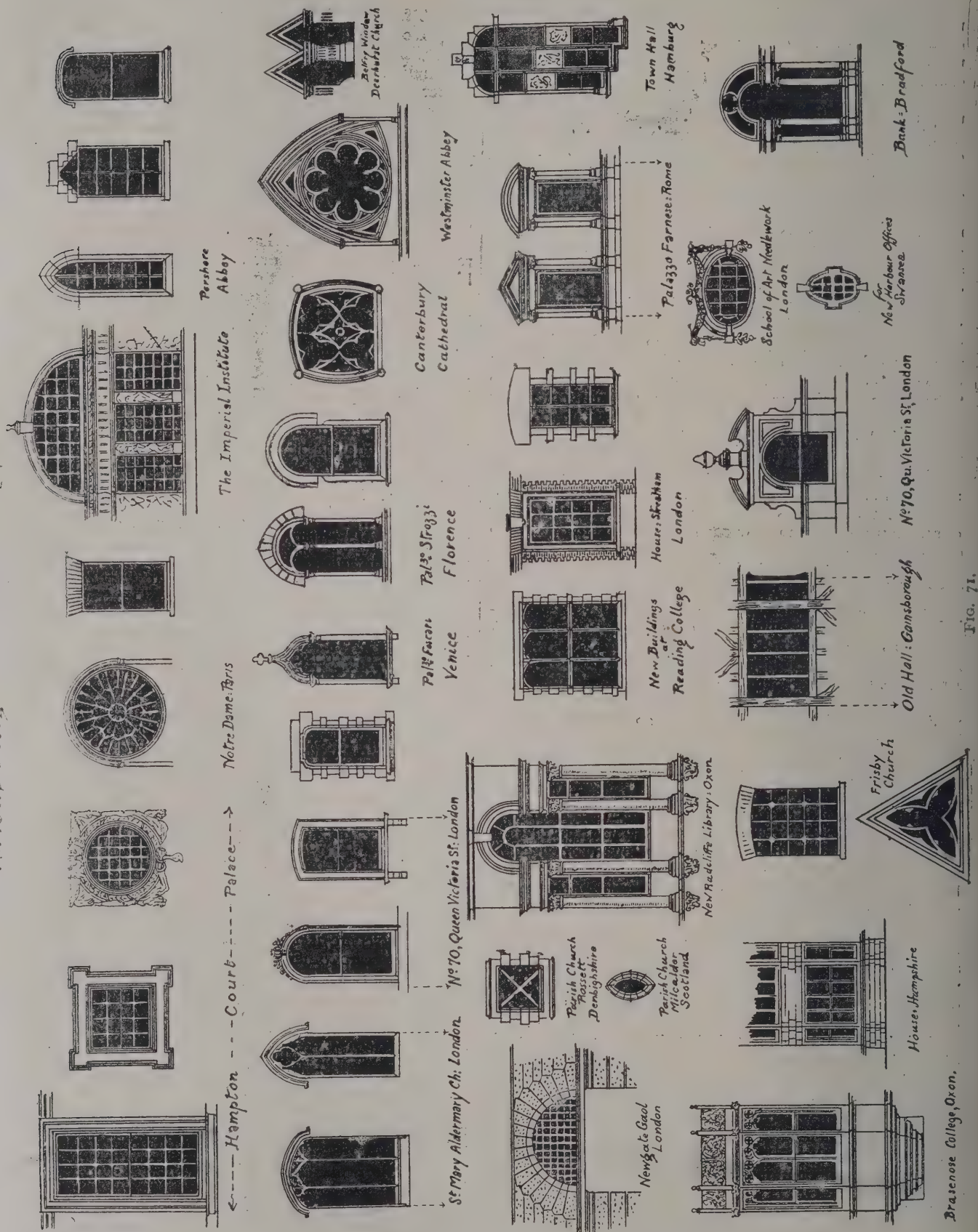
A means of obtaining adequate lighting to large rooms without risking a surfeit of small openings is to provide

fewer and larger openings, which can be rendered artistically pleasing by the use of mullions and transoms. And here may be noted a difference of treatment necessary according as the requirements are utilitarian or otherwise. In premises for retail trade the object is to obtain a maximum of window for the twofold object of good lighting

fantastic outlines for window cases; in well-regulated simplicity is to be found the most satisfactory treatment.

The use of pedimented window heads should be much more restricted than it has been for centuries; a pediment is rather meaningless except as the crowning glory of a façade. It is not desired here to labour this theoretically

Various designs for windows.



and extended display. To effect this not only are such details as mullions and transoms forbidden as a rule, but sash bars and ventilating gratings or panels are reduced to the utmost, and the constant endeavour is to increase the area of the plate glass.

There is nothing to be gained by the introduction of

as a principle, but as a matter of practice the restricted use will be found desirable. If, however, pedimented heads are to be used, they should be advisedly limited to the highest of the main storeys. An "attic" which is valuable as tending to give counterpoise, should receive distinctive window treatment; a series of circular lights

will often look effective, though even the greatest purist should not take objection to square-headed "attic" windows, whether or not surmounting circular-headed windows to lower storeys.

The term "window case" has been used a few lines above. There is, of course, a distinction between this and a mere window opening. By the former is to be understood a more or less decorative enclosure of the opening, but to a greater extent than is provided by the Gothic and early English Renaissance treatment. The various contours of arches, the "long-and-short" stone dressings, the toned brick dressings and other modes of treatment for window openings are sufficiently well known. The Italian Renaissance window case may be very effective when well-proportioned. In the accompanying fig. 71, various outlines of window openings and "cases" are given, for it is true that an inch of illustration is often as valuable as a yard of text.

(To be continued.)

ART FORGERIES.

IN a letter to the *Times* from Florence, Mr. B. Berenson says:—Whether the famous tiara of Saitapharnes turns out to be a forgery or not, the discussion will have done much good in bringing before the public the general question of forgeries. That there is nothing impossible in the Louvre authorities falling victims to fraud is proved by at least one of their recent purchases. The body that could buy the obviously cinquecent copy of Desiderio's famous *Putto* at San Lorenzo, believing this statue of forms at once mincing and puffy to be Desiderio's own handiwork, would seem to be the natural prey of the clever forger.

And if a responsible committee, living under the continuous menace of public reproach, is thus liable to error, how much more the irresponsible private buyer. Last spring at Christie's there was exposed for sale, and in fact actually sold for a relatively large price, a picture by a now well-known Sieneze forger, a picture that several of us had seen brand new on the painter's easel, before it underwent the process of staining and cracking and "worm-holing." To draw "un po' di mistero"—a little mystery—over the face of a picture is a process well known in Italy; and even for those who live there and keep their eyes open, the veil of mystery is not always easy to lift. For the Italians, from the Quattrocento on, have always been clever forgers, and the technical skill of the race that produced the greatest European school of painting is by no means dead. Taste is dead, and honesty has not yet come to take its place; but extreme dexterity remains. And this dexterity is now more and more turned to account to satisfy the constantly increasing demand for old masters. Their facility enables these forgers, as soon as the public begins to get on the track of a certain kind of falsification, to change to another style so different that only the eye trained to know a painter's work as the expert knows handwriting, almost by the pulse-beat vibrating in the stroke, can follow the Protean metamorphoses. My Italian friends addicted to this practice are constantly bringing me fresh specimens of their skill hoping to wring from me the confession that this time, at least, I could not, left to myself, have followed their doublings.

It is by no means an unknown case in literature that a writer may possess great talent as a forger, while being incapable of doing even mediocre work on his own account. And so it is with these imitators in paint and bronze and marble. When left to themselves, without a classical model, they can produce nothing but vulgar and flashy specimens of the "Art Nouveau," which, in his heart, the average Italian greatly prefers to anything in his *patrimonio artistico* he is so eloquent about. But as imitators they are admirable, betraying their native bad taste only in the most subtle ways that may well escape even the best educated dilettante. There are, indeed, amateurs who take the ground that, if the work of art is beautiful, it makes no difference whether it is a modern forgery or a genuine production. These people forget that a large part of our enjoyment of art depends upon the good-will which we bring to its contemplation. No considerable work of art but has its defects; but we forgive them, we even do not see them, if we are well disposed to the object as a whole. But the moment the fatal word "forgery" is pronounced these defects start into prominence, and little by little our loss of associative pleasure reacts upon our vision, and we actually see the object as less and less beautiful.

The curious thing is that these Italian forgers, unless they chance to be dealers as well, which is often the case in Italy, make very little money by this work. A few hundred francs will satisfy their happy-go-lucky natures, for the adventurous, dare-devil spirit of the Renaissance is still alive in them. And

for all born forgers (the born forger is scarcely less common than the born artist) forging is its own reward. A volume would scarcely suffice to develop this theme—and what a fascinating volume, by the way, it could be, if one did not confine oneself to art alone, but included literature and even scholarship. But to return to our subject. It is the dealers who make the enormous profits out of the credulous amateurs and ignorant gallery directors. A dealer who is also a forger has an undoubted advantage; and in this connection I feel that the public ought to be especially warned against some of the cleverest dealer-forgers whose centre of operations is Florence. These artists get hold of old ruined panels with just enough patches of the original paint left on them to enable them, if suspicion is aroused, to experiment on these carefully chosen parts with solvents that would destroy modern work, and to point triumphantly to their resistance as a "scientific proof" of the picture's genuineness. The rest of the panel they fill in, with undeniable skill, in the style of Filippino Lippi, Ghirlandajo, Raphael—whom you will, according as they think they can snare their purchaser. Their productions are rarely to be found in such a vulgar place as a shop; they are "discovered" in old palaces and castles, sometimes in the most out-of-the-way villages of Tuscany, and they boast an undisputed pedigree, sworn to by some spendthrift scamp bearing an historic name. What wonder if the unsuspecting American or English buyer is taken in, especially if the dealer has the cleverness to hypnotise them by dangling the picture before their eyes as an unheard-of bargain.

If my remarks have been followed to this point, it may pertinently be asked how the well-meaning collector is to escape the forger? Escape absolutely he never can. Even the expert buys his experience at the cost of his purse and his vanity. He can only hope to avoid being too grossly deceived if, having a definite passion as well as talent for the subject, he devotes himself seriously to training his eye to distinguish quality. Let him not imagine that a practical acquaintance with last year's forgeries will prevent his falling victim to this year's crop. Moreover, let him not pay the slightest attention to supposed pedigree or provenance, nor to the various papers and documents and alleged traditions that purport to guarantee the genuineness of a work of art, for these are much more easily forged than the work of art itself, nor is there anything to prevent a picture being painted or a marble carved to correspond with a description in a perfectly authentic document. Nothing but a fine sense of quality and a practised judgment can avail against the forger's skill. Technical, documentary, stylistic standards may all be satisfied, but the one thing the forger cannot do is to satisfy the standard of a specially trained taste, and to avoid betraying himself by some mannerism of his own which the experienced eye can learn to detect.

LIVERPOOL ARCHITECTURAL SOCIETY.

THE second annual general meeting of this Society took place on Monday, at 13 Harrington Street, Liverpool, under the chairmanship of Mr. John Woolfall, the president for the ensuing year. Other officers elected were:—Messrs. T. E. Eccles and P. C. Thicknesse, vice-presidents; Hastwell Grayson and Gilbert Fraser, hon. secretaries; James Dod, hon. treasurer; Alan G. James, hon. librarian; H. P. Mortes and W. Glen Dobie, auditors. The following were elected Fellows of the Council:—Messrs. J. Dod, H. Hartley, E. P. Hinde, E. A. Ould, S. Pugin, W. E. Willink and Professor F. M. Simpson. Associates elected for the Council were:—Messrs. Alan G. James and A. Thornley. The annual report showed that the past session had been marked by steady progress. The total membership was now 154. The most important event of architectural interest during the year had been the preliminary cathedral competition. The report stated that the City Council had just held an important competition for workmen's dwellings, in the conditions of which it was carefully stated that they reserved the right of rejecting all the plans sent in and entrusting the work to the city surveyor. The City Council had adopted this course. Their action, however, in putting architects all over the country to great trouble and expense and then rejecting the plans, although legal, was very regrettable, and would probably affect future competitions. At the close of the proceedings the President alluded to this matter and remarked that if the Corporation asked architects to send in plans any plans submitted by their own officials should be put side by side with others and the whole should be judged on their merits.

The District Council of Wolstanton have consulted Mr. R. E. W. Berrington, M.I.C.E., of Westminster and Wolverhampton, to advise them as to the sewage disposal of the various townships in their district.

TESSERÆ.

Uniformity in Architecture.

THE development of the organ of order in the human system, by the application of it in every description of physical arrangement, is at once the most conclusive proof of its existence and of its imperative nature. As an acquired rule of life, it is an habitual possession, but it is more primitively of an instinctive origin; because those who are most distant from its acquirement are equally ready to own its supreme value and to envy it in others. In commercial affairs, the want of it is a disgrace; in domestic life, it is the matron's ambition; in dress, it is perfection. It is admirable in business, for its convenience; at home, for its comfort; and personally, for its example. The influence it has upon architecture produces, as one of its results, uniformity. In defining the expression uniformity, it is considered as alluding to the correspondence or similarity of the parts of an object, or too objects collectively, with each other, in the form of a whole. Architecture, which is often mentioned in the same breath with painting and sculpture, must on this topic be separated. The copyist of nature, in the various forms of creation, finds nothing either so far similar in itself, or with other objects, to justify the term uniformity in its representation. Were the human figure to be delineated in a geometrical manner, with each limb corresponding in altitude to its opposite, it certainly might then be uniform, but it would not properly depict life; and, in fact, any attempt to extract such a principle of exactitude from the appearances of natural productions must fail, when their infinite multiplicity of variations seems quite to banish such a thought. Although architecture, in this particular, cannot claim to be an imitative art, it is the more so one of invention, in suiting itself, by constructive uniformity, to the reasonable habits and tastes of mankind. In erections of more than ordinary altitude, as, for instance, towers, steeples, domes and the like, where they are seen from many points of view and at considerable distances, rising above inferior objects, they usually present the same appearance in each prospect. In the case of such a building being on a circular plan, a more complete uniformity can be achieved than in any other form, and hence such a form becomes the most simple and compulsory occasion for its adoption. When the purposes of a structure will admit of, and be best answered by, uniformity in its interior arrangement, it follows, as a matter of course, that the same may be kept up throughout its exterior, provided it is insularly situated; and no architect would neglect such an opportunity, by not adopting so desirable a method. This kind of uniformity may be generally attained in designing sepulchres, baths, fountains and minor architectural erections; but its most frequent and important application is in churches and other buildings, either for congregational or limited assemblies. In many of such instances it happens, as in St. Paul's Cathedral, that the whole building, both plan and elevation, may be bisected by an imaginary line, with the nicest impartiality, leaving to each half the exact reflection of itself in the other; though each, being so separated, is no longer uniform, but derives its merit in this respect from being exactly similar to the other; thus producing, as it were, a united effect by a twofold accordance. This manner of disposal in architecture, while it leaves every room for uniformity of details and general similitude of character, works its ultimate advantage by restricting its great likenesses to the smallest possible number of portions; and which, to judge by the above example, powerfully conduces to grandeur. There is a singular specimen of uniformity, somewhat of this class, in the Banqueting House at Whitehall, where the front and its reverse are precisely similar, though, of course, completely hidden from each other.

Fabric Accounts of Exeter Cathedral.

The records at Exeter contain interesting information. The painting in the lady chapel has existed since 1301. There is a bill for painting in that year forty-nine bosses, and otherwise colouring the vaulting. There are thirty-one in the lady chapel and eighteen in the two side chapels. In the first year of the fourteenth century the lady chapel was completed, for it could not have been painted and coloured until the wall part was finished. The windows present very early specimens of that period, and the bosses are carved in a great variety of foliage, all the leaves being gilded and the branches painted in different colours. According to the accounts, the roofs of the two side chapels were painted in imitation of the sky, with the gold stars and silver moons. For the eight windows, four on each side, which form the presbytery, or eastern part of the choir, the Chapter possess a bill taken from the accounts of 1301, showing that one Master Walter, the glazier of those days, received 4*l.* 10*s.* each for glazing the whole of those eight windows. The quantity of glass in each window was exactly named. The two side ones contained 1,271 feet of glass, according to the bill. Each of them was 25 feet high by 10 feet broad, and contained 275 square feet of glass. Each cost

6*l.* 10*s.* The smaller clerestory windows, 19 feet by 10 feet, cost 4*l.* 10*s.* The whole of them were filled with stained glass. The episcopal throne was placed where it stands in 1317. It used to be referred to the date of 1470, but Sir Gilbert Scott pronounced it on first sight to be of the earlier date, and since then the bill has been found for it, supporting his judgment. It was built by Bishop Stapleton in 1317. It was entirely of wood, was 57 feet high, and contained a number of figures that are now lost. It was of carved oak, and was originally coloured. The oak for it cost 4*l.* 10*s.*, and the carving 6*l.* 10*s.* There is also a bill for the carving of thirty large bosses of the vaulting in Bishop Bytton's time, in 1305. They were carved for 5*s.* apiece, the work being done on the ground, and then the bosses were lifted to their positions. Every fourth boss was the key of an arch, so that if it were removed the whole arch would fall. There are very happy devices used in the carving of the figures, and the style adopted was a favourite mode of ornamentation.

Detail and General Effect.

If we are content to put up with detached and piecemeal beauties we may be satisfied with anything, for that must be a most vile production indeed in which every one of the parts, taken merely as parts, is absolutely bad. Architects so very rarely attempt what they can claim exclusively as their own, that it is chiefly by the general conception and treatment of their subject, by the adjustment and collocation of the various divisions and subdivisions, that they can show any superior taste or originality. Their columns and entablatures are little more than so many formulæ, the property of no one in particular, and to be appropriated only by a felicitous combination with all the rest. What is it but the admixture of his pigments and their collocation on the canvas that distinguishes the able colourist from the dauber? The palette of the one is just as richly furnished as that of the other. What is it except his power of masterly collocation and combination that constitutes a great musical composer? His gamut is just the same as that of others; he has no new elements of sound; his magic lies in the mastery with which he elicits, from those common to all, new and striking combinations peculiarly his own. What, again is it, save the same power that distinguishes a noble poetical diction and style from an ordinary one? Is it not precisely that harmonious and eloquent disposition and structure which any other collocation of the very same words would fail to produce? It is arrant stuff, then, far worse than sheer nonsense, because more pernicious, to talk of the proportions of individual parts if there be no aggregate proportion—no proportion, as regards feeling and taste, in the arrangement of the parts themselves. The best that can be said of works so constituted is that they have shaped out the material of which others may avail themselves with better success. Too minute criticism, which looks exclusively to the separate items of a design without at all attending to their result or gross amount, has been one great bane of the art. It fosters a narrow petty taste, an attention to insulated particulars or circumstances, with very little consideration of, or regard to, the whole. The study of general effect and proportion alone is not to be recommended, quite the contrary, since too much care cannot be bestowed upon detail; but then it must be as detail, as the finishing touches and working up of what is ably conceived. No minutiae should be suffered to escape attention; nothing should be slurred over, as we generally find to be the case; yet, as a first and most important step, it is requisite that the elements of a superior design should be established in the leading ideas. So very far is general propriety or beauty from excusing inattention to individual merits, that unless every single feature and its detail be appropriately finished up the ensemble will become a mere sketch or a crude unsatisfactory production if considered in any other light, and it surely need not here be observed that when we come to execute in such expensive materials as stone or brick something more than a sketch, however clever it may be, ought to be looked for. It is all the more necessary to insist upon this, because, although even the authority of Palladio would not now persuade many to fall into the grosser errors with which his buildings and designs abound, architects of the present day too readily content themselves with merely avoiding radical vices of that kind. They certainly commit fewer solecisms, but it is not quite so certain that they give us a greater number of positive beauties. If their orders are better because copied from the antique, it seldom happens that we find much else to admire, or anything very felicitous that is peculiarly their own.

The Carracci and Eclecticism.

The Carracci, the founders of the Bolognese school, though not absolutely equal to their great predecessor Correggio in chiaroscuro, excelled him in design, and perhaps in some other branches of painting. Lodovico, in particular, is highly and justly extolled for the modest breadth and affecting simplicity of his style, and pointed out by Sir Joshua Reynolds as the best model for that dignified tone, that solemn twilight, so produc-

tive of sentiment, and so properly and exclusively suited to all subjects of a grave, philosophical or religious character. Lodovico, with his two cousins, Annibal and Agostino Carracci, attempted by selecting the beauties, supplying the defects, correcting the errors and avoiding the extremes of their predecessors, to unite all the excellences of the art and form a perfect style; a plan which has been derided by some eminent critics as absurd, visionary and impracticable; but as they have neglected to show wherein the different merits of the different schools are incompatible with each other, so they have failed to convince us that the attempt to reconcile them was ill-judged, and tended directly or indirectly to mediocrity and the extinction of character. What if the Carracci have not completely succeeded? What if they be in some degree inferior to each of those whom they proposed to imitate in his particular way—to Michel Angelo in design, to Raphael in expression, to Titian in colour and to Correggio in force and harmony of chiaroscuro? The combination, as far as it goes, is excellent; and that it is not more so is undoubtedly owing to nothing absurd in the attempt, but to insufficiency of ability to carry it properly into execution. For where is the proof that all the different beauties of art are not in perfect unison with each other? That the whole is more difficult to grasp than a part is not to be denied; but let us beware of making our feebleness the measure of possibility. Had there been more correctness in the drawing, more elevation in the character and more truth in the expressions of the *Notte*, the celebrated picture by Correggio, can it be supposed that its effect would therefore have been less splendid and fascinating? and had the *Transfiguration*, by Raphael, partaken more of Michel Angelo's grand style of design, and of the breadth and splendour of Correggio's chiaroscuro, which the subject seems particularly to demand, can it be supposed that these excellences would have lessened in any degree the truth of expression which it now possesses, and that it would therefore have become insipid? Can it be supposed that *The Hours Leading out the Horses of the Sun*, painted by Giulio Romano, would have been less poetical and celestial had they possessed more harmony, brilliancy and truth of colouring? Celestial objects, according to our conceptions of them, differ from terrestrial ones not in essence but in beauty, not in principle but in power; and our representations of them should possess all the splendour and effect, as well as all the vigour, spirit and elevation of character possible. To a certain portion of spirit and character it was doubtless owing that in spite of, and not by the aid of defects, Giulio Romano's horses became objects of admiration; and had these excellences been joined to the others with which they are always associated in our minds, the effect of the work must have been proportionally greater, and it would have consequently stood still higher in the scale of art.

Stained Glass Preserved by Le Noir.

At the time of the French Revolution Le Noir, the antiquary, had sufficient influence with the governing powers to remove some of the more beautiful pieces in Paris, to collect the fragments and to preserve the whole from further demolition by placing them in a national museum. Others were bought by dealers to be sent to England. In Le Noir's catalogue the following examples are mentioned:—Abbot Sugerius placed stained glass in the church of Notre-Dame about the year 1150, but the subjects were in general small and the artists unknown. At the Cordeliers there were moral subjects taken from domestic life in the thirteenth century. In the church called "La Jussienne" (Egyptienne) was the Legend of St. Mary the Egyptian, 1390, and the family of Charles VI. in the Orleans chapel. Herron, 1430, made a window at St. Paul's on the subject of Paradise. From the Temple, 1471, were taken Life and Death of our Saviour in a large size, by Albert Dürer. As the glass was thick he drilled the eye-balls to give them brilliancy, which method was afterwards adopted with frequency. They once filled twenty windows. From the Célestines, 1490-1560—The works of Bernard van Orley, born at Brussels and patronised by the Emperor Charles V. Having much drapery of blue semée de lis, he coloured the glass only on one side, he then drilled the figure of the fleurs de lis on the surface and stained them yellow, and after that operation shaded the whole and passed it through the fire. From the chapel of Vincennes.—The works of Jean Cousin, a scholar of Raphael, who has painted the most admired windows in France, so beautiful that they imitate the pictures of Giulio Romano on canvas. There are portraits of Francis I. and Henry II. as large as life. From the Minimes de Paissy.—The works of Robert Pinaigrier, who was employed by Francis I. at St. Victoire, chiefly royal portraits. He stained the windows of the cathedral at Chartres, and was much employed at Paris, at St. Jacques la Boucherie and St. Croix, &c, but a beautiful collection of his works from St. Etienne du Mont is still preserved. From the Castle of St. Ecouen.—Story of Psyche, executed from cartoons of Raphael in chiaroscuro by Bernard Palissy, 1545, originally

thirty pieces, twenty-two of which were preserved. They are painted only on the surface and not stained throughout. Le Noir has published a series of etchings from them. Others from the designs of Primaticcio and Parmegiano are scarcely less beautiful. Church of St. Gervais.—Works of Perrin, from the designs of Eustace le Seur, in chiaroscuro. The windows of the choir in 1587 were done by J. Cousin. The sons of Robert Pinaigrier—John, Nicholas and Louis—who were very eminent at the commencement of the seventeenth century, contributed to adorn this church. Church of the Feuillans.—The Life of John de la Barrière, the founder, in twelve compartments, by Benoit Michu, 1706.

Illusions of Intersecting Lines and Planes.

When a straight line is cut by a series of concentric circles or arches of such circles, or when it is cut by small arches of circles slightly curved, or when it is cut by a number of other straight lines at very oblique angles, the straight line thus cut no longer appears a straight line. A slight refraction, as it were, or bending, appears to take place at every intersection. Hence if such intersections were to occur in any combination of forms, such a combination could not be beautiful. Burke might have said that this defect of beauty arose from "sharpness of angles causing a twitching or convulsion of the optic nerve," and his conjecture would not have been a very erroneous one, however incorrect would have been its mode of expression; for the effect is produced by the action upon the retina of sharp luminous spaces contained by dark lines, which, like the action of luminous points and close parallel lines, invariably disturbs vision. In the beautiful forms of Grecian architecture no such intersections of lines are found. The combination of straight lines, which forms so remarkable a feature in Greek temples, takes place at right angles, and it is in the pediment alone where the lines meet obliquely. There, however, the triliteral form was necessary to complete that general harmony which arises from the vision of triangular, quadrangular and curvilinear forms, and the injurious effect which arises from the meeting of lines obliquely is prevented by the discontinuance of the lines at their point of contact. But the most interesting illusions connected with the vision of forms are those which relate to plane surfaces stretching out from the eye or walls standing in front of it. When the celebrated philosopher Bouguer was in Peru he made a number of valuable experiments on this subject. When ascending with his companions the steep flanks of the Cordilleras of the Andes he found that they became inaccessible when the inclination to the horizon was from 35 deg. to 37 deg. The traveller could no longer make his way unless he found stones to serve him for steps or clung to the shrubs and plants in his path. Under these circumstances M. Bouguer and all of his party agreed in estimating the inclination of the slope at 60 deg or 70 deg. In continuing these observations, he found that the difference between the real and the estimated or apparent inclinations of planes stretching from the eye varied from 0 deg. to 25 deg. or 30 deg. at a maximum. When the plane is horizontal the apparent plane rises above the horizon about 4 deg. or 5 deg. The difference between the two increases as the real plane becomes more inclined, and at a particular angle not exactly determined that difference is about 25 deg. or 30 deg. The difference continues even when the real plane is inclined 9 deg., or is vertical like the wall of a house. But what is very curious, the apparent plane is still above the real plane when the latter dips below the horizontal line, or, in other words, the real plane or declivity is more steep than the apparent one. When the inclination of the descent is between 20 deg. and 25 deg. the real plane and the apparent plane coincide, and passing this angle the real plane is less steep than the apparent one. When the plane is a vertical wall rising above the spectator Bouguer has found that it appears to hang over, as if it were falling towards the observer. When the planes are horizontal and extended, such as a flat champagne country, the same eminent observer has found that its form as well as its inclination is changed. Such a plane has the appearance of a curved surface, the curvature of which approaches to that of an hyperbola, having its centre at a certain depth (greater than the height of the observer's eye, but not double of it) below the feet of the observer, with its first axis very short and its second axis very long. The first part of the curve, where it springs from the observer's feet, is sensibly coincident with the asymptote, or inclined 4 deg. or 5 deg. to the horizon. Beyond this the curvature increases, but quickly degenerates into a straight line. When the height of the observer increases the centre of the hyperbola is the more depressed, and the asymptote the more inclined to the horizon. When the spectator is placed at a great height above the plane the simple dimensions of the curve do not at all change in the same proportion. The centre of the hyperbola from which the asymptote sets out is more depressed in proportion, and the angle which the asymptote forms with the axis becomes more acute, but the part of the ground which appeared to coincide with the asymptote acquires always a greater extent.

NOTES AND COMMENTS.

THE late CHARLES HANSOM, of Bristol, designed many buildings, but there was not one among them of which he was more proud than the group known as Clifton College. One proof of this is seen in the introduction of himself and the headmaster in the view of the library we published. So soldierly an architect, if he were still amongst us, would be prouder on learning that no less than three hundred and twenty-eight of the youths who studied in his buildings served in the South African war and the death-roll was forty-four. It was wisely decided that there should be some memorial of the part taken by so young a school on behalf of the country. It was difficult to determine what form it ought to assume. Eventually the projects were narrowed to three, viz. an architectural monument on the terrace overlooking The Close, a gatehouse in College Road, and an ante-chapel. Old Cliftonians throughout the world were asked to state their preference. An architectural monument was found to be the favourite. The competition was confined to Old Cliftonians, and Mr. R. SELDEN WORNUM was appointed assessor. The first prize of 25*l.* was awarded to Messrs. W. S. PAUL & R. C. JAMES, the second to Mr. E. W. MARSHALL, and the third to Mr. P. S. WORTHINGTON. The design selected shows a four-sided pedestal of Bath or Portland stone, with a brass tablet on each face, and surmounted by a bronze figure. What kind of statue is not yet settled, but Mr. G. F. WATTS, R.A., suggested that it should be a soldier with the motto "Faithful unto Death." It is intended to carry out the design of Messrs. PAUL & JAMES, and to ask for further subscriptions. The amount collected or promised is 1,309*l.*, but from 1,700*l.* to 2,000*l.* will be needed to realise the scheme, including the statue.

A COLLECTION of notes on the repair and restoration of buildings has been issued by the Society for the Protection of Ancient Buildings, and is being sold on behalf of the Society by Mr. BATSFORD. It contains a copy of the principles of the body as set forth in a declaration which appeared in 1877, and which still governs the action of the committee. Some of the charges made against the Society are rebutted. The notes will enable those contemplating restoration to realise what is desired by the Society. It is often supposed that the objections raised to the proposals of architects are only whims, and that there is little uniformity in the manner of dealing with buildings or criticising projects. The collection of notes will, to some extent, make it necessary for contradictory decisions to be avoided. The Society would be more successful if there was less assumption of infallibility, and that may be partially checked by the publication of the principles which are intended to guide the committee, at least for the present.

THE announcement that a party of fishermen had dredged from Greek waters in the neighbourhood of Solona the statue of a man in good condition may relate to one of the fabrications now common, but it would not be unreasonable to expect a work of ancient art to be found there. Solona does not immediately adjoin the sea, in fact it is a couple of hours' journey to the coast. But Delphi is still nearer. In both places statuary was once to be seen. Delphi still commands attention from its ancient history, and it has been selected for excavation, but Solona is neglected. It was once a flourishing city, but on that account it suffered. PAUSANIAS speaks of a temple to MINERVA, of which no remains have been discovered. The largest mosaic pavement in Greece has survived in Solona, and it suggests that the origin of the art was likely to be in Greece. Chryso or Chrysa, which lies between Solona and the sea, was at one time a small republic, and its suppression had consequences which eventually led to the conquest of Greece by PHILIP of Macedon.

ILLUSTRATIONS.

LONDON CITY AND MIDLAND BANK, & CO. BROAD COURT, W.C.

THIS building, together with the adjoining block of offices and flats, forms part of the Bedford estate. Messrs. HOWARD & Co. were the builders, the materials employed being Portland stone and Fareham red bricks.

It will be noticed that there is a heavy dentil cornice, and over some of the doorways is a big shell hood that has been much copied in London. The windows are not set back but are flush with the brickwork. The bank is of fireproof construction throughout. The whole block was completed within twelve months. The architect is Mr. R. SELDEN WORNUM.

OFFICES OF NORTH-EASTERN RAILWAY COMPANY, MIDDLESBOROUGH.

THE North-Eastern Railway Company have lately erected a block of offices in Middlesbrough for the housing of the staff engaged in the supervision of the northern division of the railway and in the management of their extensive docks.

A convenient site closely adjoining both the railway and the docks was obtained by clearing a block of cottages forming the acute angle at the corner of Dock Street and Grey Street, upon which the company erected a building four storeys in height, the ground floor being raised about 3 feet above the street level.

The ground floor consists of a large and handsome room used for meetings and interviews, two offices arranged en suite for the docks department—one for estate work, and one for the district superintendent of the railway. The first floor contains five rooms for the district superintendent, and two for the use of the engineer to the docks. The second floor consists of suites of offices which may be used for the future extension of any of the departments, or for letting to independent tenants. The third floor is arranged into rooms for storage or lumber. A room is specially provided on the ground floor for the range of telephones used in the several departments. The main entrance doorway is from Dock Street and is about the centre of the façade; the vestibule is about 9 feet wide, and gives access to the main staircase, and the corridors, which run the whole length of the building on each floor, are about 8 feet in width. The main entrance doors and the vestibule screen are of polished oak. The flooring of the entrance and the corridors is of concrete, faced with cement. The staircase is constructed of stone, with handsome metal balustrade, hard wood polished hand-rails. The rooms and corridors throughout are lofty and well-lighted, the windows being fitted with ventilating sashes. The warming is by "Well" fires of neat design, constructed in glazed brickwork. The walls of the entrance and corridors have dados of glazed brickwork with bases and strings of excellently manufactured faience supplied from the Burmantofts works at Leeds. The upper parts of the walls are finished in washable distemper. Ample and well arranged and ventilated sanitary accommodation is provided on each floor, the fittings being supplied by Messrs. DOULTON, of Lambeth. The building is lighted throughout by electricity supplied from the generating station of the Company, the work having been carried out by Messrs. GRAHAM BROS., of Middlesbrough. The lavatories have Bunsen gas-burners as a provision against frost in severe weather.

The furnishing is by the North of England School Furnishing Co., of Darlington.

The building is of brick and terra-cotta throughout, from the works of the Burmantofts Company, Ltd. The front is of a rich red colour and of handsome and pleasing design, broken by moulded cornices, deeply recessed door, window and other openings, with flanking pilasters having moulded caps and bases, and with an octagonal bay window having a low bell-shaped roof at the acute angle at the junction of the streets. It will be observed that the material has been admirably adapted to suit the design in this case, as in many others which we have already illustrated.

The design of the building was prepared by Mr. WM. BELL, the architect to the North-Eastern Railway Company; and the contractor for the whole of the work was Mr. H. BARRY, of Scarborough.

ADAPTED COPY OF HAMPTON COURT GATE.

WE have already referred to the reproduction of the famous gates by Messrs. HART, SON, PEARD & CO. It will be seen from the illustration that the new work is at least equal to the old, and sustains the reputation of the firm.

CATHEDRAL SERIES.—WORCESTER: THE WEST DOOR. THE NORTH PORCH.

THE ARCHITECTURAL ASSOCIATION.

A MEETING of the Association was held on Friday evening last, Mr. H. T. Hare, president, in the chair.

Mr. BANISTER F. FLETCHER read the following paper, which was illustrated by lantern views.

Andrea Palladio: His Life and Work.

Of the early life and parentage of Andrea Palladio there exists but little information. All his biographers, with the exception of Paolo Gualdo, describe him as having been born in the year 1518. The latter, however, informs us that he was born in 1508, thus making him just ten years older; but, unfortunately, there is no further confirmation of this statement. Palladio's father, was a mason at Vicenza, where he died in 1545. Though we should much like to know some of the circumstances of his boyhood and the various influences and episodes which contributed to his success in after years, all we are privileged to learn is from Palladio himself, for he tells us that he early possessed a great love and natural inclination for architecture, and that as a boy he read Cæsar's "Commentaries," and imagined and designed the bridge over the Rhine from Cæsar's written description, afterwards utilising this over the Bacchiglione, near Vicenza.

Gualdo mentions that Palladio also seriously studied mathematics, which he considered an essential part of an architect's education. His humble birth is corroborated by Leoni, who describes him as of "mean extraction," adding, "that in consideration of his great abilities, and as a reward for the honours he did his native city, he was made free of same, and received into the body of the nobility." But this honour only came to Palladio when his fame was established throughout the whole of Northern Italy. It is evident that his early life was a studious one, and we naturally infer that a most excellent education was conferred upon him by his father, the mason Pietro, who, in all probability, sacrificed much to secure his son's future. The latter appears to have soon deserted sculpture for architecture, meanwhile also studying the works of Vitruvius, Alberti, Michelozzi, Cronaca, Serlio and San Gallo.

In accordance with the custom of the times, Palladio possessed a patron in Gian Giorgio Trissino. It was with this patron that he first visited Rome in 1541, when he was thirty-three years of age. He must have been exceedingly industrious during this visit, as his drawings of the Classic buildings in his treatise testify. He visited at various periods Ancona, Rimini, Naples, Capua, Pola in Istria and Nîmes. In May 1547, we also hear of his visiting Tivoli, Palestrina, Porto and Albano, returning to Vicenza in July, and taking with him nine books entitled "L'Italia liberata dai Goti." In 1551 he is for the third time in Rome, "in the company of Venetian gentlemen."

His time there was spent in earnest researches among the ruins of her temples and edifices; a time of hard labour, of measuring minutely, and theorising, the results of which he has handed down to posterity in his valuable writings on architecture. He says:—"I began, with the utmost accuracy, to measure every minute part by itself, and, indeed, I became so scrupulous an examiner of them, not discovering that anything of this kind is performed without the justest reason and the finest proportion, that I afterwards, not once but very often, took journeys to several parts of Italy, and even out of it, that I might be able from such fragments to comprehend what the whole must needs have been, and to make draughts accordingly. I thought this an undertaking worthy of a man who considers that he was not born for himself only, but likewise for the good of others."

During his stay in the ancient city no doubt he came often in contact with many of the great artists of the day. Here he could gaze upon the great achievements of Bramante, such as the Cancellaria and Giraud palaces, and the little Temple of St. Pietro in Montorio, and upon the works of Raphael, who died in 1520. He could study the progress of the cupola of St. Peter under the masterly direction of Michel Angelo, and see this great master's work on the Palazzi dei Conservatori in the Capitol. The work of Baldassare Peruzzi at the Palazzo Farnese, and of Antonio San Gallo at the Farnese Palace were also completed at the time of his first visit to Rome.

In Palladio's writings we find interesting information re-

garding the architects and painters of his day. Especially does he eulogise Vasari, whom he styles "a painter and architect of great merit." We also find mention made of Sansovino, who died in 1570, accompanied by much praise of the buildings erected by him. Other contemporaries are mentioned, amongst these being San Micheli, the great military architect of the Renaissance, whose special work is evidenced in his fortresses and palaces at Verona.

We have no information regarding Palladio's marriage, neither do we find any mention made of his wife. He had a family of four sons and one daughter. The eldest son, Marc Antonio, became a sculptor, like his father; we find him living at Venice in 1588, and he died in 1600. Leonidas, who assisted his father, died about 1574. We read of his directing the building of the dome at Montagnana in 1566. Orazio, the third son, studied law in Padua in 1564 and died in 1574. Silla, the youngest, was an architect, and assisted by Scamozzi, completed the Teatro Olimpico, upon which his father was engaged at the time of his death, and died about 1627. Zenobia married Della Fede, a goldsmith, whose name appears inscribed in the guild at Vicenza.

Before the year 1564 Palladio was in legal documents called "of Vicenza" and "inhabitant of Vicenza." In those relating to the marriage of his daughter he appears as "civis Vicentine," a distinction worthy of mentioning in the days of the Republic.

None of the honours conferred upon Palladio can exceed the publication of his works, which was undertaken with much courage and diligence by Ottavio Bertotti Scamozzi, who measured, drew and restored his buildings. This book contains most interesting engravings and commentaries, showing much learning and scholarship. It embraces four large volumes, of which many editions have appeared both in Italian and French. Though infirm for a long time, Palladio nevertheless continued to take an active part in the building of his edifices, and when finally the end came it found him at work upon one of his finest efforts, the Teatro Olimpico, finished after his death by his son Silla and Vincenzio Scamozzi.

Palladio's death was a great grief and loss to his loyal native city, which revered him not only for his genius, but for his many other virtues—for he was both amiable and benevolent, and beloved by his workmen.

Principles.—His principles are best exemplified in his buildings, but a striking point about many of them lies in the fact that he was not slavishly bound by his own rules as to the proportions of the Classical columns and their entablatures. Like many another, he was an exemplar of the saying that a genius can be above rules. Although he refers in detail to the various parts of a building and their proportions, he has left no information as to the design and composition of structures as a whole. It has been held that he was specially in favour of obtaining size and dignity in his composition by including two storeys of his façades within one order. This has been said to have influenced English architecture in contrast with the precepts of Vignola which were followed in France; but Palladio employed both methods equally, while he was also fond of marking his ground storey with rusticated blocks of masonry, expressing his first floor (*piano nobile*) by an order, and his upper (or attic) storey by flat pilasters. He also employed the attic storey, seldom used by other masters, in lieu of a great crowning cornice.

His style has been defined as a mean between the severe use of ancient forms and the licentious style of those who reject all rule whatever. Speaking generally, the plans of his buildings were suitable to the requirements of the Venetian nobility for whom they were erected. The fact that they are not well suited to our present requirements cannot detract from their stateliness and convenience when considered in relation to the age in which they were erected and the climate of Italy. The disposition and proportion of his apartments in regard to each other are often exceedingly happy and effective. Some have found fault with the magnificence and display which are observed in some of Palladio's façades, but here, again, we must remember for whom and for what purpose they were built. His clients were Venetian noblemen, eager to display their power and position by the erection of grandiose buildings, which he provided in his spacious columned vestibules, grand staircases, galleries, libraries and colonnades.

His architecture was essentially columnar and not fenestral, and his entablatures were proportioned to the column with which they were associated, whereas his predecessor, Sansovino, occasionally employed an entablature disproportionate to the columns, as at St. Mark's Library, in which windows are placed in a deep frieze.

Columns were sometimes placed on pedestals in order to give additional height, sometimes not so. The pedestals never seem to have been decorated with panels, sunk or raised, although this feature is so treated in Palladio's book. Fluting is generally omitted from the columns, and this was probably due to the fact that they were frequently formed of brick and stucco, materials which were unsuitable for fluting in long lengths.

Palladio's knowledge of the details of ancient Roman architecture was extraordinary, yet his inventive genius was considerable, and we seldom find that he repeated any of his designs. On the contrary, his façades abound with various dispositions of the orders, in addition to which he obtained effect and contrast by the judicious use of plain and rusticated walling and the use of arcades. His rustication is often excellent in design and scale, and gives considerable character to his buildings, not in an excessive way, as at Florence, but as a set-off to his columns and their entablatures. In the design of his arcades he appears to have preferred the larger order embracing two storeys, with small pilasters placed behind them to carry the floor of the upper gallery. In these arcades, semicircular arches usually rest on piers in conjunction with a trabeated arrangement adopted from ancient baths. A favourite arrangement (of the basilica), however, was one in which he divided the interval between two piers in three parts by small piers, or columns, with an arch only covering the central aperture, a combination which seems to have been copied from some colonnades at Diocletian's palace at Spalato.

In the design of his doors, windows and niches, simplicity seems generally to have been sought after. Fewness in number and largeness in size was his aim. The openings were generally crowned by pediments, alternately angular and circular; but these were never broken—a rococo feature in which he did not indulge. On these pedimented openings he occasionally placed reclining sculptured figures, probably copied from Sansovino or Michel Angelo.

The entablatures to his orders are generally unbroken, but happy effects are sometimes obtained, as at the basilica at Vicenza, by projecting the columns beyond the main face of the wall and breaking the entablature around these projections. In the profile of mouldings he was specially careful; the architraves and friezes were generally plain, the latter being sometimes pulvinated, and his cornices have the consoles and other ornaments carefully centred over each other. Interior decoration seems to have been somewhat neglected, owing, no doubt, to want of funds.

Public Buildings.—The arcades surrounding the three sides of the Gothic Consiglio or Town Hall at Vicenza (also known as the Basilica or Palazzo della Ragione) are probably the most important of Palladio's works. Riccio in 1496, Spaventa in 1498, Sansovino in 1538, Serlio in 1539, and Giulio Romano in 1542 were all engaged at various times on the faulty Gothic arcades of the original structure. Finally, fresh designs were prepared by various architects and were submitted to the vote.

Three were chosen, one each by Spaventa, Giulio Romano and Palladio, with the result that the latter's design was finally adopted by ninety-nine votes against seventeen. It was commenced in 1550 and completed in 1614. It was constructed in stone brought from Piovene, and this stone has weathered in a remarkable manner, and gives to the building a beauty which Palladio's stucco designs do not possess and will never attain. It is curious that he says very little about the basilica himself, except that "there is another of them in Vicenza, of which alone I have given the draughts, because the porticoes around it are my own invention, and I make no doubt but that this edifice may be compared to the ancient fabrics, and to be reckoned among the noblest and most beautiful buildings erected since the time of the ancients, as well on account of its largeness and ornament as of its matter, which is all hewn stone, extremely hard, joined and bound together with the utmost care."

The hall around which the arcades are arranged is 171 feet long by 68 feet wide. It has a semicircular roof covered with lead, hipped at each end. The ground storey supports an upper one by means of vaulting, the upper storey to the roof being about 70 feet. By referring to the plan we see at once that the width of the arcade bays is determined by that of the piers of the Gothic hall which they surround, these piers dividing the interior of the ground storey into seven compartments in length and three in width. With these measurements (height and width), which could not be departed from, it is easy to see that Palladio had to decide on a design controlled and influenced by these data. He marked each storey by an order, the Doric to the ground storey and the Ionic to the upper one, these being formed as half columns backing on to a wall of

considerable thickness, and their entablature returned back to this wall at each column, thus giving a vertical expression and preventing the squat proportion which would have resulted had the cornices been continued round the façade without a break.

Furthermore, the height of the ground floor arches on the façade had to be considerably less than the hall, because the entablature of the order occupied some depth, and the arcade had to be beneath this. A statue crowns the balustrade over each pair of columns, and thus an unusual and difficult proportion of bay was cleverly handled. It is in the design of the space between the principal columns that the beauty and originality of this building is found. A space approximating a square is contained between the main columns as vertical lines, and the base of these columns and the underside of their entablatures as horizontal bounding lines. It is particularly in his treatment of these that Palladio has shown his skill, and produced a *motif* which to this day is known by his name. He has filled in this square space with four columns, placed in couples about 3 feet 6 inches from the main piers, and supporting a cornice from which springs a semicircular arch covering an opening twice its width in height. In the spandrels are circular openings.

The treatment of the angles of this building also shows the master hand. Here he was without restrictions as to width, and he has decreased this by placing the coupled secondary columns nearer to the piers, and by doubling the main columns at the angles, or, rather, by placing an extra angular three-quarter column which shows on each face. This diminution of width of bay and the doubling of the columns give an appearance of strength to the angles of the façade which is very pleasing. The basilica is such an important creation that a few words as to its detailed proportion may not be out of place.

The order to the lower storey is Doric, consisting of half-columns about 2 feet 8 inches in diameter, attached to a wall about 4 feet 4 inches thick. The columns are about eight diameters, and the entablature is slightly over a quarter of the column in height. The smaller Doric free-standing columns to this storey have the same proportion as the larger, but they have a circular base, no doubt with the intention of preventing inconvenience to pedestrians. These small columns have a cornice, in height about one-eighth that of the columns, of the type shown, and from this springs the semicircular arch.

The upper storey is ornamented with a large and small Ionic order, both placed on the same continuous pedestal about a quarter of the height of the larger columns, these latter being 2 feet 3 inches in diameter and 8½ diameters in height. Palladio has not here followed his own rules nor those of Vitruvius, who says "that when the columns are placed over each other the upper one should be a quarter less in diameter than the lower," whereas in this case it is only one-sixth. A balustrade one-fifth of the Ionic order in height crowns the façade. The height of the Ionic entablature is about one-fifth of the height of its column. The smaller free-standing columns of this order are 1 foot 2½ inches in diameter and 8 diameters in height. The capitals are of the Grecian type, and have circular plinths and cornice similar to that on the lower storey. This building must rank as Palladio's masterpiece; the peculiar charm it now possesses is also much enhanced by the beautiful weathering of the stone.

The Teatro Olimpico at Vicenza is a good example of Palladio's skill in planning. In this building he was not in any way bound by precedent, as suggested by some who have only studied his work superficially. On the contrary, he well knew how to accommodate the principles of Classic architecture to the special circumstances of his own designs, modifying according to need the proportions, forms and distribution of the parts.

Palladio's studies in Rome among the Classic ruins, and also his excavations of the Berga Theatre at Vicenza must have well equipped him for designing this building. He also had made a special study of Vitruvius and the elaborate directions laid down by that author indicating how the ancients planned these particular buildings. When, therefore, the Academy of Vicenza decided on constructing a building in which plays of the Classic authors might be given, it was to Palladio, whom they regarded as a high authority on the subject, that they naturally turned. The work was begun on May 23, 1580, in Palladio's presence, but he was not destined to see its completion, for he died on August 19 of the same year. In gratitude for his work we are told that the Olympic Academy nominated his son Silla to superintend the work. The theatre was not entirely completed till 1584.

The plan and general distribution leave no doubt that Palladio kept the form of the Roman theatre in view, but that, owing to the peculiar and restricted shape of the site, variations had to be made, the most notable being the semielliptical auditorium, which takes the place of the semicircular plan of the Romans. Scamozzi has been at some pains to inquire into the general principles of proportion adopted, in which, owing

to the novelty of the elliptical plan, he had to depart from the proportions of Vitruvius. His remarks are certainly ingenious and convincing, but cannot receive a detailed notice here. The building proper occupies a site 123 feet long by 75 feet wide. It will thus be seen that the space originally at disposal does not include all that shown in the plan, but only the auditorium and the stage. The extra accommodation, including the three rooms to the left and the portions behind the permanent scene, were acquired afterwards.

The elliptic form, or rather that produced by portions of three circles, was decided upon as being most economical for the seating of an audience desirous of hearing and of seeing perfectly. The length of the scene is about 70 feet. It is constructed in stone and is composed of two orders of Corinthian columns placed one over the other. The upper columns are not isolated like those below, but are semicircular in plan and attached to the wall. Their pedestals project over the lower columns and support statues, forming a very pleasing feature.

Above the upper order of Corinthian half-columns is an attic storey with small pilasters over the axes of the lower columns. In front are placed statues, while between them are square panels filled with sculptures representing the labours of Hercules executed by well-known sculptors. Between the columns of the ground and first storeys are placed niches occupied by statues and framed in with pilasters, entablature and pediments, triangular or segmental. The centre of the scene has a large open archway of semicircular form, springing from the cornice of the lower storey, and there are smaller square-headed doorways on either side, formed under the entablature of the ground storey.

The return walls of the scene, which are at right angles to it, are treated in a somewhat similar manner to the front. On the ground floor is placed a doorway centrally to each return, having on each side a semicircular-headed niche, above which are slightly sunk panels filled with bas-reliefs. The first door has a central opening, protected by a balustrade. Above the podium or enclosing wall of the auditorium are constructed the seats in thirteen tiers. They are about 21 inches in width and 15½ inches in height. Above the top row of seats is placed a Corinthian colonnade, cleverly contrived to hide the irregularities of the site.

The openings of the permanent scene, central and side, form entrances to the interior scene constructed as streets radiating therefrom. These streets are built in perspective, with buildings on either side, the line of sight or horizontal line being half-way between the stage level and the upper tier of seats of the auditorium. This construction in perspective was designed by the architect Scamozzi. The ceiling is flat, and extends without interruption over auditorium and stage, allowing the voice to travel without hindrance.

Town Houses.—Some of Palladio's most important designs were erected in his native town of Vicenza. They were mostly built in brick faced with stucco, which has now fallen away, and in consequence the designs suffer from having been executed in such poor materials. Palladio has been blamed for this by certain critics, who evidently consider that he was responsible for the depth of his client's purse. We should rather rejoice that, in spite of the materials at his command, he should have been able to produce such excellent results.

Palladio introduces the subject of town houses as follows. He says:—"I am sure that they who shall look upon the buildings I am going to give the draughts of in this book, and they who know how hard it is to introduce a new way, particularly in the art of building (in which every one presumes to be knowing) will think me very happy that I have met with persons who were generous, judicious and reasonable enough to hear and approve my reasons." The Palazzo Chiericati has a great gallery or portico, which extends the whole length of the principal front on the ground floor, and is carried up on the two wings to the first floor, the central portion of which is walled in, forming the hall. The front of this building has two orders, the Doric for the ground floor, the Ionic or the first floor, and is an example of treatment which Palladio often favoured. This is to be remarked, because his name is generally associated with the treatment of an order embracing two storeys in height.

In Leoni's edition of Palladio's "Architecture" this building is shown with the Ionic order of the central portion of the first floor as pilasters, instead of half-columns, but most will agree that the substitution of pilasters would have deprived the façade of much of its interest. Another feature is the continuous pedestal, or stylobate, upon which the lower order rests, forming a solid base or support to the whole structure. The Doric columns are of sturdier proportions than usually adopted by Palladio, being 7½ diameters in height. This sturdy proportion was probably used because these free-standing columns supported an upper storey, the central portion of which was solid. These and other deviations from the master's own precepts are interesting as showing how he altered them to suit the circumstances of the case. The upper storey is treated with the Ionic order, resting on pedestals

which have no base. Although a large part of the building appears to have been erected during his lifetime, it was only finished a considerable time after his death, viz. towards 1700.

The Palazzo Tiene, like so many of the designs, was only partly finished. It consisted of a central square courtyard of 84 feet 6 inches, surrounded by a rusticated arcade, beyond which are the various rooms, the size of the whole site being 190 feet by 176 feet. The windows to the first floor have small three-quarter Ionic columns with entablature and pediment. This is an excellent composition, the reserved use of the order for one storey only being very happy. These first-floor windows have rusticated shafts resting on pedestals, between which are placed balusters, a composition probably designed to lead by an intermediate stage from the masculine treatment of the basement. In Leoni's drawing the main entablature is shown at about one-fifth of the height of the column, which is Palladio's usual proportion, whereas in execution it has been increased to one-fourth its height, our architect evidently taking account of the narrowness of the streets and the consequent foreshortening of the upper mouldings. The courtyard is equally fortunate, a similar treatment being adopted, except that the necessary openings are left for the arcading between the piers. The attic has also small windows lighting the rooms of the upper storey. The finished portion was adorned with sculpture by Alessandro Vittoria, Bartolomeo Ridolfi, and with paintings by Anselmo Canera and Bernardino India, both the latter being of Verona.

The Palazzo Valmarana was erected by the Conti Valmarana, as Palladio says, "not only for their own honour and convenience, but also for the ornament and glory of their country," an idea which might be more often followed by rich men in these days. The house is divided into two parts by a central court, and behind is shown a large garden, 120 feet by 68 feet 6 inches wide. Only the front block of this important façade has been executed. The stables are also placed in rear of the site. The ground-floor apartments are vaulted and the upper ones ceiled at a height equal to their breadth. It is curious to observe that in Leoni's edition the site of this building is shown as rectangular on plan, whereas in reality the front wall is not at right angles to the side walls. There were two ways of treating this façade, viz. either to make the front wall at right angles to the side walls, in which case it would have to be set back from the general line of the other buildings in the street, or, as Palladio arranged it, of making it line up with the general building frontage, allowance being made for the difference of shape in the front rooms. In choosing the latter arrangement Palladio showed his good taste and left it as a legacy for architects of all time. Many modern buildings have been spoilt by neglecting to adopt this principle in dealing with awkwardly shaped sites. The method of stepping-back the façade in order to make rooms square is very unsatisfactory, and has only to be seen to be at once condemned. The façade of the Valmarana Palace has been the subject of much criticism. It shows another treatment, having an order of Composite pilasters embracing two storeys in height and an attic storey over them.

The façade above the base is in brick and stucco. The main entablature is one-fifth the height of the column, and the order rests upon projecting rusticated pedestals, one-quarter of the height of the pilasters. The secondary order of the Corinthian type, which marks the ground floor, rests upon the same pedestal as the larger order, an arrangement which many critics have condemned. This order is of half pilasters backed against the main order, and is not a happy arrangement. The entablature to this order is broken at each intercolumniation against the main pilasters. Above the main entablature is an attic the height of which is one-quarter that of the pilasters. The upper windows have balconies of small projection. It will be seen that the main pilasters do not terminate the façade in a manner which might be expected, the secondary order being doubled instead and made to support statues above its cornice. As a principle of design this does not appear correct, the length of the façade being thereby apparently diminished, and the framing of the whole design unpleasantly affected.

The Palazzo Barbarano is interesting in many ways, because Palladio has given his original design and also that which was actually carried out. It has an entrance leading to a large columned hall beyond which is an open court. As to the façade each storey has its own order, whereas in the original design one Corinthian order of semi-columns resting on a podium was taken through two storeys. There is no doubt that the second or executed design is immeasurably superior. On the ground floor the wall space between the Ionic half columns is rusticated, and the windows have flat arches, the abundance of wall space giving the necessary strength which a ground storey should possess. Exception might be taken to the impost moulding upon which these arches rest as being unnecessary. The upper storey is in a most ornate manner. The windows have architraves and consoles supporting pediments, alternately triangular and segmental, upon which are placed reclining figures. The

podium to these windows is pierced with a balustrade, while the Corinthian columns are unfluted and rest upon a continuous block immediately over the cornice of the lower order. An attic plainly treated with square window crowns the whole building. The angle treatment of the Ionic order is peculiar. Although built in brick and stucco, this palace must always remain a triumph of art over matter. The meanness of the material used is completely lost sight of in the superior excellence of a master design. In execution this has been considerably altered. The original design was for a regular façade of seven bays with a central opening leading into a columned vestibule. Additional land appears to have been acquired, which throws the principal entrance out of the centre. The Ionic columns to the front façade have a height of 9 diameters, those of the courtyard at the back $9\frac{1}{2}$ diameters, and those to the entrance $8\frac{1}{2}$ diameters, these latter having to support a solid vault. Palladio herein followed Vitruvius, as the latter mentions in his Book I., chapter 2, "that variations may well be made from the regular proportions in order to suit them to special circumstances." The Corinthian columns to the first floor are also raised upon a plinth in order to prevent their bases being hidden by the projecting cornice of the lower order.

The Palazzo Porti faces two streets, and the front portion only was executed. The entrances from each street led through columned halls to a great central courtyard, open to the sky, and surrounded by a colonnade of Composite columns embracing two storeys in height, and crowned with entablature and balustrade. The passage on the first floor is supported on pilasters attached to the backs of these tall Composite columns.

Palladio mentions Paul Veronese as the artist employed to paint portions of the interior. The exterior is certainly one of the most pleasing, and resembles that already shown in the Palazzo Tiene. A rusticated basement with square-headed windows and circular relieving arches with carved keystones supports a *piano nobile* of attached Ionic columns and entablature. Between the columns are square-headed windows surrounded by an architrave moulding, and provided with consoles carrying pediments alternately segmental and triangular. Over these pediments Palladio designed reclining figures, but only three groups are really executed, a central and two angle ones. This omission helps the façade, which might otherwise appear too complex and crowded. There is also another important difference between Palladio's design and that which was actually carried out. In the statues which decorate the attic storey he shows a range of eight, resting on the top of the attic pilasters, whereas there are only four, and they are placed immediately above the cornice in front of the pilasters. This appears an infinitely better position, for there is something dangerous looking and gymnastic about free-standing sculpture at a great height from the ground.

The Palazzo del Consiglio, also known as the Palazzo del Capitano; the Prefetizzio, Municipio, Loggia Bernarda and Palazzo Comunale, is not mentioned in Palladio's book, and must therefore have been erected after its publication. It is comparatively a small building, a portion only of the original design, and is situated opposite his masterpiece in the Piazza de' Signori. Thus we can see at a glance one of his earliest and latest productions. The Composite half-columns, without pedestals, are carried through two storeys and their entablature breaks round them, and is crowned by a balustrade. The attic storey over is set well back and does not interfere with the general proportions of the façade, which are excellent. The lower portion forms a triple arcade, and the upper storey has windows and projecting balconies supported on triglyph brackets. The windows of this storey cut into the architrave of the main entablature, a defect in the design which is hidden by the outside blinds. The view shows the dilapidated condition of this façade, the brickwork of the columns showing where the plaster has fallen off. The treatment of the side façade differs from the front, the main order not being carried round, and is not successful. The Casa del Diavolo, also known as the "Antica Posta," the "Casa Porto" and other names, is an unfinished design. Two bays only of the façade have been completed, which indicate the immense scale adopted. Half-columns of the Composite order rest on deep pedestals, the cornice of which forms the impost of the principal gateway. These columns are 10 diameters in height, and from their abaci sculptured festoons, bound with oak leaves, stretch from one capital to another. The windows to the first storey are crowned with pediments, alternately segmental and triangular, and have projecting balconies with balustrades supported by consoles. The entablature of the main order has windows in the frieze, in the manner of Peruzzi, to give light to the small rooms of the upper storey.

The House of Palladio was erected in 1556. There appears to be no evidence that Palladio ever resided in it. At the same time, as an instance of one of his smaller works, which he might have designed for himself, it is an exceedingly interesting piece of work. The plan consists of a front and back *corps de logis*,

with an open area between, to the side of which is the staircase. The ground storey has Ionic columns with entablature one-fifth of their height. A large centre semicircular headed opening forms the chief entrance, and has reclining figures in the spandrels. Smaller flat-headed openings are on either side. The first storey has Corinthian pilasters of a rather stumpy proportion, and above is an attic storey crowned with a modillion cornice. The blank space in the centre of the first storey is probably caused by the fact that the light for this room is obtained mostly from the interior court.

(To be concluded.)

CRANNOG OR FISHBOTHY?

IN 1898 a curious wooden structure, with outer layers of piles, was found, writes Mr. R. Munro, B.D., in the *Glasgow Herald*, on the margin of the river Clyde, near Dumbuck. Its discoverers at once called it a crannog; and since then they have not only stuck to the name but they have, by pen and pencil, and in every possible way, sought to magnify its importance and extend its reputation. At first it was assumed to be a crannog of the ordinary kind, directly related to its humbler kin of the Scottish type, whose genealogy does not go beyond the Middle Ages. But gradually as things began to be found in it—odd things of bone and shale, stone and shell—the discoverers claimed for their crannog a pedigree more ancient than any in the land, or, perhaps, in any land. The Dumbuck crannog was no common crannog, but a genuine product of Neolithic, or even, it might be, of Palæolithic times. Then came the experts with their prosaic objections and critical scepticisms. Dr. Munro, the European authority on crannogs, declared that the famous structure was not a crannog at all, but the foundation of a stone building or cairn; and that, whatever it was, its date was post-Roman. He, and others also, raised perplexing questions as to the character of the relics. They were entirely unlike anything hitherto discovered in the Neolithic areas of Europe. Their type was puerile; and, as they were not formed of flint or stone, they could have been neither the weapons nor the implements of veritable Neolithic man. Besides, many of the finds got in the Dumbuck site were of such a kind, both as to form and character, that there could not be any reasonable doubt that they belonged to recent or historic times.

These objections—cold and unsympathetic—made things pretty bad for the Clyde crannog, and ultimately all competent archaeologists came to regard it as a Mediæval structure of some sort. It was a sad disillusionment. A lengthy drop from the far-off Palæolithic and Neolithic times to the Iron Age of yesterday, with its axes and hammers and saws and dry facts. Consequently other last and frantic efforts were made to save the character of the crannog from utter collapse by representing it as a site for the manufacture of totems and curios in shale and shell—which might belong to any age—or in suggesting that it was a Roman centre, and that the relics, the carvings and such like were the work of the Imperial soldiers as they wiled away the *ennui* of an idle hour. This last suggestion was evidently not intended to be taken seriously, for it was not backed by any evidence to show that this was a favourite pastime of the Roman soldier in his spare moments, and that he has left elsewhere behind him remains of an analogous or similar type.

Such shortly, and I trust without undue bias, is the history of the Dumbuck crannog down to date.

Is there any rational explanation of the structure that has created for itself such a name and stir in the archaeological world? That it is not a crannog, and that it is not Neolithic may be taken as proved. What, then, is it?

Some facts that I have incidentally lighted upon will, I am hopeful, help to answer that seemingly insoluble question. In the summer months of 1901, while studying the Paisley Abbey charters for the purpose of finding out the old forms of Dumbartonshire place-names, I came upon many interesting references relating to fisheries and fishing rights and customs. The oldest reference of this kind is a charter granted by Walter, son of Alan, first of the Stewards of Scotland and founder of the Paisley Monastery. About 1165 he gave the monastery, among other rights and possessions, "the whole of the island near his town of Renfrew, along with the fishing between that island and Partick, and the use of one net for catching salmon." In the same charter it is further stated that he assigned to the monks "the entire salt-work—*totam salinam*—in Kalenter (Calder (?), Lochwinnoch) which formerly belonged to Herbert, the chamberlain." "Registrum de Passelet," p. 6. When Alan, son of the said Walter, granted to the Paisley monks, in 1202, the lands of Moniabroc in Stragrif, or ancient barony of Renfrew, it is provided that they be entitled to fish Lochwinnoch, and to make and to have half of the fishing at the mouth of the loch. "Reg. de Pass.," p. 14. About eighty years later the two fishings at the exit of the loch are called

spectively the Yair of Auchindunan, which belonged to the Meschal's family, and the Yair of Lyncleyft, which belonged to the monastery. "Reg. de Pass.," p. 254.

Others who richly endowed the monks of Paisley were the great Earls of Lennox. They gave them not only the church of Kilpatrick, but the lands of Cochinach, Edinbernan, Baccan, Melach, Drumcrene, Losset, Drumthoker, Drumteghlan, Cumdianis, Cultebut, Reinfode, Monachkenran and Dalmonach. Interesting as it might be to dwell on these old times of the lands of Lennox, it is not, however, with them that we are now concerned, but with the fishing rights that were conceded along with them. The first charter of this kind was granted in 1224 in favour of the monks of Paisley by Alexander I., Earl of Lennox. "Carta piscarie ad unum rete in Leven." "Reg. de Pass.," p. 213. This charter gave the monks the right of having a net in the river Leven, and secured them and their servants of the Earl's protection in making it. In the confirmation of this grant by Alexander II., the donation is described as that of making one yair over the river from both sides of the water ("de uno yar super amnem Leven ex utraque parte amnis faciendo"). "Reg. de Pass.," p. 214. Robert Hertford, a Glasgow priest or precentor, further increased these piscatorial privileges by gifting to the monks in 1225 his fishing and yair on the east side of Lynbren Leven water—along with an acre of ground near the river, in the land of Seneglass, between Lochan and Crakan. "Reg. de Pass.," pp. 211-13. In the same year Maldoven confirmed all these rights and privileges, and made additional concessions. He gave them the lands of Dallenlenrath (Dalmonach is the form of the Cartularium Comitatus de Levenax, Carta, 11), "which lies between the said fishing and the highway towards Dunbertan." This charter conferred the right to fish with yairs from both sides of the Leven and across the water as they pleased. It gave them pasturage for eight cows and two horses in his lands of Buchlul (Bonhill), with liberty of taking and using the same and wood for building purposes and firewood from his lands and forests wherever they found it most convenient. It gave them permission "to fish his lake of Leven Lomond in its whole extent, without restriction, with the liberty of drying their nets and of building houses and dwellings for their fishermen, as well in the island of the said lake as in his adjacent lands" "cum libertate siccandi retia sua siccandi domos et scalingas piscatoribus suis tam in insulis quam in lacus quam in terris meis circumjacentibus." "Reg. de Pass.," p. 212. This important charter is witnessed at Paisley by Walter, the second Steward of Scotland; Radulf, chaplain of the king (who at one time held the pasture land of Backan Kilpatrick and Hillington in Renfrew); Malcolm and Robert, brothers of Maldoven; Robert Mundgumry (Eglinton); Alan de Insula (Alan Lyle, baron of Duchal—ancestor of Robert, created Lord Lyle in 1445); Roger, son of Robert; Galfridus Marssell (or Marshall, Justiciar of Renfrew); Humfry of Kilpatrick (founder of the Colquhoun family). The next charters bearing on our subject are those in connection with the church at Rosneath, which was conceded to the monks of the Paisley Monastery. There are charters, of 1230, given by Amlec and Haul, brothers of Maldoven, which the monks were entitled to fish the whole of the Loch with nets for salmon and other kinds of fish, and to use the lands of Rosneath salt works and their pertinents. "Carta Amelec . . . de donacione saline in Rosneath, et Garper totum." "Reg. de Pass.," p. 210; "Carta Haul . . . de saline in Rosneath." "Reg. de Pass.," p. 211. These were constructed both for making and preserving salt for general use and curing purposes (*vide* "Annals of the Clyde," by George Neilson, LL.D., for a most interesting and detailed chapter on ancient "Salt Works and Fisheries," pp. 1-10). Coming down to later times there is, for our purpose, an important charter, of date 1452, called "Carta piscarie Crukytshot." By this charter Robert, Lord Lyle, granted to the abbots of Paisley and their successors the third part of the fishing ground known as Crookedshot—the fishing ground of Clyde adjoining the lands of Auchentorlie and Dunnerbie. He also gave them "that particular piece of land lying upon and in the neighbourhood of the third part of the fishing ground of Crookedshot for the purpose of erecting a house for the preservation of fish and for the use of the servants of the said abbey and convent, when detained in that place"—"particula terre contigua et vicina prefate tertie partis de Crukytshot, ad construendum unam domum pro conservatione piscium et pro servitoribus in ibi trahentibus dictorum Abbatis et Conventus qui pro fuerint." In addition it is stipulated that they may have a suitable place "for preparing, mending and drying their nets near the fishing ground of Crookedshot, where his own men were formerly wont to mend and dry their nets; with the right of taking wood from the forests of the Auchentorlie and Dunnerbie for the purpose of hanging their nets." "Reg. de Pass.," pp. 250-51. Crookedshot was one of the famous fishing reaches on the

Clyde. It is frequently mentioned in the early charters, especially in the "Registrum Magni Sigilli," "The Protocols" of Glasgow, and "The Retours" of Scotland. It and Spittelshot, another notable fishing, belonged to the 10th land, old extent, of Auchentorlie, Dunnerbie and Spittel. In the parish records of Kilpatrick, date 1750, Bowling is called Bowland of Spittel, so that the fishing of Spittelshot must have been situated in its immediate neighbourhood, possibly between Glenarbut and Ferrydyke. Crookedshot was probably lower down, at a bend of the river that at one time existed to the east of Dunglas and between it and the place where the harbour now is. This bend is shown in Pont's map, drawn about 1620, and published at Amsterdam in "Blau's Atlas" in 1662.

Much as yairs and cruives figure in the early charters and Acts of Parliament, nothing of a very definite or practical kind is known about them. None of the yair sites, as far as I am aware, have been excavated. We must depend, then, on such aid as we have. Dr. Jamieson in his dictionary defines a yair (Eng. *weir*, A.S. *waer*, *wer*, Icel. *vörr*) as "an enclosure, commonly of semicircular form, built of stones or constructed of stakes and wattled work, stretching into a tideway for the purpose of detaining the fish when the tide ebbs." The old "Statistical Account of Scotland," which was written when yairs were in general use, tells us that they were so abundant in the Clyde at Cardross that they seemed to be almost peculiar to that parish; that they were 4 feet high, of considerable length and stretched out into the river in the form of a crescent or three sides of a square, and that herrings were caught in them in large quantities, and salmon in smaller quantities as they ascended during spring (vol. xvii 217-18). From the same source we also learn that in the parish of Alloa yairs were a sort of scaffold projecting into the Forth, upon which the fishermen built little huts to protect them from the weather. At certain seasons of the tide they let down their nets from these scaffolds, and were frequently very successful (*vide* "Stat. Acc. Parish Alloa," vol. xiii. p. 597).

In the reign of Robert I. (1318) a law was passed ordaining "that all who have cruives or fishings or stanks or mills in waters where the sea ebbs and flows, and where young salmon or smolts or fry of other kinds of fish of the sea, or of fresh water ascend and descend, such cruives and the machines placed within them shall be at least of the measure of 2 inches in length and 3 inches broad, so that the fry of the fish may not be impeded" ("Acts of Parl. of Scot.," c. 11, vol. i. p. 469). A curious stipulation is made in one of the Acts, "that the mid-stream be as wide as the length of a three-year-old swine, well fed, so that neither the snout nor the tail of the pig may touch the sides." This Act was passed in 1175, and is, perhaps, the oldest Scottish fishery Act ("Ass. Will" c. 10, "Acts Parl. Scot.," vol. i. p. 374). As late as 1632 King Charles I., taking into consideration that many of his subjects on the bounds of the Firth of Clyde "have been at all tymes heretofore and still are, at some seasons of the year, chiefly maintained by the fishings thereof, grants that none fish between the Mull of Galloway and Kintyre, or in any place within the same, except the natives according to the ancient custome" ("Acts Parl. Scot.," vol. v. p. 245, b.). In the earliest Colquhoun charter, granted by Maldoven to Umfridus de Kilpatrick about 1240, there is mention of the pools, mills and fishing in the lands of Colquhoun, between Dunglas and Dumbuck; and in the charter of King James V., 1541, "the lands and barony of Colquhoun, and the manor place of Dunglas, with the fishings and yairs in the water of Clyde," are particularly indicated. The latest charter connected with "the lands of Milton of Colquhoun and Carcaston, now Dumbuck," is that given by Sir Charles Edmonstone of Duntreath to Lieutenant-General Thomas Geills of Ardmure, where it is stated that these possessions "are to be called in future the lands and estates of Dumbuck, with the fishings, yairs in the river Clyde, &c.," date 1815 (*vide* Charters of Colquhoun and Country of Clan Colquhoun by Sir William Fraser).

Dr. David Murray in an article "On Recent Archaeological Discoveries" published in the *Glasgow Herald*, March 22, 1899, says that at the mouth of the Leven, a short distance below Dumbuck, there is a low cairn of boulders known as the Black Layer, and in the Bay of Ardmure, a few miles further to the west, there are two similar structures, the Big and Little Layer, between high and low-water marks, and tailing towards the shore. Layer is evidently a corruption for yair. The sites of wood and stone in the island of Eriska and in the Beaully Firth—which are not crannogs, and concerning which as yet there is no adequate explanation—may possibly be yair sites ("Proc. S. A. Scot.," vol. xix p. 192). It is almost certain that the large cairn mentioned by Miss MacLagan in her book on "Hill Forts," as existing near the mouth of the river Ness, at high-water mark, and called "Cairnaire," which she translates as "Cairn of the Sea," is the ruins of a yair, and that the correct designation is "Cairn of the Yair."

The above facts are, I think, worthy of being duly con-

sidered as helping to throw light on the structures recently found on the margin of the Clyde. The charters prove that as early as the first quarter of the thirteenth century there were yairs on the Clyde and the Leven, and salinæ at Rosneath and elsewhere. They also show us—and this is the point which is of most importance, and upon which I desire to lay special stress—that at a very early period it was customary to construct on or near the Clyde houses which were a kind of bothy for preserving the fish and for affording shelter and accommodation to the fishermen. They were built of stone and wood taken from the neighbouring lands and forests. They existed not only on the Clyde, but on the Leven and in the islands of Loch Lomond—in fishing grounds belonging to the Paisley monks and in fishing grounds over which they had no control. It would be interesting to know if there is any reference in the early charters elsewhere to fishing bothies of this kind constructed on the margin of tidal rivers. In any case they existed in the district of the Clyde valley as early as 1225, or possibly earlier. And it would be well in the interests of Scottish archaeology if those who are pushing the claims of the so-called crannog to such unreasonable and unscientific lengths would look into this new aspect of the subject in the hope that we may come to some definite conclusion regarding the matter. There is no evidence whatever that the foundation of wood at Dumbuck was a crannog or a Neolithic site; there is evidence which to me at least is almost conclusive that it was the foundation of “a house for the preservation of fish and the accommodation of fishermen” when plying their piscatorial craft. Strangely enough it was suggested by Mr. John Bruce during the *Glasgow Herald* controversy on the subject that the curious well in the centre of the Dumbuck structure was “a fish-tank or pit for the preservation for future use of the surplus catch not immediately consumed.” He was nearer the secret of the Dumbuck littoral site than he dreamed. Drs. Munro and Murray told us long ago that it was the foundation of a stone building or cairn. A cairn it can scarcely have been, as later finds clearly indicate that it was used in some way as a human habitation. What kind of habitation? The site is not exactly one that any kind of man—Neolithic or otherwise—would choose for a house; and as a place of defence it would not only be too small—holding at most a dozen people—but would be absolutely worthless as a stronghold. As a fish bothy, with its central cavity and outer ditch for preserving “the surplus catch,” it would be precisely in its proper place, and would explain all the other inexplicable conditions of the strange structure and its stranger situation.

THE RHIND LECTURES.

THE fourth of the present series of Rhind lectures was delivered by Mr. Thomas Ross in Edinburgh on the 30th ult. The lecturer pointed out, says the *Scotsman*, that in the former lecture it was shown that the building of Edwardian castles came to an end about the close of the thirteenth century. Consequent on the long struggle for independence, and the large sums paid for the ransom of David II., the country was impoverished and unequal to the task of erecting great castles; and further there was the suspicion with which they were regarded by Bruce as likely to afford more assistance to his enemies than to himself; and, with the exception of Tarbet Castle, on Loch Fyne, built by him to overawe the Western Highlands and Islands, most of the fourteenth-century castles were more of the nature of private mansion houses than castles of national importance. On account of the unsettled state of society, however, these had to be places of considerable strength. It was at this period that the Scottish lords reverted back to the Norman keep type of castle, with which many of them were familiar from imprisonment in them during the English wars. These Scottish keeps were oblong on plan, varying from 50 to 80 feet in length by 30 to 40 feet in width, and three or four storeys high. They were superior to the Norman keeps in having vaulted floors as a security against fire, but they had nothing of the elaborate Foss building entrance of the former, nor was that to be expected in castles not manned by regular troops. The domestic accommodation in such a tower was primitive with little privacy. Kitchens in the earlier ones were unknown. The development of these was shown from the small doll's-house-like kitchen of Crichton up to the more stately kitchen in the same castle of a later period. Besides building many new and independent keeps on new sites, keeps were added to almost all the castles of the first period. That process forestalled somewhat the castles of the third period. By a later and similar process the towers of the second period, now under review, were in the third period often added to by the addition of buildings surrounding a courtyard. In either case it would be found that in a large castle where there was a keep it was of earlier or later date than the other parts of the castle, this depending on

which of the foregoing processes it had gone through, unless in such extended castles as Doune and Tantallon, where it was obvious at a glance that the whole was of one date. At the end of the fourteenth century the importance of the castles was as fully recognised as in the time of Edward I. That was seen from the expenditure on their repair and upkeep, and the official reports as to the condition of such castles as Berwick, Roxburgh, Edinburgh, Stirling, Caerlaverock, Lochmaben and others, and from the great quantity of stores constantly flowing into them. And there was the same jealous exclusiveness seen in the command of Edward III. to the keeper of Lochmaben, “No one to be received in the pie beyond the garrison,” and it was with a feeling of relief that a truce was arranged in 1385. “That no fortress is to be built of new, or repaired, in the counties of Northumberland or Cumberland, or those of Berwick, Roxburgh or Dumfries—saving those in progress at this date.” That great watchfulness over important castles appeared more or less all through the Middle Ages, but was more prominent at some periods than at others, and extended to private ones also. No one could build a new castle or fortify an existing house without a license which stipulated what was to be done. The building of these unlicensed castles, “castra adulterina,” as they were called, was illustrated by a petition to the king from the Mayor of Carlisle in 1385, in which he set forth the defective condition of the castle, and complained that “The seigneurs of the country around, who used to repair to the city in war time, have raised castles of their own on account of the weakness of the king's castle.” These licenses were very numerous in England, and many were extant for Scotland, where it appeared that even an iron gate or grated window could not be put without authority. In regard to these it showed a pleasing advance towards millennium times when, in 1605, the Privy Council decreed that “iron yetts (within the late borders) within their houses are to be removed and turned into plough irons or the like.”

In the fifth lecture Mr. Ross explained that the third period of the architecture of Scotland began with the reign of James I. and ended with that of James V., comprising the whole fifteenth century and forty years of the sixteenth. What entitled that period to be regarded as a distinct epoch was that great castles and palaces again began to be built, rivalling in size those of the first period. Linlithgow, Stirling, Edinburgh, Falkland, Doune, Tantallon, Dunfermline, Spynie, Balveny, Rosslyn, Edzell, St. Andrews and many others were all castles or palaces of great size, and were, some of them, built as on undertakings. Others, of which Hermitage and Crichton were examples, were greatly enlarged. These great buildings were more domestic in their arrangements than the first period castles were. Although they were all strong houses, they were not planned on such entirely strategic lines. They were not, like them, divided into parts, each of which besiegers had to win successively, at always increasing risk to themselves, as the garrison got concentrated into narrower spaces. There was an increased appreciation of the refinements of life and manners, when it became impossible on both sides for the lord, the lady and their retainers to live in common in the great hall. That led to an increase of apartments and division of the house, suitable to different degrees. Gunpowder, invented about that time, was first sent to Scotland in 1388, obviously for the munition of Roxburgh Castle, and henceforth they read of the new invention and its belongings, guns and stone balls and barrels of powder being sent for the provision of important castles along with the older arms, such as crossbows and wynders, barrels of bow-strings, with sheaves of arrows. That invention, which ultimately changed the whole art of war and fortification, had an undoubted effect on castle building, leading the nobles to see that it was now useless to attempt building castles to resist long sieges against the new artillery. Also about that time a remarkable group of Churchmen appeared in Scotland—founders of colleges and encouragers of the new learning which was beginning to make itself felt, and as they were all great builders their influence must have been considerable in widening the scope of the conceptions of the amenities of life. But perhaps what gave the greatest impulse to the revival of domestic and castellated architecture was the magnificent patronage given by the Stuart kings at the palace of Linlithgow, Dunfermline, Stirling, Edinburgh Castle at Holyrood, Falkland and other places. Perhaps it was at Linlithgow Palace where the architecture of the period reached its highest level. As it then stood, and it was practically entire, it was begun, carried on and ended by the six Jameses and by them only, so that it might be regarded as the grand memorial which they possessed of the Stuart kings. A castle existed there in the time of Edward I., and evidently a strong one, but of it nothing whatever remained. One of the striking features of the great courtyard castles of that period was that the entrance was below the principal part of the building into the courtyard, from which one reached the various stairs leading to the different parts. That would be observed at Tantallon, Doune, Balveny, St. Andrews, t

stored centre of Dirleton, Linlithgow and other places. That passage was always well secured with drawbridge, stout doors and portcullis, worked from a room above, and was further secured against fire in being arched in stone. From the security of the courtyard the rooms could be safely lighted with large windows, and thus it often happened that these castles had a more cheerful air within than the outward appearance would lead one to expect. Along with these large courtyards, castles and palaces, the old Norman keep plan still retained its place, and in that period the largest of the kind was built at Borthwick. It was worthy of being compared with Norman keeps in size and grandeur. Numerous examples of lesser size were built throughout the whole country. A series of them along the Firth of Clyde appeared to have been built, after a model plan, of about the same size and four storeys high. The arrangement of the hall and kitchen was varied out in each on the same lines. The kitchens consisted of one end of the hall partitioned off. They were perhaps 15 feet or 15 feet long by 4 feet or 5 feet wide, with an arched place of the same size, round which the servants sat. These castles showed a considerable advance in domestic convenience over the earlier keeps, where most of the cooking had to take place in the hall or in sheds outside. Confined and narrow as these keeps appeared now, there was often obtainable a considerable amount of domestic happiness with a sense of security experienced within their walls.

In the sixth and concluding lecture of the course, the fourth and last period of the castellated and secular architecture which prevailed in Scotland before the appearance of the Renaissance at the end of the seventeenth century was considered. After the sudden and unexpected death of James V., the country was destined to suffer the woes predicted for the land whose sovereign was of immature age, there was a distinct cessation of building throughout the minority and short reign of Queen Mary. In the throes of the Reformation expenditure on palaces and castles was a matter of secondary consequence, and comparatively few buildings were erected for many years after James V.'s death. The accomplishment of the Reformation, when the Church lands and other properties passed into the hands of the nobility, there was a great revival of building activity, and under new conditions. The practice of dating buildings now became common, and before this period it was extremely rare in Scotland. It had now become evident that it was useless to build private castles capable of resisting the improved artillery which had superseded the old methods of warfare. The old like aspect of the earlier castles was left aside; the portcullis and the drawbridge were mostly discarded, the bretasche boarding was seldom provided, and even the sites selected were generally more accessible. The early keeps were dismantled from the top. Now they were often covered with steep roofs stretching from wall to wall, in many cases with no room left from which to conduct a defence. Sometimes, as at Borthwick, a small protected space was contrived at each side of the tower, from which defensive operations might be conducted. At other places a single tower was carried up a little higher, with a narrow walk round for this purpose. At some of the border towers there were what might be called small stone sentry-boxes, at opposite ends, for watchers entering from the walk which went round the top of the wall. Sometimes the walk was discarded, these sentry-boxes were entered from the inside of the tower. As gradually as time went on the roof prevailed from eave to eave throughout the whole building, and turrets of a purely ornamental nature took the place of the roof defences. Before the stage was reached an attempt was made in some castles to fit them for the use of big guns with strong platforms and gun-pieces pierced with embrasures, but except in the great royal castles this was not common. Inside the entrance there was a sliding bar for securing the same, and often on a yett. Windows were also heavily grated where accessible by ladders. These, with thick walls, were the kind of defences now generally relied on. But with the common use of firearms in the latter half of the sixteenth century, the Z plan came into use. This consisted of a tower projecting at two of the opposite diagonal angles of the keep, so as to command the two faces each. These towers had always gun-holes, and were characteristic of the latter part of the sixteenth century, consequent on the common use of firearms. This Z plan was very characteristic of the castles of this period, and it admitted of an immense variety of modes of treatment. Sometimes the angle towers were square and sometimes round, and by the device of bringing the latter forms into square forms at the roof an opportunity was given for a display of that wondrous genius for corbelling characteristic of Scottish buildings. Mr. Billings had pointed out that this plan was peculiar to Scotland, and only nowhere else had such a series of Z plans been produced. And the whole architecture of Scotland was a genuine and unchallengeable record of the gradual development of the mind and a true reflex of her history, and from no other

source could such genuine conceptions be obtained of the social and domestic condition of the inhabitants, and the buildings of every period had something about them which marked them as distinct and peculiar to the area of Scotland.

Sir Arthur Mitchell, in moving a vote of thanks to Mr. Ross for his most interesting and instructive course of lectures, said he was sure the audience would join him in expressing to Mr. Ross a hope that they should see both that course and his former course of lectures in book form. Mr. Ross was already the author, in conjunction with his partner, of two great works on Scottish architecture, but they were too large for every man to have in his library, and the desideratum was a book in convenient form, such as might embrace those two courses of lectures, which would be accessible to anyone, and would form a delightful book in any library.

The motion was cordially passed and Mr. Ross briefly acknowledged.

NEW SCHOOL BOARD OFFICES AT CHESTERFIELD.

THE new offices erected by the Chesterfield School Board for administration purposes have just been completed. Designed by Mr. W. C. Jackson, M.S.A., of Chesterfield, and erected by Mr. W. Rhodes, of Brampton, they occupy a site abutting on Foljambe Road, and adjacent to the Central schools in Ashgate Road, and their style of architecture harmonises with that of the school. In the basement of the buildings is a large store-room 30 feet 3 inches by 36 feet, where the stationery and other books for the whole of the schools in the town will be stored. The boiler-room, for heating purposes, is also in the basement. On the ground floor is situated a porch and entrance-hall, waiting-room, 24 feet 6 inches by 12 feet; the general office, 24 feet 6 inches by 22 feet 3 inches; the secretary's private office, 20 feet 9 inches by 12 feet; lavatory and back entrance porch. These rooms form an inner square of the building proper, and a corridor runs round two sides of this square, giving private access to each of the three rooms. They also open into each other. On the upper floor, where the inner square is continued, the main portion of the space is devoted to the committee-room, 24 feet 6 inches by 22 feet 3 inches. The present Board numbers nine members, but the room which, but for the new Education Act, the Board would have occupied in the new offices, has accommodation for twenty members. The education committee which will shortly take possession of the new offices will require all the accommodation that this commodious board-room will afford. This room is too small to be used as the council chamber for the Corporation meetings, but it has been suggested that an adjoining room 24 feet 6 inches by 13 feet, which is designed as a waiting-room for the parents appearing before the Board with regard to school attendance, should be added. There is on this floor a second waiting-room 20 feet 9 inches by 12 feet, together with a lavatory and conveniences. Sufficient provision has been made for the Press. The offices are lighted throughout by electricity. The total cost of the new offices and adjoining caretakers' houses, exclusive of land and furniture, was 2,211*l.*, and including these 2,800*l.*

INSTITUTE OF BRITISH DECORATORS.

THE annual dinner of the Incorporated Institute of British Decorators was held on Monday night at the Trocadero Restaurant. The president (Mr. J. D. Crace) was in the chair, and amongst those present were Mr. Mawer Cowtan, Mr. J. R. Riley (president of the National Association of Master Painters of England and Wales), Colonel Bennett (of the Association of Master Painters in Scotland), Mr. Alderman John Smith, Mr. J. C. M. Vaughan, Mr. J. Preston, Mr. W. H. Pitman and Mr. F. W. Englefield (secretary).

Mr. W. G. Sutherland, in proposing "The Incorporated Institute of British Decorators," said the Institute was the apex of a movement which began some ten years ago. The first idea of the Institute came from Scotland, but the scheme was taken up with great enthusiasm by Englishmen and Irishmen. He thought that no little part of this was due to the fact that they were associated with the Painters Stainers' Company, and it was also largely owing to their being so fortunate with their first and only President, who he hoped would hold that position for many years to come, and whose name was known throughout the entire kingdom as the representative of a long line of artists and decorative artists. Their membership was nearly 400.

The President, whose name was coupled with the toast, said they must look to the gradual growth and consolidation of the Institution rather than to present results. Although the National Association appealed more immediately to the material advantage of the decorator, they must look to the Institute to assist in establishing higher intellectual relations.

between decorators. He thought they might look back on the work of the Institute during the past year with some satisfaction. He appealed to those present to encourage their friends in London to join it in greater numbers.

The toast "The National Association of Master Painters of England, Scotland and Wales" was also drunk.



Engineering Standards.

SIR,—I beg to enclose copy of correspondence which has passed between the Board of Trade and this committee, and in view of the importance of the subject to the trade of the country, I should be glad if you could publish the two letters in your next issue.—I am, sir, yours faithfully,

LESLIE S. ROBERTSON, Secretary.

The Engineering Standards Committee: April 3.

Board of Trade (Railway Department), 7 Whitehall Gardens, London, S.W.: March 24, 1903.

Sir,—Referring to your letter of November 25 last on the subject of the grant desired in aid of the funds of the Engineering Standards Committee, I am directed by the Board of Trade to state that they laid the request of the committee before the Lords Commissioners of His Majesty's Treasury, and urged in support thereof that the work being carried out by the committee is of the greatest importance, and one that might well be encouraged by the State.

In response, the Treasury have expressed their willingness to include in the Board of Trade Vote for 1903-4 a sum of 3,000*l.* as a contribution to the funds of the committee for that year only, on the understanding that they are not thereby pledged to continue the grant in later years.

After the sum has been voted by Parliament for the purposes of the committee, the actual expenditure under the vote will have to be authorised by this department on the recommendation of a committee, which should be specially appointed for the purpose by the Institution of Civil Engineers, and should contain one *ex-officio* representative of the Board of Trade.

In conveying to the Engineering Standards Committee the decision come to by the Treasury as to the grant to be made, the Board of Trade desire me to state that they regard the work undertaken by the committee, including as it does the preparation of standard specifications for engineering works, and of standard sections of rolled iron and steel, together with the standardisation of parts of locomotives and electrical appliances, as tending to reduce both the cost of production and the time occupied in completion, and as being of the highest value to the country at large.—I am, Sir, your obedient servant,

FRANCIS J. S. HOPWOOD.

Leslie S. Robertson, Esq., Engineering Standards Committee, 28 Victoria Street, S.W.

April 3

Sir,—I have the honour to acknowledge the receipt of your letter of the 24th ult., informing me that the Lords Commissioners of His Majesty's Treasury have included in the Board of Trade Vote for 1903-4 the sum of 3,000*l.* as a contribution towards the funds of the Engineering Standards Committee for that year, and stating that the actual expenditure under the vote would have to be authorised by the department on the recommendation of a committee which should be specially appointed for the purpose by the Institution of Civil Engineers, and which should contain one *ex-officio* representative of the Board of Trade.

The main committee have had this letter under consideration, and desire me to say that nothing would be more agreeable to them than the appointment of representatives of the Institution of Civil Engineers and of the Government to advise as to the actual expenditure under the vote.

The committee have communicated your letter to the Council of the Institution of Civil Engineers, with the result that that body is prepared on behalf of the Institution to deal with the question of making recommendations as to the expenditure under the vote in accordance with the terms of your letter. I am informed that the committee in question will consist of the following:—

The President and the senior Vice-president of the Institution of Civil Engineers; Mr. James Mansergh, F.R.S., Sir John Wolfe Barry, K.C.B., Sir William Preece, K.C.B., Sir Benjamin Baker, K.C.B., and Sir Douglas Fox, past presidents of the Institution; Mr. Archibald Denny, M.Inst.C.E., with a representative of the Board of Trade.

The secretary of the Institution will no doubt communicate with you in regard to the matter, and I shall be glad if you will

kindly inform me whom the Board of Trade propose to appoint as their representative.

The committee desire to take this opportunity of putting on record their appreciation of the Government's desire to assist the trade of the country by placing at their disposal not only financial support, but also the valuable services of representatives of the various Government departments.

The committee venture to hope that when the present vote is exhausted the Government will favourably consider the desirability of further assistance, as they attach very high importance to the necessity of organising a permanent body which shall keep in touch with the scientific and practical development of the trades concerned, and be prepared to revise the standards by addition or deletion, and to modify the methods of testing as necessity may arise.—I have the honour to be, Sir, your obedient servant,

LESLIE S. ROBERTSON, Secretary.

The Assistant Secretary (Railway Department),
Board of Trade, Whitehall, S.W.

GENERAL.

Princess Henry of Battenberg presided last Friday at a special meeting of the Governors called to consider the reports and plans of Mr. T. W. Cutler, for remodelling the Royal Isle of Wight County Hospital at an approximate cost of 18,292*l.* The scheme was divided into three sections, and it was resolved to proceed with the carrying out of the first two, including the building of a sanitary tower, the revision of the sanitary arrangements, and the erection of new isolation wards and a fireproof staircase. The estimate for this work, exclusive of architect's charges and contingencies, was 6,000*l.*

The Society of Berlin Architects have decided to co-operate in the preparation of an architectural section in connection with the international exhibition at St. Louis, United States. Efforts will be made to trace the characteristics of German architecture from early ages, as it is believed Americans are not sufficiently acquainted with the subject.

The Royal Society of Painter-Etchers and Engravers have elected as Fellows Mr. G. W. Eve and Mr. W. L. Wyllie, A.R.A.

Mr. Joseph Mordecai is painting a full-length portrait of the King, for which His Majesty gave a sitting last week.

The Exhibition of Saxon Art in Dresden is expected to be opened with much ceremony by the king in May.

The Plans for the new libraries and academy buildings which are to be erected in Unter den Linden, Berlin, are in course of preparation by Herr Ihne. The construction will be directed by Herr Adams, and it is expected the works will be completed in five years.

Sir Ernest A. Waterlow, B.A., was elected last week by the committee of the Athenæum Club as one of the three gentlemen under the provisions of Rule II. of the Club, which empowers the annual election by the committee of nine persons "of distinguished eminence in science, literature, the arts, or for public services."

A Contract has been entered into for the erection of the first portion of the buildings which will comprise the Sanatorium for Consumptives at Winsley, near Bath, which is to be used by patients of Gloucestershire, Somersetshire and Wiltshire. The total amount already subscribed and promised is 9,351*l.* Of this sum nearly 4,000*l.* has been spent, mainly upon the acquisition and levelling of the site. The contract now to be entered into is for the erection of the administrative block for sixty patients, with beds for twenty patients, the bedroom accommodation to be afterwards extended as funds permit. The amount of the contract is 6,877*l.*

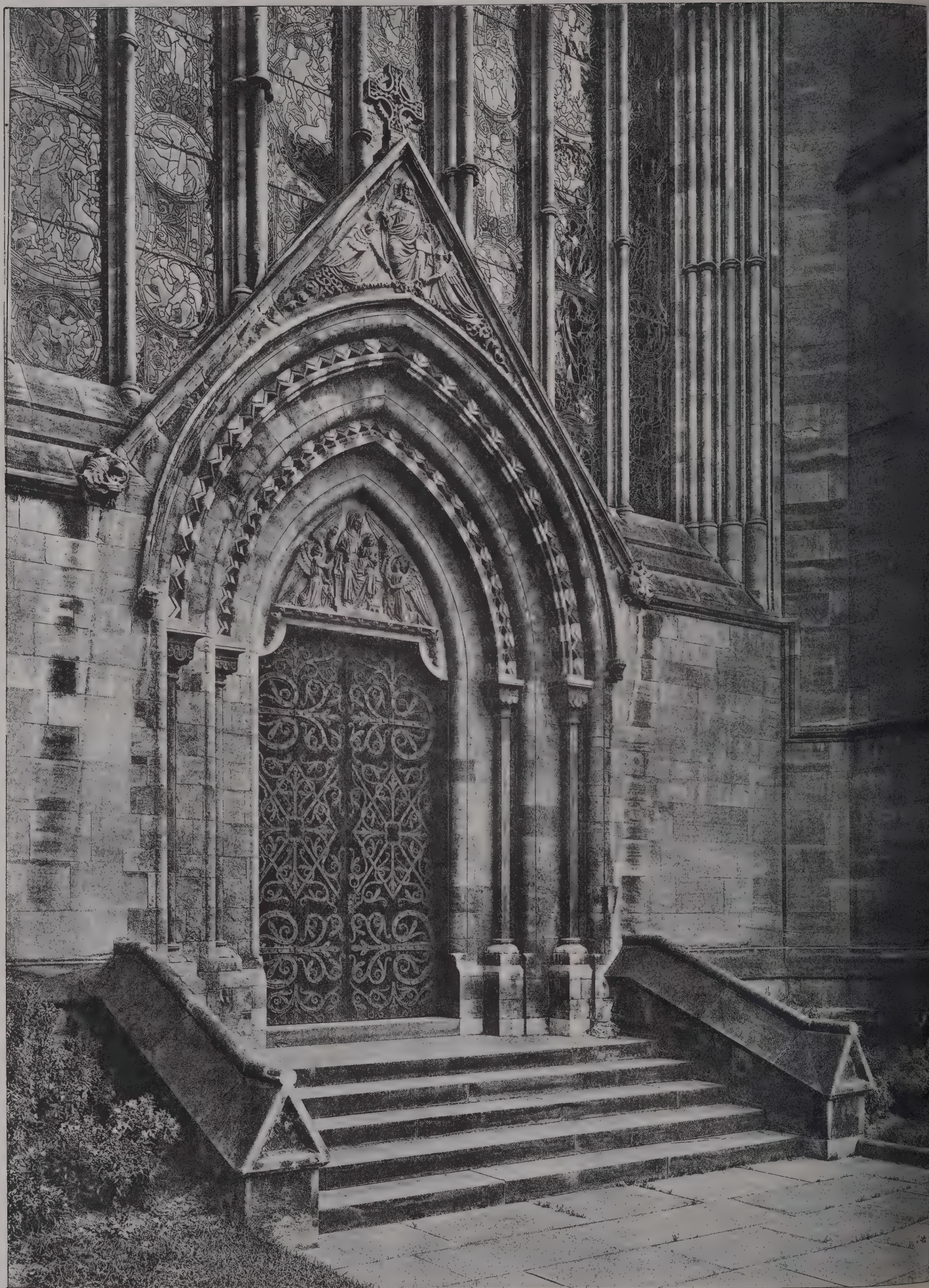
The British Government have purchased 9 acres of land for about 900,000 dollars to erect a building for the British Embassy at Washington. The owners of the land once refused the sum of 1,000,000 dollars offered for the site by the United States Government for the erection of a new White House.

Varnishing Day at the French Salon will be Wednesday next. M. Loubet will be unable, on account of his departure to Algiers, to inaugurate the exhibition, but he has promised an official visit on his return.

Mr. A. J. Cooke, architect, Montreal, died in that city on February 23 last. He was a native of London, but went to Canada in 1883.

Dr. James Stevenson, of Glasgow, has bequeathed his Lipari antiquities as well as a painting, the *English Homestead* by Morland, to the Glasgow Corporation.

Mr. William Botterill, who for half a century practised in Hull as an architect, died on the 2nd inst. in his eighty-third year.



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CATHEDRAL SERIES, No. 440.—WORCESTER: THE WEST DOOR.

The Architect, April 10th 1903.



The Architect, April 10th 1903



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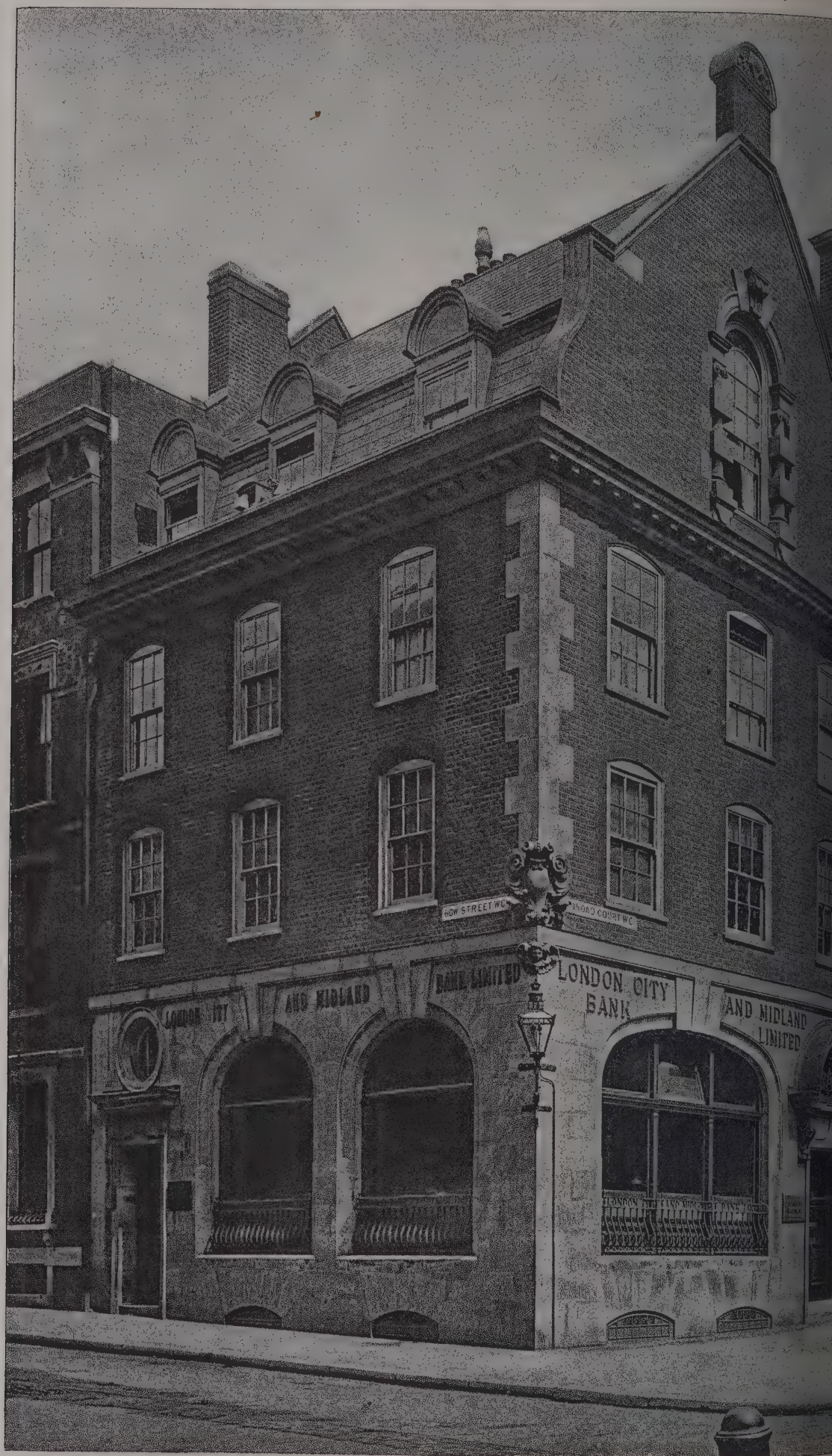
WILLIAM BELL, Architect.



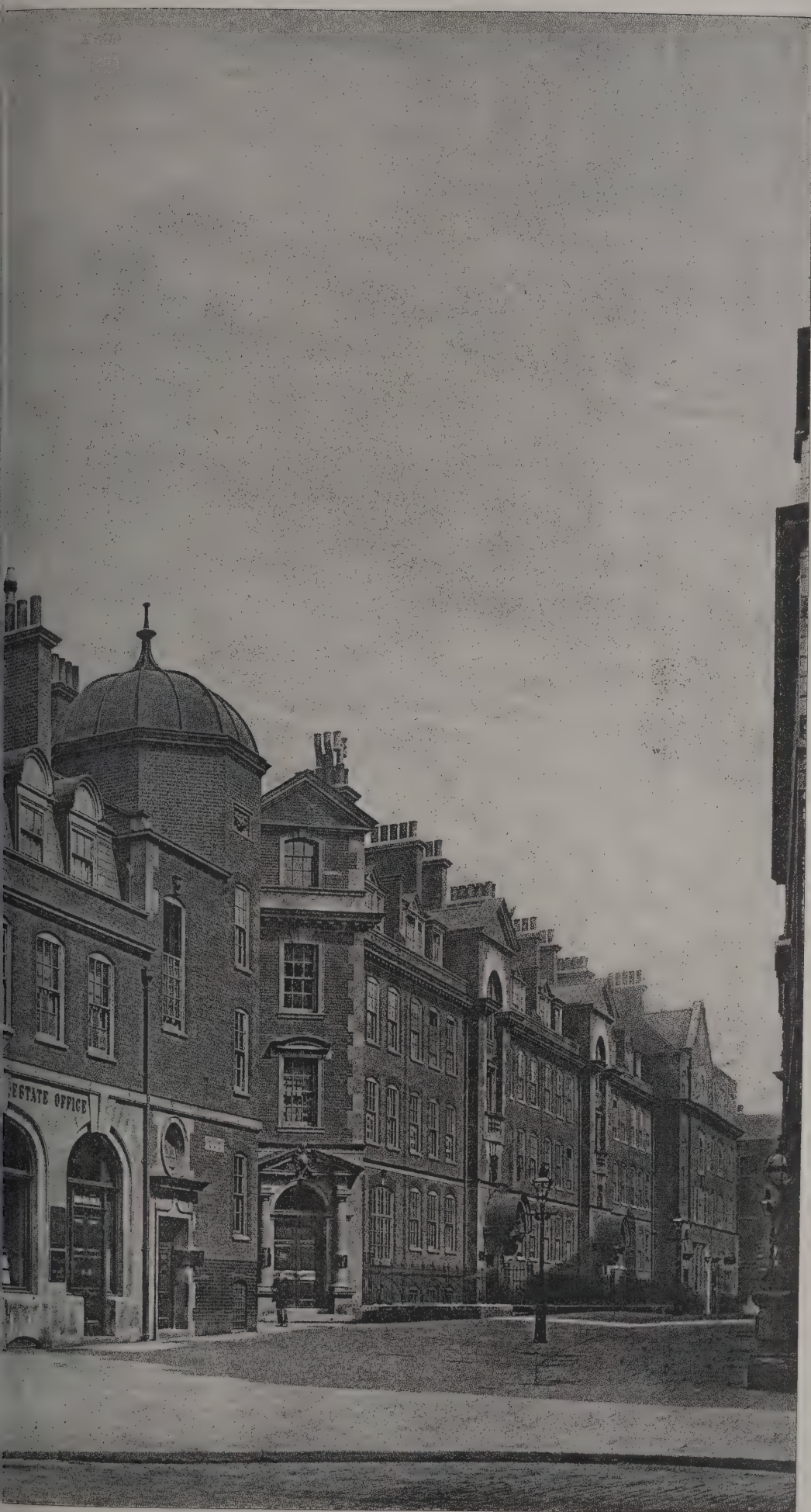
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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—April 14.—Designs are invited for a technical school to be erected in Blackpool at a cost not exceeding £5,000. Premiums of 60l., 25l. and 15l. will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BLACKPOOL.—June 30.—The Corporation of Blackpool offer premiums of £100, £50, £30 and £20 respectively for designs for new picture poster. Mr. C. Noden, Corporation advertising manager, Town Hall, Blackpool.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60l. and 30l. are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000l. Premiums of 75l., 50l. and 25l. respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

NEW BROMPTON (KENT).—May 30.—Designs and plans are invited in competition for public swimming and slipper baths to be erected in Windsor Road, New Brompton. Three premiums are offered, one of £20 to the author of the design which is considered to be the first in order of merit, one of £10 and one of £5 respectively for the second and third. Mr. F. C. Boucher, clerk, New Brompton, Kent.

STOCKTON-ON-TEES.—May 13.—Designs are invited for a girls' high school, to be erected as a memorial of Her late Majesty Queen Victoria, at a cost not exceeding 5,000l. Premiums of 25l., 15l. and 10l. respectively will be awarded. Mr. C. J. Archer, 77 High Street, Stockton-on-Tees.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100l., 50l. and 25l. will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

SWANSEA.—Plans are invited for erection of a church hall adjoining St. James's Church, Swansea. Mr. L. Daniel, hon. secretary, 6 St. James's Gardens, Swansea.

YEOVIL.—April 10.—Premiums of twenty and ten guineas respectively are offered for the two best schemes for laying-out a piece of land on which it is proposed to erect a town hall, municipal buildings, markets, &c. Particulars may be obtained from the Borough Surveyor, at the Town Hall.

CONTRACTS OPEN.

ALDERSHOT.—April 14.—For erection of proposed public offices and fire-station at Aldershot. Mr. C. E. Hutchinson, architect, 11 John Street, Bedford Row, London.

ALNWICK.—April 20.—For the erection of a villa residence at Alnwick. Mr. William T. Spence, architect, Ashmount, Shotley Bridge.

ASHBURTON.—April 17.—For additions to the grammar school. Mr. R. E. Tucker, clerk to Governors of Grammar School, Ashburton.

BAILDON.—April 23.—For the erection of a house at Baildon, Yorks. Messrs. Walker & Collinson, architects, Swan Arcade, Bradford.

BISHOP AUCKLAND.—April 20.—For the erection of seven workmen's houses with outbuildings at Cockton Hill, Bishop Auckland. Mr. R. Askwith, engineer, South Road, Bishop Auckland.

BLACKPOOL.—April 22.—For the erection of ornamental shelters and bandstands in connection with the promenade widening works. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BOLLINGTON.—April 11.—For construction of a circular covered service reservoir, to contain 100,000 gallons, and for connecting up the same to the present water-main, with all necessary fittings and appurtenances. Mr. W. H. Radford, engineer, Albion Chambers, King Street, Nottingham.

BURNLEY.—April 15.—For erection of a post office at Burnley. Conditions and form of contract may be seen on application to the Postmaster at Burnley.

CAMBERWELL.—May 12.—For the erection of public baths and washhouses in Old Kent Road. Mr. E. Harding Payne, architect, 28 John Street, Bedford Row, W.C.

DARTON.—April 15.—For the erection of five houses at Bloomhouse, Darton, Yorks. Mr. S. Taylor, 15 Poplar Terrace, Ryhill, near Wakefield.

DURHAM.—April 11.—For alterations and additions to Langley Park branch, for the Annfield Plain Co-operative Society, Ltd. Mr. G. T. Wilson, architect, &c., 21 Durham Road, Blackhill.

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DURHAM—April 16.—For erection of a branch store at Ferryhill. Mr. F. H. Livesay, architect, Bishop Auckland.

EASTBOURNE—April 25.—For the erection of a fire-station in Grove Road, Eastbourne. Mr. Philip A. Robson, architect, Palace Chambers, 9 Bridge Street, Westminster, S.W.

EXMINSTER—May 1.—For erection of female observation ward, male infirmary, and No. 5 male ward, at the Devon county asylum, Exminster. Mr. E. H. Harbottle, County Chambers, Exeter.

FERRYHILL—April 16.—For the erection of a branch store at Ferryhill, Durham. Mr. F. H. Livesay, architect, Bishop Auckland.

FINCHLEY—April 11.—For supply and erection of section 7, steam, exhaust, feed and drain piping, auxiliary plant, chequered plating, tools and sundries; section 8, main switchboard (two booster sets), testing instruments and apparatus. Mr. E. Calvert, electrical engineer, Broadway.

FOWEY—April 29.—For the erection of a masonry light-house tower upon a site near St. Catherine's Point, at the entrance to the harbour of Fowey, in the county of Cornwall. Mr. W. J. Graham, clerk to the Fowey Harbour Commissioners, Harbour Office, Albert Quay, Fowey.

HALIFAX—April 18.—For additions to Pioneer Works, Parkinson Lane, Halifax. Mr. Medley Hall, architect, 1 Harrison Road, Halifax.

HALIFAX—April 24.—For the erection of four shops, work-rooms, offices, warehouse, stable, &c., in Horton Street, Halifax. Messrs. Walsh & Nicholas, architects, Museum Chambers, Harrison Road, Halifax.

HARTLEPOOL—April 15.—For erection of twenty-five houses in Hart Road, Hartlepool, for the North-Eastern Railway Company. Mr. William Bell, company's architect, York.

HASTINGS—April 14.—For labour only in building the brickwork for the engine and boiler-houses at the Brede pumping-station, about seven miles from Hastings. Mr. P. H. Palmer, waterworks engineer, Town Hall, Hastings.

HEADCORN—April 21.—For the erection of an Oddfellows' hall at Headcorn, Kent. Messrs. Jeffery & Lacey, architects, 13 North Street, Ashford.

HIGH WYCOMBE—For labour only in erecting an octagonal chimney-shaft, 126 feet high, at the electric-power station, Slough. Mr. G. H. Gibson, contractor, High Wycombe.

HULL—April 21.—For the erection of a junior department at the Northumberland Avenue Board school. Mr. W. Stephens, Penygarn, Carmel, Llandebie.

IRELAND—April 11.—For erection of cottages in various townlands of Londonderry. Mr. J. J. S. Barnhill, engineer to the Rural District Council, 1A Strand, Londonderry.

IRELAND—April 12.—For rebuilding business premises and residence at Main Street, Letterkenny. Mr. J. P. M'Grath, architect, Commercial Buildings, Foyle Street, Londonderry.

IRELAND—April 13.—For erection of cottages in the following townlands:—Buncrana electoral district, one block of two cottages; Tulnaree, Glenegannon electoral district, one block of two cottages; Drumaweir, Moville electoral district, one block of two cottages. Mr. Robert Moore, clerk, Work-house, Carndonagh.

IRELAND—April 15.—For the erection of a new organ chamber, &c., to Derryaighy parish church. Mr. William J. Fennell, architect, 2 Wellington Place, Belfast.

IRELAND—April 17.—For erection of a Presbyterian church at Convoys, co. Donegal. Mr. John M'Intyre, architect, Letterkenny.

IRELAND—April 18.—For erection of a Presbyterian church at Roseyards, co. Antrim. Mr. S. J. M'Fadden, C.E., architect, Queen Street, Coleraine.

KENDAL—April 17.—For erection of a paper mill adjoining the present mill at Burneside, near Kendal. Mr. John Hutton, architect, Kendal.

KING'S LYNN—For the erection of a house and shop at Heacham. Mr. W. A. Leach, architect, Hunstanton.

LEEDS—April 15.—For erection of a new sorting office at Hunslet, Leeds, for the Commissioners of H.M. Works and Public Buildings. Mr. H. G. Nixon, H.M. Office of Works, Infirmary Street, Leeds.

LEEDS—April 17.—For alterations to the Conservative club, Pinfold Lane, Armley. Messrs. Beckwith & Webster architects, 2 Basinghall Square, Leeds.

LONDON—April 20.—For construction of underground conveniences in Offord Road by Caledonian Road, N. Mr. J. Patten Barber, Town Hall, Upper Street, N.

LONDON, E—April 21.—For the erection of a new sorting-office at Manor Park, E., for the Commissioners of H.M. Works and Public Buildings. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate

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LONDON.—April 22.—For erection of a disinfecter house and greenhouse and the formation of a drying-ground and refuse-stalls at the Tooting Bec Asylum, Tooting Bec Common, S.W. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

LOWESTOFT.—April 16.—For erection of a Wesleyan school-chapel in Lorne Park Road, Kirkley, Lowestoft. Mr. E. E. Smith, architect, 145 Victoria Road North, Southsea.

MACCLESFIELD.—April 18.—For erection of the superstructure of the new infirmary annexe for 206 patients at the Parkside Asylum. Mr. H. Beswick, county architect, Newgate Street, Chester.

MANCHESTER.—April 15.—For erection of cottages on the Blackley estate. Drawings may be seen at the office of the City Architect, Town Hall.

MANCHESTER.—April 29.—For putting-in the foundations of the proposed chief fire station and police station in London Road, Fairfield Street, Whitworth Street and Commercial Street. Mr. William Windsor, surveyor, 37 Brown Street, Manchester.

MANCHESTER.—April 21.—For the erection of a goods shed at the dépôt at Trafford Park, Manchester, for the Lancashire and Yorkshire Railway Company. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

NETHERNE.—April 14.—For excavating and levelling site and foundation works for new asylum at Netherne, Surrey. Messrs. George T. Hine & Co., architects, 35 Parliament Street, Westminster, S.W.

NORTHWICH.—April 18.—For extension and repair of the Verdin public baths. Mr. J. Arthur Cowley, clerk, Council Offices, Northwich.

PERRANZABULOUE.—April 13.—For certain repairs to the tower of the Perranzabuloe Church, Cornwall. Specifications can be seen at the Vicarage.

PRESTON.—April 17.—For erection of a stone base for a bandstand, Avenham Park, Preston, Lancs. Drawings may be seen, and specification, bills of quantities and form of tender obtained, at the office of the Borough Surveyor, Town Hall, Preston, Lancs.

PRESTON.—April 18.—For erection of a refuse-destructor, extension of stabling, storeyard, &c., off St. Paul's Road, Preston, Lancs. Particulars may be obtained at the office of the Borough Surveyor, Town Hall, Preston.

SCOTLAND.—April 14.—For erection of parish cottages at Carr Bridge. Mr. Thomson, stationer, Grantown.

STOCKPORT.—April 15.—For erection of club premises, Napier Street, Hazel Grove. Mr. Councillor Hallam, London Road, Hazel Grove.

TAMWORTH.—April 20.—For erection of an infirmary at the workhouse. Mr. Jas. Wm. Godderidge, architect, 4 Bolebridge Street, Tamworth.

WALES.—For the erection of a chapel, school and appurtenances at Merthyr Tydfil. The Rev. E. Aubrey, 22 The Avenue, Merthyr.

WALES.—April 11.—For erection of a pair of villas in Standard Street, Crickhowell. Mr. B. J. Francis, architect, Abergavenny.

WALES.—April 11.—For erection of a villa at Canning Street, Ton. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre, Rhondda Valley.

WALES.—April 11.—For additions to Llechwen, parish of Llanfabon. Mr. A. O. Evans, architect, Pontypridd.

WALES.—April 11.—For extension and alteration of chapel and vestry at the Nebo Congregational chapel, Blaengarw. Mr. John M. Jones, secretary, 54 King Edward Street, Blaengarw, R.S.O., Glam.

WALES.—April 15.—For the erection of twenty-five dwelling-houses at Llanbradach. Mr. George Kenshole, architect, Station Road, Bargoed.

WALES.—April 16.—For conversion of five dwelling-houses at Bargoed into business premises. Mr. D. S. Jones, grocer, Bargoed.

WALES.—April 16.—For alterations and additions to the Gelligaer boys' school, Pengam. Mr. W. E. R. Allen, clerk of the County Governing Body, County Offices, Cardiff.

WALES.—April 18.—For the erection of a workmen's library, institute, &c., at Nantfyllon, Maesteg. Messrs. E. W. Burnett & Son, architects, Jarrow House, Tondur.

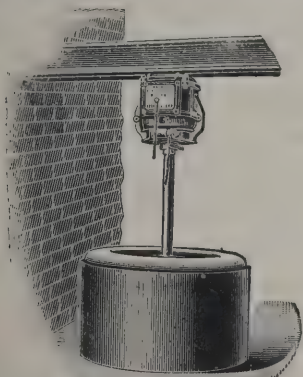
WALES.—April 18.—For the erection of a dwelling-house, two-stall stable and appurtenances at Abertridwr, near Caerphilly. Mr. G. A. Lundie, 53 Queen Street, Cardiff.

WATFORD.—April 15.—For erection of destructor buildings and chimney-shaft. Mr. D. Waterhouse, surveyor, 14 High Street, Watford.

WINTERTON.—April 15.—For restoration of Winterton Church, Lincs. Mr. C. Hodgson Fowler, architect, The College, Durham.

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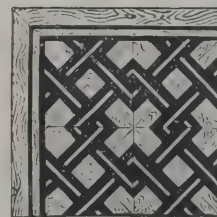
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BARNSELEY.

For erection of twelve dwelling-houses and outbuildings at Monk Bretton. Mr. J. W. E. KNIGHT, architect, 22 Regent Street, Barnsley.

Accepted tenders.

C. Ogley, Cudworth, Barnsley, mason and bricklayer	£1,418	0	0
Turton Bros., Pontefract Road, carpenter and joiner	540	0	0
J. H. Seacroft, Cudworth, Barnsley, plasterer	165	4	6
E. Fleming, Eastgate, slater	119	0	0
F. Rogers, Church Street, plumber and glazier	75	0	0
G. Charlton, Market Street, painter	54	10	0

BATHGATE.

For erection of two houses and alterations and additions to the Police buildings in Mid Street, for the standing joint committee of the Linlithgowshire County Council. Mr. EDWARD E. H. MAIDMAN, architect, 13 South Charlotte Street, Edinburgh. Quantities by Mr. WM. H. FRANCIS, 122 George Street, Edinburgh.

Thomas Binnie, Bathgate, mason.
John Spiers & Sons, Bathgate, joiner.
Henry Morrison, Bathgate, slater and plasterer.
Burn & Baillie, Edinburgh, plumber.
Mackenzie & Moncur, Edinburgh, heating engineer.
Total, £1,529 5s. 4d.

BROMPTON.

For erection of three dwelling-houses to be erected at Brompton, near Northallerton. Mr. JOHN E. WALTON, architect, Northallerton.

Thos. Willoughby	£767	0	0
W. Oakley	675	0	0
Dunning & Willoughby	674	0	0
A. W. Peacock	585	0	0
Wm. Toster, Northallerton *	578	13	6

* Recommended for acceptance.

DURHAM.

For streetwork in Back Mary Street, Stanley. Mr. ROUTLEDGE, surveyor.
W. Garnett £91 16 10
W. JOHNSON (accepted) 86 13 6

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H. Woodham & Son, Catford, Stillness Road	£1,151	0	0
W. Pearce, Forest Hill, Farley Road (part 3)	850	0	0
Fry Bros, Greenwich, Grafton Road	630	0	0
F. Hoffmann, Catford, Rutland Park	361	7	8
Fry Bros., Rutland Road	271	0	0

LONDON.

For forming cellars for storage, loading stages, &c, Gardner's Lane, Putney, S.W. Messrs. FOULSHAM & HERBERT RICHES, architects, 3 Crooked Lane, King William Street, London, E.C., and Bromley-by-Bow, E. Quantities supplied.

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Sheffield Bros.	3,211	0	0
Parsons & Co.	3,166	0	0
Courtney & Fairbairn	3,147	0	0
Adamson & Sons	3,117	0	0
Green & Smith	3,105	0	0
W. R. WILLIAMS (accepted)	2,997	0	0

For repairs at the Clarendon hotel, Tidal Basin, E. Messrs. FOULSHAM & HERBERT RICHES, architects, 3 Crooked Lane, King William Street, London, E.C., and Bromley-by-Bow, E.

J. T. Robey	£385	0	0
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T. Osborn & Sons	321	0	0
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H. A. BARNES (accepted) £183 0 0

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W. HAWTREY & SONS (accepted) £120 0 0

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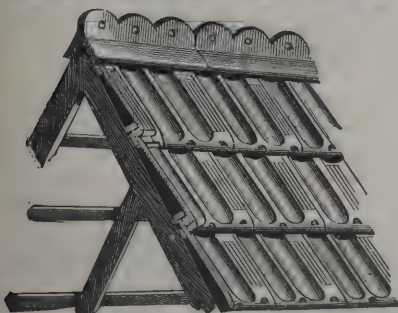
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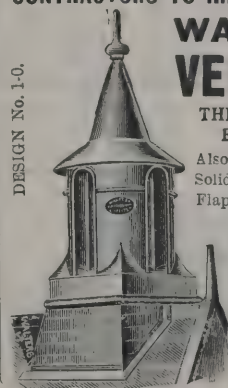
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LONDON SCHOOL BOARD—continued.

For building an additional storey to house at present occupied by laundry centre and schoolkeeper, in order to provide accommodation for a housewifery centre, Gravel Lane school.

Staines & Son	£929	0	0
F. & F. J. Wood	797	0	0
T. L. Green	779	0	0
G. S. S. Williams & Son	710	0	0
Johnson & Co.*	593	0	0

For enlargement and improvements, Dalgleish Street school.

F. & H. F. Higgs	£7,965	0	0
G. Munday & Sons	7,939	0	0
Perry & Co	7,718	0	0
Holliday & Greenwood, Ltd.	7,712	0	0
W. Gregar & Son	7,684	0	0
E. Lawrance & Sons	7,517	0	0
J. Longley & Co.	7,517	0	0
Treasure & Son	7,125	0	0
J. Chessum & Sons	7,045	0	0
McCormick & Sons	6,991	0	0
E. P. Bulled & Co.	6,859	0	0
Johnson & Co.	6,813	0	0
G. E. Wallis & Sons	6,666	0	0
J. & C. Bowyer	6,593	0	0
John Greenwood, Ltd.	6,388	0	0
T. D. Leng*	6,379	0	0

For providing and fixing auxiliary heating in each of the eleven classrooms of the P.T. and J.M. departments, with the necessary main and connections, forming a scheme of auxiliary heating throughout the school, with the exception of the halls, Tottenham Road school.

The Brightside Foundry and Engineering Co., Ltd.	£212	0	0
Stevens & Sons	206	0	0
J. Esson & Son	205	10	0
Palowkar & Sons	179	6	0
Bates & Sons	174	0	0
J. Grundy	170	0	0
G. & E. Bradley	169	0	0
J. Wontner-Smith, Gray & Co.	155	0	0
M. Duffield & Sons, Slough*	144	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For partitions, &c., in boys and girls' departments, Jessop Road school, Herne Hill.

J. F. Ford	£738	0	0
Maxwell Bros, Ltd.	639	0	0
Lathey Bros.	597	0	0
G. Kemp	588	0	0
J. Garrett & Sons	538	0	0
J. & C. Bowyer	529	0	0
E. P. Bulled & Co.	497	0	0
E. Triggs*	434	0	0

For enlargement and improvements, Lollard Street school.

W. J. Mitchell & Son	£23,049	0	0
W. Johnson & Co., Ltd.	22,780	0	0
Lathey Bros.	22,700	0	0
F. & H. F. Higgs	22,631	0	0
Martin, Wells & Co., Ltd.	22,601	0	0
Holliday & Greenwood, Ltd.	22,446	0	0
J. Appleby & Sons	22,169	0	0
E. Lawrance & Sons	22,000	0	0
W. Downs	21,760	0	0
J. & M. Patrick	21,543	0	0
W. Smith & Son	21,453	0	0
J. Marsland & Sons	21,225	0	0
Holloway Bros. (London), Ltd.	20,948	0	0
J. & C. Bowyer	20,732	0	0
J. Smith & Sons, Ltd.	20,620	0	0
John Greenwood, Ltd.*	20,315	0	0

For accommodation: boys, 150; girls, 150—total, 300, Ashburnham school.

Martin, Wells & Co., Ltd.	£11,814	£200
General Builders, Ltd.	10,595	103
Patman & Fotheringham, Ltd.	10,303	175
F. Gough & Co.	10,273	140
Treasure & Son	10,177	138
Leslie & Co., Ltd.	10,167	151
W. King & Son	10,157	131
Spencer, Santo & Co., Ltd.	9,995	180
E. Triggs	9,940	177
W. Johnson & Co., Ltd.	9,922	170
J. & M. Patrick	9,583	134
Stimpson & Co.*	9,500	164

A —If walls of classrooms and halls are plastered add.

* Recommended for acceptance.

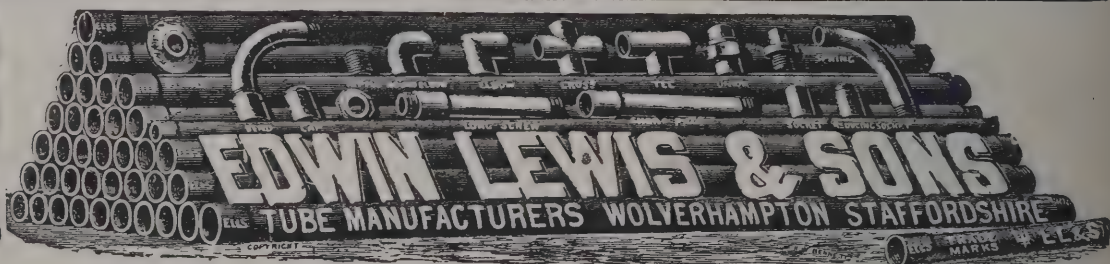
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LONDON SCHOOL BOARD—continued.

For partition, &c., in infants' department, Wirtemberg Street school, Clapham.			
Maxwell Bros. Ltd.	£301	0	0
W. Hammond	299	0	0
Rice & Son	285	0	0
E. Triggs	230	0	0
J. Garrett & Sons	219	0	0
H. Leney & Son	198	0	0
E. B. Tucker	194	17	0
T. Hooper & Son *	175	0	0
For adaptation of ground floor of back building for physically defective children, College Lane, Homerton.			
Marchant & Hirst	£1,976	0	0
G. Barker	1,938	0	0
H. Groves	1,900	0	0
Stevens Bros.	1,834	0	0
Belcher & Co., Ltd.	1,498	0	0
E. Lawrance & Sons	1,487	0	0
G. S. S. Williams & Sons	1,410	0	0
J. Stewart *	1,360	0	0

MILE END.

For erection of laundry at 338 Mile End Road. Mr. J. M. H. GLADWELL, architect, Essex House, High Street, Stratford, E.			
Elkington & Sons	£370	0	0
J. Calcutt	345	0	0
G. Brown	337	0	0

MORPETH.

For work in connection with the new cattle market, comprising (a) the formation of roads; (b) the erection of offices, iron-bar division fences, gates and fencing; (c) the laying of drains, with manholes, &c., preparing for and laying with cement concrete the entire site.			
F. Hepple.	£2,324	16	5
T. Weir	2,300	0	0
G. Wells	2,175	4	8
C. Dixon	2,147	19	11
W. Hogg	2,086	2	0
Hadfield & Co.	1,999	0	0
R. Walker.	1,960	0	0
G. Hollins.	1,930	0	0
J. T. Robson	1,912	0	11
M. YOUNG, Elm Grove, Hexham (accepted)	1,845	5	0

OXFORD.

For enlargement of the Oxford head post office, for H.M. Office of Works, &c.			
			A.
Foster Bros.	£7,763	0	0
Symon & Co.	6,577	0	0
Organ Bros.	6,322	10	0
T. H. Kingerlee & Sons	6,116	0	0
		258	2

A.—For old materials.

PATRICROFT.

For additions to the Guardians' offices at Patricroft.			
CHAPMAN & HOLLINWORTH, Green Lane (accepted)	£1,109	0	0

PORTSMOUTH.

For supplying and laying wrought-iron galvanised water-mains and hydrants and meters at the Camber Quay.			
			For 3-inch pipes.
McKinlay & Co.	£138	5	0
S. Grossmith	119	0	0
PORTSMOUTH WATER FITTINGS CO., Hyde Park Road, Southsea (accepted)	118	8	3
			Alternative tenders for 2-inch pipes.
Water Fittings Co.	111	3	4
W. Beuttell	108	12	6
McKinlay & Co.	106	10	0
S. Grossmith	93	0	0

RADSTOCK.

For reconstruction of a section of retaining wall on the Bath New Road. Mr. G. H. GIBSON, surveyor, Radstock, Bath.			
T. Foster	£94	0	0
J. BIRD, Radstock (accepted)	92	11	0

SCOTLAND.

For erection of a house at Banff. Mr. CHARLES W. COSSER, architect, 1 Carmelite Street, Banff.			
			Accepted tenders.
A. Chalmers, painter and glazier.			
J. Hutcheson, slater.			
W. Levenie, house carpenter.			
H. J. Watson, plumber.			
W. H. Robertson, Buckie, plasterer.			
W. Cruickshank, Keith, mason.			
			Rest of Banff.

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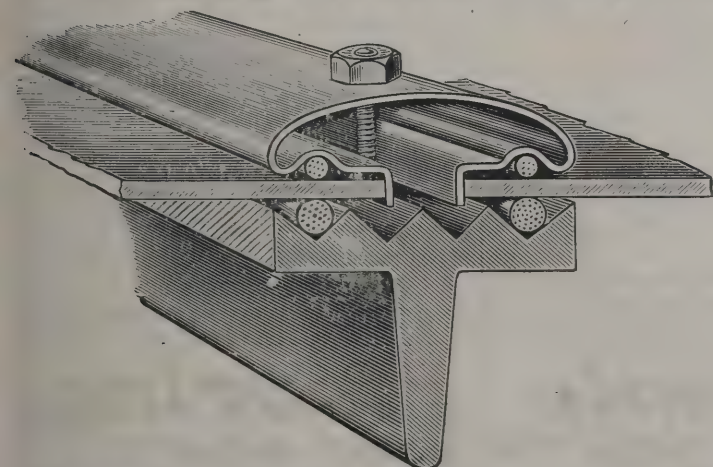
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For Index of Advertisers, see page x.



SCOTLAND—continued.

For constructing new clear-water well to hold 120,000 gallons, and for extensions and renewals of piping and fittings, Largs, Fifeshire. Mr. HENRY BRUCE, engineer, 67 Cross-gate, Cupar-Fife.

W. Caragher	£1,502	0	6
Morrison & Son	1,223	8	0
J. Martin	1,181	2	5
J. & J. Farmer	1,121	17	3
W. Chalmers	1,077	0	0
G. Mackay & Son	1,056	15	1
W. Mitchell & Son	981	5	2
R. C. Brebner & Co.	913	18	1
A. White	903	2	6
J. MACKAY, Broughty Ferry, N.B. (accepted).	854	17	9

SELKIRK.

For supply of:—(Contract No. 5) gas-engine of 28 b.h.p. and all accessories; (6) turbine of 28 b.h.p., vertical shaft, screens, &c.; (7) two high-pressure, treble-barrel ram pumps, with belting and line shafting complete. Mr. HARRY W. TAYLOR, engineer, St. Nicholas Chambers, Newcastle-on-Tyne.

Pumps.

McDonald & Co.	£1,270	0	0
Scott & Mountain	1,218	0	0
Glenfield & Kennedy	1,125	0	0
Aimers, McLean & Co.	1,015	0	0
Walker & Sons	911	0	0
Moeller & Co.	903	0	0
Tod & Sons	895	0	0
Tangyes, Ltd.	860	0	0
CAMPBELL GAS-ENGINE CO. (accepted).	830	0	0
Mather & Son	785	0	0
Pratchitt Bros.	630	0	0
Wolstenholme & Son	625	0	0
Lyell & Co. (informal)	420	0	0

Turbine.

Gunther & Sons	455	0	0
Gilkes & Co.	448	0	0
Aimers, McLean & Co.	378	0	0
F. Nell	359	0	0
GLENFIELD & KENNEDY, Kilmarnock (accepted)	336	0	0
McDonald & Co.	305	0	0
Gordon & Co.	305	0	0
Turnbull & Sons	280	0	0

SELKIRK—continued.**Gas-engine.**

Glenfield & Kennedy	£290	0	0
Crossleys, Ltd.	275	0	0
Tangyes, Ltd.	275	0	0
Grice & Sons	250	0	0
Forward Engineering Co.	247	0	0
National Gas-Engine Co.	240	0	0
Fielding & Platt	232	0	0
Gardner & Sons	225	0	0
Mather & Co. (conditional)	218	0	0
Andrew & Co.	217	0	0
Dudbridge Ironworks Co.	215	0	0
Acme Manufacturing Co.	200	0	0
Furnival & Co.	200	0	0
Lyell & Co.	197	0	0
CAMPBELL GAS-ENGINE CO. (accepted).	191	0	0
Shillingford Co.	185	0	0
Pollock, Whyte & Waddell	180	0	0

STONEHAVEN.

For laying and supplying cast-iron water pipes for the Town Council. Mr. G. MURDOCH, burgh surveyor. Quantities by surveyor.

J. Walker	£1,948	10	3
Mitchell & Sons	1,710	17	6
J. Murray	1,544	15	3
A. McKay	1,491	7	0
T. S. Dick	1,477	15	6
W. Smith, jun.	1,465	9	9
Blackie & Sons	1,457	0	0
Laing & Sons	1,447	0	0
J. ROSS, 61 Barclay Street, Stonehaven (accepted).	1,387	15	0

STRATFORD.

For erection of twelve houses at Bisson Road, Stratford, E. Mr. J. M. H. GLADWELL, architect, Essex House, High Street, Stratford, E.

A. Kendall	£5,980	0	0
C. North	4,272	0	0
H. E. Jones	4,264	0	0

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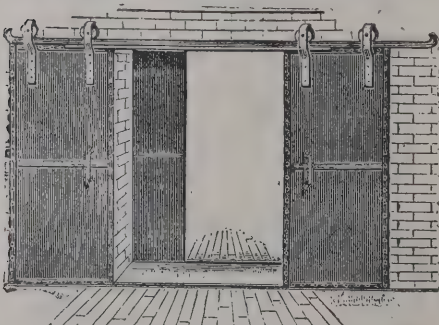
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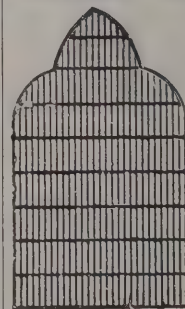
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National Telephone, No. 17. Swadlincote.

TAUNTON.

For erection of additional blocks for 300 patients at the Cotford Asylum. Messrs. GEORGE T. HINE & CO., architects, 35 Parliament Street, Westminster.

E. Ellis & Son	£47,944	19	10
Pethick Bros.	37,444	0	0
Wakeham Bros.	36,033	0	0
T. Broad, Ltd.	35,859	0	8
Howe & Co.	35,577	16	0
Westcott, Austin & White	34,399	0	0
H. J. Spiller & Son	34,281	0	0
McCormick & Sons	33,544	0	0
Dart & Pollard	33,200	0	0
D. W. Davies & C. Morgan	33,047	0	0
A. J. Beaven	33,000	0	0
Stephens, Bastow & Co.	32,651	0	0
W. E. Blake	32,510	0	0
J. Shillitoe & Son	32,000	0	0
A. N. Coles	31,872	9	7
G. Pollard & Co., Ltd.	31,437	0	0
Moss & Sons, Ltd.	30,937	15	7
Hayward & Wooster	30,844	0	0
H. Willcock & Co.	30,560	0	0
Stephens & Son, Ltd.	30,355	0	0
W. King & Son	30,207	0	0
H. W. POLLARD, Bridgwater (accepted)	29,470	0	0

UPPINGHAM.

For taking-down and rebuilding the upper part of Wing Church. Mr. J. C. TRAYLEN, architect, 16 Broad Street, Stamford.

Wade	£347	0	0
Joyce	330	0	0
Thompson	296	0	0
Nichols	291	10	0
Roberts	284	10	0
Halliday	254	10	0
DALBY, Uppingham (accepted)	232	0	0

WALES.

For erection of a chapel, Cwmllynfell, Glamorgan.

W. WILLIAMS, Cwmllynfell, Swansea Valley, Glamorgan (accepted)	£3,020	0	0
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WALES—continued.

For alterations and additions to the assembly rooms, Talysarn.

ROBERTS & WILLIAMS, Penygroes R.S.O., Carnarvonshire, North Wales (accepted)	£248	10	0
--	------	----	---

For erection of twenty-five dwelling-houses at Fleur-de-Lys, Pengam. Mr. GEO. KENSHOLE, architect, Station Road, Bargoed.

C. Sara	£4,825	0	0
Davies & Francis	4,687	10	0
J. Howells	4,500	0	0
W. Yeo	4,350	0	0
S. E. Thomas	4,280	0	0
T. MATTHEWS, Bedwas and Pengam (accepted)	4,250	0	0

WEALDSTONE.

For supply and erection of a children's shelter in the recreation ground. Mr. H. WALKER, surveyor.

A. A. Sharp	£136	0	0
M. Dymock	114	14	0
Harbrow	109	10	0
T. W. GREEN, High Street, Wealdstone (accepted)	99	7	10

WORKINGTON.

For restoration of St. John's Church.

Accepted tenders.

Lister, McCartney & Co., Manchester, building	£995	0	0
Milburn & Sons, Glasgow, joiner	975	5	6
D. M. Walker, Workington, plumbing and iron-work	264	6	0
Perrin & Son, Workington, plastering	175	15	8
T. Cowen, Workington, painting	172	10	3

Received too late for Classification.

BRIGHTON.

For installing the low-pressure heating apparatus and hot-water services in the new pavilions at the Borough Sanatorium.

J. F. PHILLIPS & SON (accepted)	£897	0	0
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ASHFORD.

For erection of schoolrooms, comprising a central hall and surrounding classrooms at the schools at Ashford, Middlesex. Mr. F. W. ROPER, architect, 9 Adam Street, Adelphi, W.C.

J. R. Cooper & Sons	£10,987	0	0
R. J. Penn & Co.	10,946	7	0
Newland & Higgs	10,480	0	0
Spiers & Sons	10,230	0	0
J. H. Kingerlee & Sons	10,167	0	0
J. Burges & Sons	10,000	0	0
Geo. Gray	9,978	0	0
A. L. B. Hanson	9,941	0	0
W. J. Renshaw	9,779	0	0
Smith & Co.	9,700	0	0
H. G. Lovatt	9,700	0	0
James Smith, Ltd.	9,661	0	0
Wm. Johnson & Co.	9,497	0	0
E. Chamberlain	9,495	0	0
McCarthy & Fitt	9,187	0	0
A. N. Coles	9,123	15	7

SCOTLAND.

For laying-out an extension to the Lesmahagow cemetery.

A. Stark & Sons	£2,998	7	9
W. H. Boyd	2,934	3	6
J. J. Ashton	2,784	16	3
R. Gibson	2,541	15	0
R. C. Brebner & Co.	2,364	17	0
D. Prentice	2,319	17	4
W. Gow & Sons	2,256	12	6
G. & A. Donald	2,111	0	0
J. Black & Co.	2,037	10	10
J. Black, jun.	1,881	5	2
J. & D. Griffin	1,868	16	6
R. Crawford	1,864	1	6
A. Donald	1,741	3	2
W. Donald	1,737	8	8
W. Clarkson	1,723	7	0
W. Scott	1,637	17	6
C. CLARKSON, Lesmahagow (accepted)	1,580	18	4

TRADE NOTES.

MESSRS. ANDREW HANDYSIDE & CO., LTD., of Derby and London, makers of steel bridges, roofs, buildings and structures, have recently completed a large steel framed joiners' shop for the Palmer's Shipbuilding Co., Ltd., Jarrow-on-Tyne. The building consists of three floors, and covers an area of 14,000 feet. The weight of the structural work was 200 tons.

MESSRS. POTTS, clock manufacturers, Leeds, are erecting a new chime clock and bells at the Wesleyan College, Apperley Bridge, Bradford. The same firm have also a new illuminated striking clock for Reeth Congregational church, North Yorks, given by the Yorkshire Congregationalists to celebrate the Coronation, and the clock and bell for the Macgregor Memorial Church, Govan, N.B.

THE large clock of Heanor Church, Derbyshire, has just been renovated and Cambridge chimes added by Messrs. John Smith & Sons, Midland Clock Works, Derby, who made the clock thirty-two years ago; and the same firm are also making a large chiming clock for Swanwick Church, near Alfreton, for Mr. Fitzherbert Wright.

MESSRS. MELLOWES & CO., of Sheffield, and 28 Victoria Street, London, have received the order for covering with their patent "Eclipse" glazing the roofs over Lostock Hall station for the Lancashire and Yorkshire Railway; the Royal Naval College, East Cowes; the electric station for the Leek Urban District Council; extensions to shops for Messrs. J. H. Andrew & Co., Sheffield; extensions to shops for Messrs. Leys, Derby, and for the whole of the plumbingwork at the new shops at Derby for Messrs. Leys.

AN innovation is about to be carried out in two blocks of residential flats now in the course of completion and known as Hurlingham Court Mansions, Hurlingham, S.W., in the form of a roof garden, which will give the tenants an uninterrupted view over the Hurlingham Polo Club and surrounding scenery, which is very picturesque. The contractor for the new buildings is Mr. William Watson, of Ascot. Messrs. Palgrave & Co., of Westminster, are the architects.

A NEW reservoir, constructed on the river Avon, near Brownsover Mill, has been opened. The work, which has been carried out by Mr. J. Young, of Rugby, cost 8,000*l.*, and was commenced about fifteen months ago.

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THE parishioners of Eccleston purpose erecting a parish room in connection with the Christ Church mission schools, and the Earl of Derby has offered them a site for it at a nominal charge.

OWING to the damage to the sea defence works at Lowestoft by the recent storms it is calculated that if the cliffs are to be saved it will be necessary to incur an outlay of 80,000£. in new defence works.

THE town clerk of St. Helens, Lancs, reported to a meeting of the gas and lighting committee that the Local Government Board had sanctioned the borrowing of the sums of 5,901£. and 99£. for the purchase of land and buildings for the new gas-works at Pocket Nook.

A LOCAL GOVERNMENT BOARD inquiry has been held by Colonel Hepper into the application of the Wolverhampton Town Council for sanction to borrow 13,580£. for the erection of a refuse destructor. Mr. R. E. W. Berrington, chairman of the health committee, and Mr. George Green, A.M.I.C.E., borough engineer, gave evidence in support of the application.

A LOCAL GOVERNMENT BOARD inquiry has been held by Mr. A. A. G. Malet into the application of the Heath Town Urban District Council for sanction to borrow 3,000£. for sewerage and sewage disposal works, and 300£. for the purchase of certain land for the purposes of a refuse tip. Mr. R. E. W. Berrington, of Westminster and Wolverhampton, gave evidence on behalf of the Council.

A DETERMINED effort is being made to restore the ancient ruined church of St. Mary, Burgh Parva, for the convenience of the inhabitants of that parish and Melton

Constable. Some such provision has been rendered necessary by the rapid growth of the parishes owing to the railway works at Melton Constable. It is proposed to retain the tower and as much as possible of the old walls, at the same time enlarging the building to accommodate 300 worshippers. Lord Hastings has promised to give whatever additional land is required. Suitable plans have been prepared by Mr. George Fox, A.R.I.B.A., who estimates the cost at 3,000£. Meanwhile, to meet the urgency of the case, a temporary iron church has been erected on the south side and adjacent to the ruins.

AN imposing building, to be called Queen's Court, is about to be erected in the Moscow Road, Bayswater, under the direction of Messrs. Palgrave & Co., architects, Westminster. The building will consist of thirty self-contained residential flats, ranging from six to eight rooms. The building will be approached by an ornamental garden court laid out with carriage-drive, fountain, &c. The elevations will be carried out in red bricks with gauged brick aprons, arches, &c., and the roofs covered with green slates. There will also be electric passenger lifts to all floors. Mr. C. Gray, of West Hampstead, is the contractor; Mr. George Stephenson, of Queen Victoria Street, E.C., the quantity surveyor. The estimated cost is 30,000£.

ELECTRIC NOTES.

A LOCAL GOVERNMENT BOARD inquiry has been held at Warrington into an application by the Corporation for power to borrow 20,000£. for extensions at the electric-lighting station, Howley. The money is to be spent entirely on additional plant in order to meet the increasing demands for electricity for lighting and power purposes.

AFTER consideration of twenty-five tenders submitted by ten firms for 100 double-decked bogie-truck tramcars for the New Cross to Greenwich section of the London County Council electrical tramways, the highways committee have decided to recommend the Council to accept that of the British Westinghouse Electrical and Manufacturing Company for 65,968£., the first fifty cars to be delivered in twenty-two weeks, and the remainder in twenty-eight weeks. This firm will sublet portions of the work—to the European McGuire Manufacturing Company, the manufacture of the car-trucks; the Brush Electrical Engineering Company or the British Electric Car Company, the manufacture of the car-bodies; Messrs. A.

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Reyrolle & Co., the manufacture of the car-ploughs; and to the British Thomson-Houston Company the manufacture of the watt-meters. The same firm's tender of 52,912*l.* for 100 single-truck cars was also accepted. Messrs J. G. Brill & Co., Philadelphia, U.S.A., will supply the car-trucks, the Brush Electric Engineering Company or the British Electrical Car Company the car-bodies, Messrs. A. Reyrolle & Co. the car-ploughs, and the British Thomson-Houston Company the watt-meters.

VARIETIES.

WE understand that Mr Edward Barlow, a director of and for many years connected with Messrs. Hampton & Sons, will continue to occupy the same position in the firm under the new arrangement.

NEW Board schools were opened at Pontnewynydd last week. They were erected by Messrs. Bailey Bros., Pontnewynydd, at a cost of 12,000*l.* The mixed school can accommodate 480 and the infants' school 295 children. The buildings occupy an elevated position overlooking the valley, and are modernly equipped.

THE new fire station in Blackstock Road, Finsbury Park, was opened on the 2nd inst. The building, designed by the Council's architect, Mr. W. E. Riley, and constructed by the works department, has cost 11,620*l.* It is furnished with a steam fire-engine, a horsed escape, and besides accommodation for these and other appliances and stabling, has living rooms for the staff of a station officer, nine firemen and two coachmen. The building has taken almost exactly a year to complete.

AN exhibition will be held in Dresden from May 20 to September 30, 1903, which has for its object the study of improvements in municipal government and welfare. This will include streets, street paving and cleaning, sewers and drainage, gas and electric lighting, bridges, harbours, parks, schools, hospitals, police, cabs, automobiles and kindred subjects. Invitations are sent to the prominent cities abroad. For details of the exhibition interested parties should address the Oberbürgermeister, Gch. Finanzrath a. D. D. Beutler, Dresden, Saxony.

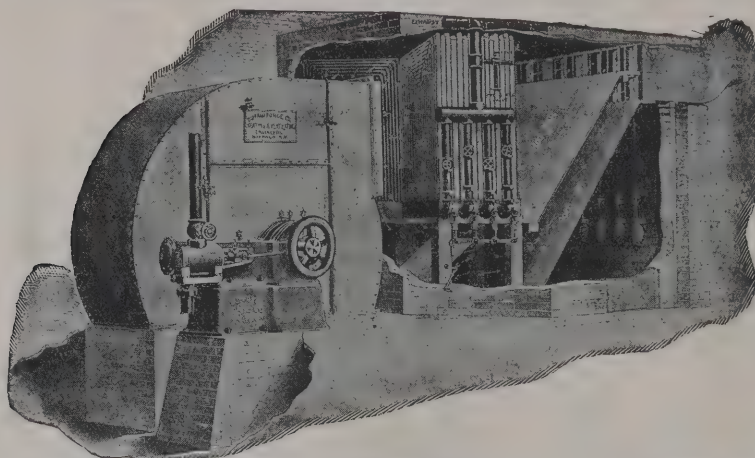
A LOCAL GOVERNMENT BOARD inquiry has been held by Colonel Slacke, R.E., into the application of the Town Council of Bewdley for sanction to borrow 2,000*l.* for waterworks pur-

poses. The scheme has cost, including house connections, a total of 14,000*l.* The water is obtained from a borehole in the new red sandstone, and a supply far in excess of the demands of the town has been procured. Evidence in support of the application was given by the engineer to the scheme, Mr. R. E. W. Berrington, M.I.C.E., of Westminster and Wolverhampton.

SOME 600 ratepayers of Lambeth assembled at Brixton Hall and passed a resolution protesting against the proposed purchase of a site at the corner of Acre Lane and Brixton Hill for a new town hall, at a cost of 25,000*l.* Mr. J. S. Price, who presided, said that the ratepayers of Lambeth did not want a new town hall, which would, together with the proposed site and the building of the hall and offices, cost nearly 150,000*l.* This would come out of the pockets of the ratepayers, who at the present time pay something like 7*s.* 10*d.* in the pound. The hall at Kennington Green had suited 120 vestrymen, why could it not suit sixty councillors? A petition had been forwarded to the President of the Local Government Board signed by several thousand ratepayers objecting to the scheme.

THE annual exhibition of scholars' work from the Board schools of London will be held at the Examination Hall, Victoria Embankment, W.C. (adjoining Waterloo Bridge), on Saturday, May 9, and on the following Monday, Tuesday and Wednesday (May 11, 12 and 13). The exhibition will be opened by Lord Reay, G.C.S.I., G.C.I.E. (chairman of the Board), at 12 o'clock noon, and will include specimens of drawings, colourwork, modelling, science apparatus, wood-carving, metalwork, needlework, infants' work, cookery, laundry-work and housewifery from the day and evening schools, and also work from the schools for the blind, deaf, special instruction, truant and industrial schools. Arrangements will also be made for various classes at work in practical cookery, laundry-work, &c., during the daytime, and gymnastics, dramatic literature, &c., in the evenings.

THE foundation-stone of Bury Park Congregational church, Luton, Beds, was laid on Tuesday, March 31. The accommodation provided is as follows:—468 adults on ground floor and 65 in end gallery; total, 533, or a mixed congregation of about 610 persons, with possible future galleries in transepts and over vestries for 160 more sittings, or a final total of over 800 sittings in a mixed congregation. A large church parlour, vestries and other conveniences are provided. The buildings to be faced with red brick, with Costessey brick



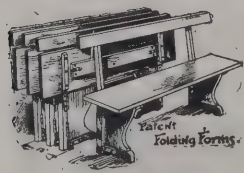
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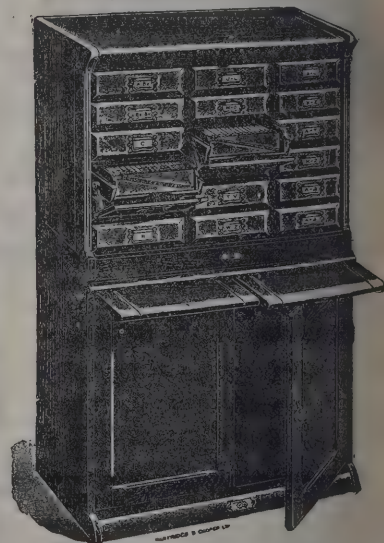
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ings; joinery internally stained transparent green and polished; red granite columns supporting four crossing arches; lead lights richly coloured; green slates; heating by pressure pipe apparatus and best ventilating appliances. The contract is let to Messrs. T. & E. Neville, of Luton, and amounts to 4,420*l*. The architects are Messrs. George & R. P. Jones, 5 Clement's Inn, Strand, London, W.C.

A MEETING of the East of Scotland Engineering Association was held in 20 George Street, Edinburgh, Mr. James D. Thomson presiding, when papers on dock working and construction were read by Mr A. C. Cormack and Mr. A. W. Cockburn, C.E. Mr. Cormack described the various methods of loading and discharging vessels at various ports, including the use of coal, the unloading of grain, jute, &c., and the appliances used in connection therewith, illustrating his remarks with a series of limelight views. Mr. Cockburn took up the question of dock construction, giving examples of the general arrangement of various docks, dock and quay walls, &c., and concluded with a short description of the construction of No. 3 Floating Dock, Glasgow. His address was also illustrated by limelight views. The authors were accorded a vote of thanks for their papers.

A MEETING of the Berks Archaeological Society was held at Abbey Gate, Reading, on the 2nd inst., an interesting lecture being given on "English Village Life, Ancient and Modern," by the Rev. P. H. Ditchfield. The chair was taken by the Rev. Canon Saye and Sele, and there were also present the Rev. Canon Newhouse, Rev. and Mrs. Morris Williams, Rev. J. C. Ditchfield, Rev. Alan Cheales, Rev. J. H. Firminger, Rev. Canon Ward, Mrs. Williams, Mrs. Climensohn, Miss Monck Smith, Miss Ditchfield, the Misses Hissey, Mr. F. A. Sarjeant, Mr. J. White, Mr. L. L. Treacher and Miss Treacher, and Miss Ditchfield. The attendance was larger than usual, and the Rev. Canon Ditchfield's lecture, illustrated by lantern slides, was very enjoyable. After the meeting the company partook of tea.

ON the 4th inst. the North-western District Centre of the National Union of Sanitary Inspectors held their eighth meeting of the session in Ashton Hall, Ashton Street, Liverpool. Mr. Vacher, the Cheshire county medical officer of health, presided. There was a good attendance. A lecture was given by Mr. T. W. Waddington, sub-inspector, Ribblesdale Joint Sanitary Committee, Preston, on "Methods of Sewage Treatment in the Ribblesdale Watershed." Mr. Waddington dwelt upon every detail of sewage purification under authorities in the neigh-

bourhood of the watershed mentioned. The subject was illustrated with a splendid series of lantern slides, which made the lecture all the more interesting and instructive. Great interest was shown in the descriptions of the lecturer, and he was fervently thanked for his invaluable remarks and illustrations. Other business was transacted during the evening.

MUNICIPAL TRADING.

THE following memorial has been addressed by the Council of the Society of Arts to the Prime Minister:—

Society for the Encouragement of Arts,
Manufactures and Commerce,
John Street, Adelphi, London, W.C. :
March 9, 1903.

To the Right Honourable Arthur James Balfour, M.P., Prime Minister and First Lord of the Treasury.

Sir,—In the year 1899 the Society of Arts addressed a memorial to Sir Matthew White Ridley, as Secretary of State for the Home Department, asking for the appointment of a Royal Commission to consider the question of municipal trading. The Society then ventured to point out that there was an increasing tendency on the part of municipal and local authorities to embark in trading enterprises which might be in competition with, or to the exclusion of, private enterprise; and they drew attention to the fact that no limitations had been defined by Parliament as to the enterprises which should in the general interests of the nation be undertaken by municipalities and local authorities, and those which should be left to private effort.

During the time which has elapsed since the presentation of this memorial public attention has been much directed to the subject. The great and rapid increase in capital outlay by municipalities, and the consequential increasing burden upon the rates, has given rise to the feeling that certain definite principles might be laid down as to the class of undertaking upon which municipalities should enter. Further, it has been contended that the action of municipal authorities has interfered detrimentally with private enterprise in many important industries.

The Society of Arts does not desire to prejudge the subject, but it feels that the question is one for an independent, impartial and authoritative inquiry, such as could be conducted by a Royal Commission alone, and they therefore venture to

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draw the attention of His Majesty's Government afresh to the matter, and to express to you their earnest hope that His Majesty's Government may see fit to advise His Majesty to appoint a Royal Commission, which, in addition to ascertaining and recording the facts, may lay down the principles and limitations under which Parliamentary powers should be granted to municipal and local authorities.

We have the honour to be, Sir,

Your obedient servants,

W. H. PREECE,

Chairman of the Council.

H. T. WOOD,

Secretary to the Society.



REGISTRATION OF PLUMBERS.

THE Mayor of Sunderland presided at the annual meeting of the North of England District Council for the National Registration of Plumbers, at the town hall on the 2nd inst.

In the course of his remarks the Mayor said the importance of efficient sanitary plumbing in every house and building could not be over-estimated. Every member of a family was brought into contact with plumbingwork, be it good or bad, and too often the traps became traps in another sense in which they were intended, with the consequence that sickness and death followed imperfect workmanship. He quite agreed that all plumbers should be registered, and apprentices should be technically trained and examined before starting business.

On the proposition of Councillor Kirtley it was resolved:—"That this meeting is of opinion that it would be of great public advantage for the Plumbers' Registration Bill now before Parliament to be passed into law. The Bill has for its object the protection of the public from the results of incompetent workmanship, and of securing the efficiency and responsibility of plumbers by means of a system of registration. This meeting is further of opinion that it is the duty of the Government, acting in the public interest, to carry through the measure on the conditions already approved by the Local Government Board. Also, that copies of this resolution be forwarded to the President of the Local Government Board and to local members of Parliament."

A very interesting address on "Technical Education" was given by Professor Branford, M.A., principal of the Sunderland Technical College.

NEW PUBLIC SCHOOL, BIRKENHEAD.

THE foundation-stone has been laid of a new public school which is in course of erection at Birkenhead, and is intended to form a link between the elementary schools and the secondary institution, and eventually the universities. The new schools are being erected in the centre of the town on a site covering 2,870 square yards, fronting Conway Street, and adjacent to the general post office. The buildings provide accommodation for 350 boys and 350 girls, each school being planned in a separate block, connected by means of general rooms common to both departments. The boys' school fronts Conway Street, and the girls' school faces Burlington Street, each school having two entrances from main streets and two from playgrounds. The boys' school consists of ten general classrooms, all grouped around a lofty central hall, and, in addition, rooms for manual instruction, drawing, chemical and physical laboratories, and the usual cloakroom and teachers' accommodation. The girls' school consists of similar general accommodation, and also rooms for cookery, laundry, drawing, chemical and physical laboratories, &c., a lecture-room and dining-room being common to both schools. The general classrooms in both schools are kept away from main streets to insure quiet and good light. Large open and covered playgrounds are provided at the rear. A caretaker's house is arranged on the top floor. The buildings are three storeys in height, the design being Renaissance in character, freely treated. The elevations to main streets will be faced with red Ruabon bricks and buff terra-cotta, the roofs being covered with green Westmoreland slates. The floors and staircases will be of fireproof construction. The general contract is being carried out by Mr. James Merritt, of Birkenhead, for the sum of about 22,000*l.*, from the designs and under the superintendence of Mr. T. W. Cubbon, architect, of Birkenhead, Mr. Henry Helms acting as clerk of works.

THE HORTON ASYLUM.

THE cost of erecting the superstructure of the Horton Asylum has exceeded by 39,500*l.* the architect's final estimate, and the works committee have prepared a report explaining how the excess has occurred. The work—which occupied four years instead of two, as originally intended—was practically completed before the present committee was appointed, and before the present manager entered on his duties. The late manager

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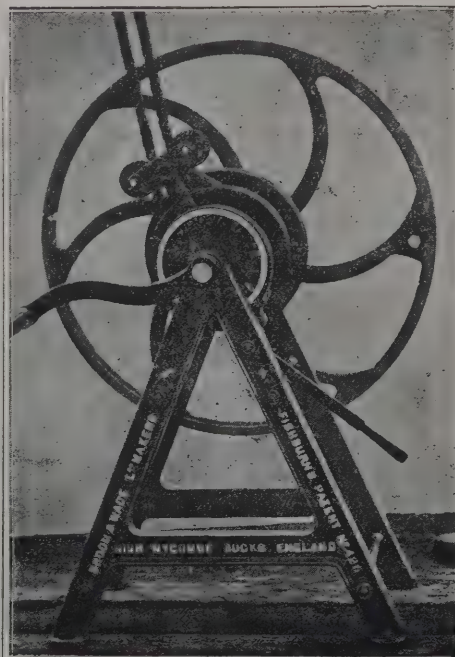
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a free hand in the acceptance and execution of undertakings, subject to the financial control of the finance committee. He submitted an estimate of 284,445*l.*, being 9,969*l.* more than the sum fixed by the quantity surveyor. It was then decided to advertise for tenders, but eventually, on the advice of the asylums committee, it was agreed that the works manager should erect the building at his price, which was 130*l.* below the lowest tender. The finance committee decided that this recommendation should be reconsidered, but the Council confirmed the order to the works manager to begin negotiations. The actual cost has been 330,500*l.*, and this greatly increased outlay the works committee attribute to:—

Error of judgment on the part of the late manager of works in undertaking the work, and insufficiency of accepted estimate.

Refusal of local authority to allow temporary railway for carriage of materials, &c.

Rise in prices of materials and wages.

Scarcity of labour.

Coming to details, the committee go into the history of the work, and as a result find reasons to account for an additional expense of 40,730*l.*, being a sum greater than the total excess reported. This sum is made up as follows:—

Insufficiency of accepted estimate (difference between that estimate and the lowest tender)	£12,130
Carriage	11,450
Rise in price of materials and in wages	16,150
Scarcity of labour	1,000

£40,730

The committee point out that payments on account during progress of the work not being necessary in the case of works executed by the works department, regular monthly payments were not made. They think that a better result might probably have appeared had some arrangement been in operation whereby the estimated value of the work done could have been regularly determined from time to time, and they are considering as to the steps to be taken with a view to carrying this object in future. They add:—

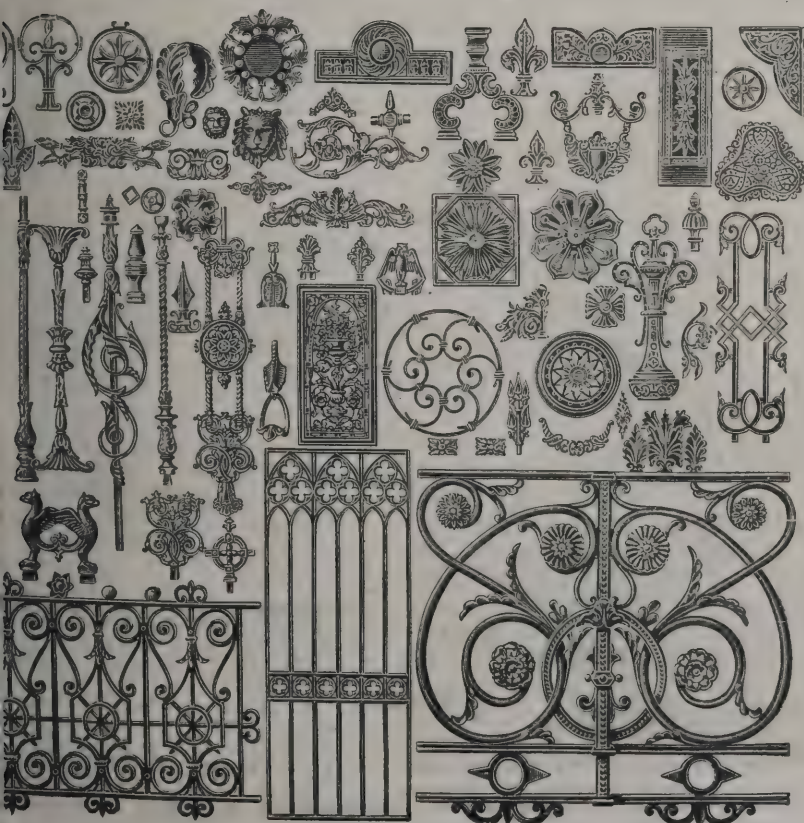
In conclusion we would point out that it is possible that, if the job had been let out to contract, the quality of the work might have suffered when it was found that the contract prices were insufficient, but from careful inspection of the buildings and knowledge of the materials and workmanship employed

we are satisfied that the Council has received full value for the outlay incurred.

RATING A ROMAN CANAL.

A RATING appeal of some importance came before the Recorder at the Lincoln City Quarter Sessions on Saturday. The appellants were the Great Eastern and Great Northern Joint Railway Committee and the respondents the assessment committee of the Lincoln Poor Law Union, and the appeal was against a poor-rate levied in respect of the Fossdyke Canal. Mr. Bonsey, in opening for the respondents, said that the Fossdyke ran through seven parishes in the Lincoln Union, and was mentioned in the "Encyclopædia Britannica" as the oldest artificial canal in Great Britain. It was made during the time of the Roman occupation of Great Britain, and until 1670 history was somewhat obscure as to what rights, if any, the public had over it, or what was the nature of the use made of it. In 1670 an Act was passed for the improvement of the navigation between Boston and the river Trent, by which the Corporation had power to make navigable the river Witham and the Fossdyke, and to take reasonable rates and tolls. After that the Corporation undertook the maintenance and repair of the Fossdyke, but not of the Witham, and in 1740 the Fossdyke was leased to Richard Ellison for 999 years. In 1845 an Act was obtained which might roughly be called the Ellison Estate Act, enabling Richard Ellison, the trustee, to grant a lease of the Fossdyke navigation, and in 1846 there was a lease to the Great Northern Railway Company, which was transferred to the joint committee (the appellants) in 1879. They had paid rates for a great many years, and now they took up the position that they were not liable to be rated in any sum whatever. Mr. Lush having replied, the learned Recorder said that both sides must take their stand under the Act of Charles II. That Act showed that what the Corporation entered into was more than an easement. He held further that the railway company had a beneficial occupation. He could not understand how the railway companies, admitting that for many years they had paid rates without demur, could yet claim that they were not liable. Still he did not decide the case on that ground at all, but on the ground that the contention that they had no more than an easement was not made out. Judgment for the respondents, with costs. The learned Recorder agreed that a case should be stated.

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IRISH INLAYING.

At the present time there is a general desire in this country to assist Irishmen in their efforts to create or revive industries. For all classes of work, especially those in which artistic capability

that of marble inlaying. Work of the kind has a long history behind it. According to Pliny, the Romans were admirers of inlaid work, which some suppose they derived from the East. It was among the arts which were adapted to display the skill of the Renaissance craftsmen in Italy. We can understand

how much admiration would be given to work of the kind by travellers from this country, how commissions for examples followed, and eventually Italian artists would journey to Great Britain in the hope of patronage. Ireland was fortunate in attracting some of the marble-workers, and the refined treatment of one of them, named Bossi, was well adapted to the Classic architecture which was admired in the eighteenth century. The inlaying was mainly applied to chimneypieces, and more examples of the decoration appear to have existed in Ireland than in England or Scotland. The craft has been revived in Dublin through the enterprise of Messrs. Sharp & Emery. We give an illustration of one example which they have lately produced. The delicacy and good taste of the ornament will be manifest at a glance, and the execution is in keeping with the design. That so much excellence is to be obtained in a country where the gentry are indifferent to art is remarkable. Messrs. Sharp & Emery deserve orders from England for their efforts to attain a high standard. There is no better judge of the experiment than Sir Thomas Drew, and we append his remarks, which will convince the most sceptical about the interest of an important industry:—

The wealth of beautiful work of the school of the Italian Renaissance produced in Dublin in Domestic decoration in the eighteenth century is known to some survivors of an older generation who witnessed its waste and destruction in the evil days for art in the early Victorian era. It is appreciated in a present generation by the now rare survivals of beautiful work in ceilings and wall decoration, in stucco, in metalwork, and especially in mantelpieces



INLAID CHIMNEYPIECE.

is required, there is a belief about the fitness of large numbers of the people. One of the most interesting of the revivals is

of exquisite sculpture, in marble and woodwork, and in inlaid marbles in white Carrara.

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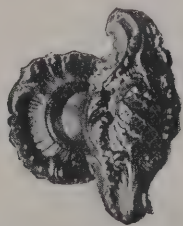
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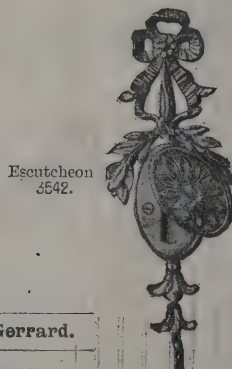
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All this work came to Dublin with foreign emigrants, fugitives after the revocation of the Edict of Nantes, afterwards with Italian settlers brought to Ireland in the eighteenth century by an Earl of Portarlington, and by the famous Earl of Charlemont and other patrons of art among the nobility and gentry of Ireland before the

On the fine mantels and fireplaces which were a fashion among these old patrons of art, a singularly refined school of workmen lavished real genius. Forty years ago such mantels were still abounding in old Dublin houses.

Bad taste and neglect destroyed many, and the modern craze for bric-a-brac hunter and dealer has pretty well swept old Dublin what has survived. What examples remain are known, treasured and treasured. When one comes into the market it takes hands at a large price, which is continually rising.

Among the rarest now are the works of one Italian, Bossi, whose tradition of workmen preserves in memory as having advanced from mere inlay in pattern of one or two diversified motives to inlaying in exquisite colours and in a cement body given only to himself floral and riband devices in entablatures and pilasters. It was, in fact, that same Italian traditional style which an Indian mogul had brought from Italy to Agra long before for the decoration of the world-famed Taj Mahal Mausoleum. Bossi's drawing of Italian Renaissance ornament is admirable, and his reticence and harmonious colour scheme is art. Imitations of him by less-refined followers were variable failures and lapsed into vulgarity. It was, in fact, somewhat irreverent saying of his fellows, preserved traditionally, that there was "but one Creator and one Bossi."

The first of Bossi's imitators who has appeared successfully for 150 years is Mr. Henry Emery, of Sharp & Emery, 17 at Brunswick Street, Dublin, once an art student at Liverpool, and for thirty years known among Dublin architects as an artistic architectural sculptor in wood and stone, and a thorough student of styles and periods of art, and versatile in adapting himself to them. He has also shown a refined sense of colour and proportion, and there is little of the old Italian Renaissance work of Dublin which he has not made a life study of.

The writer of this, who has made it a study too, and to whom few of the examples that Dublin could show in forty years past have been unknown, ventures to think that the work has been seen by Emery in the manner of Bossi is, without mere egotism, no less refined, and to be valued as highly hereafter as the prized work of the ancient master. Whatever the Italian

tradition or mystery, if secret there may have been of the cement colour medium inlaid in the incised marble, it is mastered, and its perfection of durability and capability of fine polished surface is no less in Emery's than in that of the older work.

THE BLACKPOOL TOWER.

THE hearing of the appeal of the Blackpool Tower Company, Ltd., against the assessment committee of the Fylde Union, was concluded at Preston Quarter Sessions on Saturday. The committee assessed the tower and buildings around at 15,000*l.* gross and 10,500*l.* rateable in July 1902, and in accepting the gross assessment the appellants claimed that proper deductions from the gross annual value had not been made. The committee thereupon knocked off the odd 500*l.*, but the company urged that sufficient deduction had not been made, and therefore the present appeal was brought. In the course of the hearing, Mr. Thomas Dryden, consulting and practical engineer, Preston, was cross-examined by Mr. Ryde with regard to his statement that between 288 feet and 312 feet of the tower was corroded. He repeated that if the corrosion continued during the coming ten years as it had done the past ten years a belt of 24 feet, weighing some 500 tons, would have to come down, and to replace that would cost 40*l.* a ton, or 20,000*l.* Colonel W. Henry Welstead, rating valuer, Hull, gave it as his view that there would be nothing left of the original tower at the end of fifteen years if the corrosion went on at the same rate and no renewals were done. The Court reserved judgment.

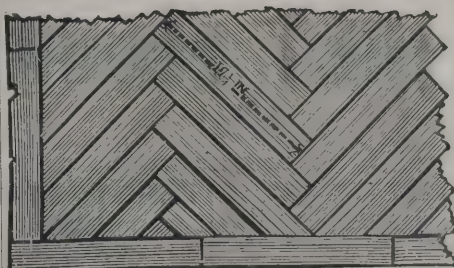
THE opening ceremony of the Baptist schools, Grove Road, Lowestoft, which are in connection with the London Road Baptist church, was held on Thursday, April 2. The schools, which have been erected at the back of the existing church and vestries, include large schoolroom, church parlour, infants' room and three other classrooms, capable of being thrown into the schoolroom by means of swivel partitions. Suitable lavatory accommodation is provided. The building is faced externally with red bricks; the dressings are of white Costessey work. The design is of late Gothic. The contract amounted to 1,338*l.*, and has been carried out by Mr. C. E. Earl, of Lowestoft. The architects for the above and for the church (recently completed) are Messrs. G. & R. P. Baines, 5 Clement's Inn, Strand, London, W.C.

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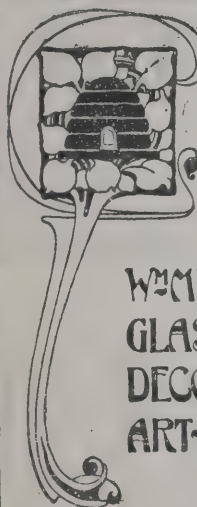
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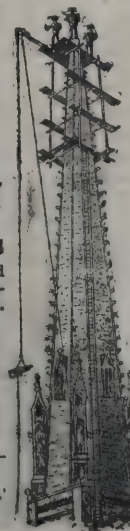
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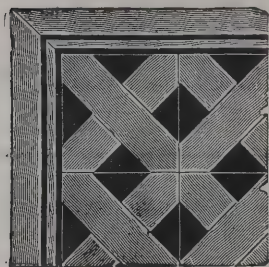
STANLEY HALL, SOUTH NORWOOD.

WE have already referred to this building, which was opened by the Chancellor of the Exchequer on February 2. It was erected at the sole expense of Mr. W. F. Stanley, the mathematical instrument maker, and embodies his ideas of architecture. As it is to be a gift to the district, solidity of con-

struction was sought regardless of cost. The Chancellor expressed the general opinion of the audience when he said the building was not only adapted to the purposes contemplated but it would long remain as an ornament to the neighbourhood. Stanley Hall will serve for the amusement and entertainment of people as well as a place of instruction.



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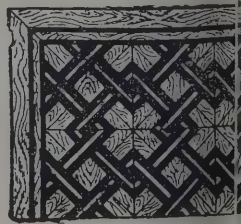
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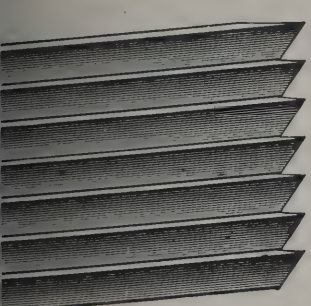
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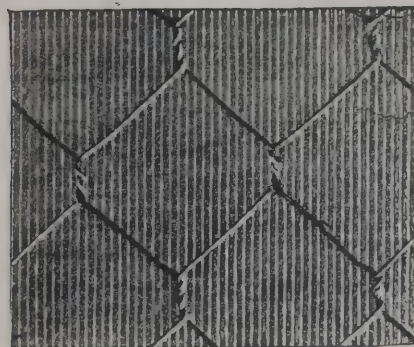
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PLASTERING IN CANADA.

AT the request of the Toronto Chapter of the Ontario Association of Architects, Mr. W. J. Hynes, on behalf of the Plasterers' Section of the Toronto Builders' Exchange, has prepared and submitted the following description of materials, methods, tools and trade definitions used in plastering, which appears in the *Canadian Architect*, the object being to assist in bringing into use specifications that shall be more nearly uniform than those heretofore employed.

Description of Materials used in Plastering.

1. No. 1 wood lath consists of white pine, cedar or spruce, free from large knots or bark, $\frac{3}{8}$ inch thick, 4 feet long, in widths of 1 inch, $1\frac{1}{4}$ inch and $1\frac{3}{8}$ inch, of uniform dimensions.
2. No. 2 wood lath consists of hemlock, hard pine and culls from white pine, cedar or spruce, of irregular dimensions.
3. Expanded metal lath made from sheet steel, cut and expanded, may be procured either in the naked steel or painted. The Expanded Metal Company, of Toronto, manufacturers.
4. Hayes's metal lathing is made from sheet steel which is perforated, with the points of perforations turned back to form keys. Manufactured by the Metallic Roofing Company, Toronto, either plain or painted.
- For either metal lathing the bearings require to be not more than 12-inch centres.
5. Grey lime from Georgetown, Limehouse and Milton is generally used for mortar for the under coats in plastering. It should be well burned and used while fresh.
6. White lime from Guelph, Galt, Innerkip and other places is used for the finishing coat. Like the grey lime, it requires to be well burned and should be made into lime putty while fresh.
7. White rock finish, a new preparation on the market, appeals strongly for consideration, from the fact of its being scientifically ground and slacked with only sufficient water to complete the slacking, leaving the product in the form of dry powder which can be conveniently handled and used same as lime putty. Manufactured by the Imperial Plaster Company, Toronto. To be used according to the directions of manufacturers.
8. Plaster made from gypsum requires to be finely ground and properly calcined. Should be white in colour and of

uniform setting properties. Our market is chiefly supplied by the Albert Manufacturing Company, of Hillsborough, N.B.

9. Sand for lime mortar should be sharp and clean, but too coarse; for cementwork coarse sand is best.

10. Hair should be long winter cattle or goat hair properly saved.

11. Fibres have been offered as substitutes for hair, nothing at present offered answers the purpose.

12. Nails for wood lathing $1\frac{1}{2}$ inch long, of good weight.

head. For expanded metal large-headed slater's nails.

Hayes's lathing heavy lath of good head.

13. Metal angles.—Hoidge metal angles patented.

manufactured here are a good protection for external angles.

14. Hair mortar consists of grey lime properly slacked mixed with clean sharp sand, to which is added sufficient hair to hold the material from falling or wasting through keys in lathwork.

15. Straightening mortar made same as above with a greater quantity of sand and one-third the quantity of hair.

16. Coarse stucco made from grey lime, or white, as desired, with clean coarse sand.

17. Lime stucco made from lime putty or white rock finish mixed generally one of lime to three of clean sharp sand.

18. Lime putty made from white lime slacked with surplus of water, run through a fine sieve, and allowed to stand in vats until fit for use.

19. Gauging is the term used to describe the admixture of calcined plaster with mortar or lime putty. The larger the proportion of plaster used the stronger the work will be. The same term is used to describe the mixing of cements with mortar, sand, lime or other material.

20. Portland cement gauged with lime mortar is used generally for outside work and first coat on lathwork, the proportion varying according to requirements.

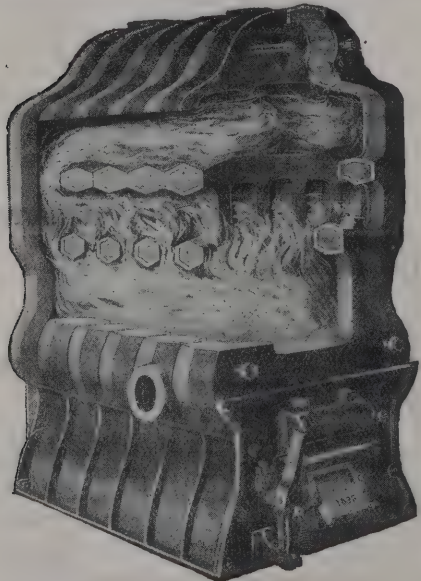
21. Portland cement stucco generally used for outside work and places subject to damp or moisture. When applied to lath use one of Portland, three of sand and add one of lime mortar. Second coat, three of sand, one of Portland and finishing coat generally two of Portland to five of sharp sand. When used on lathing metal lath is to be preferred.

22. Portland cementwork is generally conceded to be the best base coating for Keene's or white cements.

23. Keene's, parian, Martin's, generally described as "white cements," were originally patented. The base of all is gypsum mixed with alum or borax and recalcined and ground. Eng-

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Keene's cement is generally made in three grades—coarse, fine and superfine, the first of a pink shade and the latter pure white.

24. For base coats Portland cementwork is generally used, but many manufacturers advocate the use of coarse Keene's sand. This method requires that the heads of all lath nails and exposed metalwork be well shellacked to avoid rust. For first coat use two coarse Keene's, three sand. For second coat use one of coarse Keene's, one sand. Finish with neat cement.

25. Victoria Keene's cement manufactured in England by Messrs. Keene & Co. allows the use of lime in small proportions and is greatly reduced the cost, not so much in the material as in the ease and speed with which work may be executed.

26. Best's American Keene's also uses this method for plastering.

In specifying these materials it is advisable to say they shall be used as directed by the manufacturers.

27. Patent or hard plasters are numerous. The base of nearly all is calcined plaster mixed with sand, cement, hair or fibre, and treated with a chemical retarder which delays setting and allows time for use. They are generally good, being machine made of accurate proportions and furnished at building ready for use with the addition of water only. To save cost of transportation some are delivered ready to use by mixing with sand and water. Owing to the increased cost of this material inner grounds are used.

28. Wood fibre plaster made in Toronto by the Imperial Plaster Company is the best and most general in use here. It is supplied ready for use by adding water only.

29. Paristone made by the Alabastine Company, Paris, Ontario, is supplied without sand and contains no hair or fibre.

30. Rock wall plaster made by the Albert Manufacturing Company, Hillsborough, N.B., is supplied without sand and is advisable to specify these materials to be used as directed by the manufacturers.

31. Patent or hard plasters make only the base or rough coats. Good stucco or float finish work may be done with them, but all depend upon lime putty or white rock finish for a finished coat.

33. Blackboards.—Potter's blackboard material made by the Soapstone Finish Company, Chester Depot, Vt., is generally used. Some contractors have their own compounds and methods. They should be black, hard, smooth, but free from lime or polish.

Description of Work done in Plastering.

1. Rendering is a good coat of hair mortar on brick or stone walls before lathing.

2. Back plastering is lathing and plastering with one good coat of hair mortar on any framework which may be required before regular lathing is done. Back plastering, when done between timbers, is a slow and expensive process. It is better to lath and plaster the timbers and restrap lath and plaster, as this method gives complete separation of woodwork.

3. Deafening is a body of plastic material laid on boards fixed between joists of a floor, composed of lime screenings and cinder or ashes, or lime and mill shavings about 2 inches thick. The use of cement in deafening is a detriment, as when made hard the deafening properties are destroyed.

4. Wood lathing should have joints broken every twelfth lath nailed $\frac{3}{8}$ inch apart for ceilingwork and $\frac{1}{4}$ inch apart for wallwork. Ends butted, no vertical lath allowed.

5. Metal lath should have bearing not exceeding 12 inch centres nailed on with flat-headed nails for either metallic lath or expanded metal, and if finishing coat is required must be specified "three-coat work," as all metal lath must receive a scratch coat foundation for straightening. Arches, grains or furring for heavy mouldings are best executed with metal lath.

6. One-coat work is one good coat of hair mortar or other plaster about $\frac{1}{4}$ inch thick and floated to an even surface.

7. Two-coat work is one good coat of hair mortar straightened with a tool called a "darby" and floated. After this coat is dry apply putty coat of white lime and plaster with sand, if desired. The work cannot be made more than reasonably straight.

8. Three-coat work is one good coat of hair mortar well scratched. Second coat of straightening mortar laid plumb and true. After this coat is dry apply coat of white lime and plaster with a mixture of sand, if desired, and extra well trowelled or polished.

9. Rough-casting is a good coat of hair mortar left from the "darby," and when dry slapdashed with a mixture of lime and clean fine gravel.

10. Stucco.—This term is used to describe plasteringwork finished with a wooden tool or float, leaving a rough granular finish.

11. Rough or two-coat stuccowork consists of one coat of hair mortar well scratched and finished with coarse stucco applied when under coat is dry, straightened with a "darby"

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11a, Prince of Wales Road, Norwich, Jan. 21, 1903.

ARCHITECT.

I am exceedingly pleased with the result of the Velure I had last year. Our doors look and feel like ivory, and show every appearance of great durability. I find that they keep very clean, and do not take the dirt.

A. E. PURDIE, F.R.I.B.A.
Meadow Grange, Blean, near Canterbury, Jan. 2, 1902.

IN A STEAM DISINFECTOR.

I am pleased to state that the Velure has been a perfect success so far. It has been subjected to great heat, steam pressure, and withstood the expansion and contraction of the iron, and there are no cracks or flaws to be found, the surface being perfect. It was applied by unskilled labour, the hospital porter doing the work.

J. BROOK, S.I.C., A.S.I., Surveyor, R.D.C.,
Stratford-on-Avon, 5th December, 1902.

UNDER WATER.

Velure gives a beautifully smooth surface, which remains hard under water, and does not foul easily.

JOHN MACKENZIE, Sail Maker.
Sandbank, Argyllshire, Sept. 26, 1901.

BETTER FINISH. BETTER WEAR.
FEWER COATS. LESS MATERIAL.

STANDS ANY AMOUNT OF EXPOSURE TO SUN OR FROST,
HEAT OR DAMP, WITHOUT CRACK OR BLISTER.

and brought to a rough uniform surface. This work cannot be expected to be more than reasonably straight.

12. Three-coat stucco or float finish consists of one coat of hair mortar well scratched, with a second coat of straightening mortar laid plumb and true and finished with a coat of fine stucco properly floated to uniform granular surface.

13. Bastard stucco consists of work executed as described for three-coat work, with the exception of the last coat being composed of two parts lime putty to three of sand laid true and floated to an even surface. This is then trowelled to a hard surface, but the face is not made perfectly smooth.

12. Trowelled stucco is same in material and method as bastard stucco, the difference being that it is trowelled until face is brought to a true smooth surface. In both bastard and trowelled stucco the under coats must be thoroughly dry; there being no plaster or cement used in this work the success depends upon proper and uniform suction.

15. Dubbing out is the term given for the necessary work in preparing the uneven surface of rough brickwork or fire-proofing to allow of plastering. If done with mortar it will require that no more than $\frac{1}{2}$ inch be put on at one time and may take several coatings to bring work to the proper surface. By using gauged mortar or hard plaster the necessary thickness may be applied at one operation.

16. Portland cementwork requires same methods for stuccowork as here described for mortar, the proportion of materials being as described in Materials, clauses 20 and 21.

17. Trowelled Portland cement requires under coats, as described above, and is finished with two of Portland, one of fine, sharp sand, to which is added one-twelfth of fine lime putty, laid even and trowelled to a fine polished surface.

18. Keene's cementwork may be finished as described for plasteringwork, the proportions being as described in Materials, clauses 23, 24, 25 and 26.

19. Plaster mouldings are formed with gauged mortar and finished with gauged putty. When weight of mouldings is not too great, the mortar may be dispensed with. Owing to the danger from settlements and shrinkages the thickness of these mouldings should not exceed $1\frac{1}{2}$ inch in any place. All heavier work requires to be bracketed.

20. Keene's cement mouldings are executed in neat Keene's cement, either coarse or superfine as may be desired, with a backing of coarse Keene's and sharp sand.

21. Plaster castings are composed of plaster and cast from moulds required by the design or article to be duplicated.

22. Staff castings are composed principally of plaster in which fibre or canvas has been added before the plaster has set. Their cost is no greater than for the plaster castings, and they are much stronger, allowing of very large work to be made in one piece. These casts may be sawn and fixed by nailing.

Staff calls for special attention. There is no limit to its possibilities as a decorative material, either in conjunction with run mouldings for enriched members or for the production of mouldings with enriched members and decorative features complete. By its use the entire decoration may be prepared while the building is in course of erection, ready to fix as soon as work is ready to receive it, in this way saving much valuable time. The manufacturers carry full stock of such ornaments as are in general demand, but work to detail requires special models, for which due time should be allowed. Specification should state whether work is to be from stock or special modelled to detail.

23. Wood fibre plaster or other hard plaster may be specified for any work where mortar is used for interior as described in previous clauses. A great saving in time can be effected by its use, particularly in winter or damp weather.

24. Tools and terms.—Scratching is the term used to describe the cross scoring of the first coat of mortar to form key for straightening coat or coarse stucco finish.

The "darby" is a wooden tool about 3 feet long, 3 inches wide and $\frac{1}{2}$ inch thick, with two handles by means of which the first coat in two-coat work, and the stucco coat in two-coat stucco is levelled or roughly straightened.

The "float" is a wooden tool about 14 inches long, 4 inches wide and $\frac{3}{8}$ -inch thick, used after the "darby" and straightening rod to level out the work, also for finishing stuccowork.

25. Grounds for plastering should be of soft pine firmly nailed and made true and straight. The thickness of ground determines the widths of frames and jambs, and should be considered together. For brickwork or terra-cotta the thickness here given is supposed to be fixed close to wall; if unduly packed out to straighten defective walls a dubbing-out coat is necessary.

Two-coat work in lime mortar on lath, $\frac{3}{4}$ -inch grounds.

" " " brick, $\frac{3}{8}$ -inch "

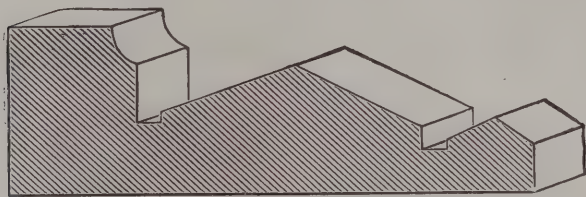
Three-coat work in lime mortar on lath, $\frac{7}{8}$ -inch "

" " " brick, $\frac{5}{8}$ -inch "

Grounds for metal lathing $\frac{1}{2}$ -inch "

Two-coat work hard plaster on lath, $\frac{5}{8}$ -inch "

" " " brick, $\frac{3}{8}$ -inch "



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"VOX POPULI!"

A LARGE PLATE, measuring 26 inches by 22 inches from the Painting by CHARLES VERLAT, former President of the Royal Academy, Antwerp, and now in view in the Exhibition of The Royal Society of Artists, Birmingham, is obtainable at the "Architect" Office.

Price 1/6 each; on Roller by Post, 1/9.

P. A. GILBERT WOOD, 6-11 IMPERIAL BUILDINGS, LUDGATE CIRCUS, LONDON, E.C.

The Architect.

THE WEEK.

THE decision of Mr. Justice RIDLEY on the subject of arbitrators' fees must be considered as unsatisfactory by architects as well as by civil engineers. There was a dispute between the Llandrindod Wells Water Company and the local Urban District Council. Mr. CHARLES HAWKSLEY and Mr. JAMES MANSERGH were appointed arbitrators, with Sir G. B. BRUCE as umpire. The total of their fees for investigating the circumstances and making the award was 476*l.* 12*s.* The hearing of the arbitration lasted two days, and the umpire made a special journey to Wales to satisfy himself about the evidence. The taxing-master in the first place asked for particulars, and was informed that the arbitrators' fees were 120 guineas each, the umpire's 195 guineas, and there were also solicitors' charges. The taxing-master held that the amount was excessive. As the fees had been paid in full the water company sought to recover the excess, amounting to 119*l.* 5*s.* Plaintiffs' counsel said that the decision of the taxing-master was *prima facie* evidence that the charges were exorbitant, and that view was taken by the judge. Mr. HAWKSLEY said they declined to furnish particulars because it would be inconsistent with the dignity of a Court of Arbitration to do so. But the judge was of opinion that a taxing-master could not do his duty unless he was supplied with necessary information. Evidence was given of the reasonableness of the charges. Mr. Justice RIDLEY considered that 476*l.* was too high for an award of 13,800*l.* The charge of 25 guineas a day he thought reasonable. He allowed the sum of 374*l.* 4*s.* 6*d.*, and gave judgment in favour of the plaintiffs for 102*l.* 7*s.* 6*d.* In a case of the kind it is impossible to fix the limits of the time which an arbitration should occupy. As a rule it depends on the lawyers employed. If either party, or both, will insist on the production of evidence, arbitrators cannot refuse to listen. It was not likely that three gentlemen of high reputation, all of whom occupied the post of President of the Institution of Civil Engineers, would demand more money than they had earned, and judgment might well have been given in favour of them. Probably the point which had most influence with his lordship was the refusal to supply details of the charges.

AN application having been made to the Irish Institute of Architects for information respecting the responsibility of an architect in connection with foundations, the hon. secretary was directed to reply that in the opinion of the Council it is not part of the recognised duty of an architect to sink trial pits to ascertain the nature of the ground upon which a building is to be erected, although in exceptional cases he may, if he thinks it advisable, recommend this to be done at the expense of the employer. The Council consider that the system universally adopted at present is equitable, as the employer only pays for the work which is actually executed. Summary statements of law, especially when formulated by laymen, are not always to be approved, and there is a risk of the advice thus given being misunderstood. There are enough decisions to suggest that an architect is expected by English law to examine the site for a building or to have it examined for him, and he is liable for neglect if any damages should arise through acting on incorrect information. Although the builder is responsible for executing proper foundations, the architect is not in consequence exempted. If the builder should suffer loss he cannot look to the architect for compensation. In France the architect is liable to the client as well as to the contractor. Responsibility is believed to be evaded in England by avoiding to state the nature of the soil, either in a specification or on a drawing. But that is a doubtful expedient which has not been tested in the Courts. The omission would be regarded with suspicion by judges. To ascertain the nature of the soil may sometimes be an expensive operation, in which case the advantage of making borings or trial pits should be explained to the building owner, and his sanction obtained for any necessary

outlay. But in ordinary cases no architect who is careful of his reputation will neglect to ascertain the nature of the ground on which one of his buildings is to be erected.

DURING last year 477,676 people visited the National Gallery, Trafalgar Square, and 201,696 visited the Gallery at Millbank. The daily average at the former was 2,296, and at the latter 979. Almost the same proportion applies to the students' days, for at Trafalgar Square there were 15,866 attendances, and 6,729 at Millbank. On Sunday afternoons the visitors numbered 37,534 and 35,494. Two paintings have been purchased, viz. a portrait of *Waha de Linter*, by JORDAENS, and a *Coronation of the Virgin*, by LORENZO MONACO. Eleven pictures were obtained by bequest, which are examples by ROMNEY, JOHN PHILLIP, W. COLLINS, NASMYTH, DELAROCHE, JAN BOTH, JAN VAN DER HEYDEN and CHARLES VACHER. Mr. G. F. WATTS has presented his *Court of Death*. Other presents were works by PETER SAENNEDAM, JAN FYT, JOHN BRETT, J. WALLEN, E. LANTERI and G. F. WATTS. The cleaning of picture-glass has been done by a firm at a cost of 150*l.* a year; henceforth the greater part will be undertaken by the assistant porters. In order that students may, if they wish, work at both galleries, the students' days at the Millbank Gallery have, since October 7 last, been changed from Thursday and Friday to Tuesday and Wednesday in each week. Independently of partial studies, 585 oil-colour copies of pictures have been made at Trafalgar Square, viz. 311 from the works of 87 old masters and 274 from the works of 21 modern painters. At Millbank 284 completed copies of the pictures have been made in oil-colours, 80 in water-colours and 12 in pastels. The total number of catalogues sold in 1902 at both establishments was 15,687, as compared with 25,990 sold in 1901.

THE publication of the *Burlington Magazine* for connoisseurs shows remarkable courage. The number of people in England who take sufficient interest in early art, to which most of the articles are devoted, is small. Amateurs of that class are, moreover, reputed to be opinionated and not disposed for reading periodicals. It must be said the articles in the first number are authoritative. Mr. WEALE, Mr. H. P. HORNE, M. MOLINIER, Mr. BERENSON and Mr. C. J. FFOULKES are among the contributors. The photographic illustrations are remarkable for quantity and excellence, and there are also plates in colours. The reproductions of five portraits by DOWNMAN is evidence that modern art will not be neglected. The artist, a native of Devonshire, was a pupil of BENJAMIN WEST, and lived until 1824. He preferred profile representations. One of the most interesting of the articles is on the Hôtel de Lauzun on the Quai d'Anjou, Paris, which belonged to the noble who commanded the French troops in Ireland, and whose life, as MACAULAY says, was stranger than the dreams of other people. Nowhere in Paris is LOUIS QUATORZE decoration represented with more magnificence. The mansion has been acquired by the city of Paris, and is to be used as a museum for the art of that period. The success of the *Burlington Magazine* will be a hopeful sign of the present time.

It was lately stated that a site had been found on which the machine gallery of the Paris Exhibition of 1900 could be re-erected. More exact calculations have demonstrated that, although it would be practicable to remove the great metal bays and to set them up in a different place, the cost of the undertaking would be too large to admit of a profit from the enterprise. The removal and re-erecting might cost three millions and a half of francs. For a much smaller sum it would be possible to obtain a structure much more suitable for a suburban exhibition. M. DUTERT's colossal hall is likely to be taken down and sold in lots. The site will become part of the ornamental gardens which it is proposed to form. It is not believed, however, that the transformation can be completed in less than ten years. There will be a stipulation that all the paintings are to be preserved and made over to the State. They include examples by CORMON, LAURENS, MAILLART, FLAMENG and other artists.



TYPES OF COSTUME: ENGLISH, TWELFTH AND THIRTEENTH CENTURY.

EARLY ROMAN ARCHÆOLOGY.

THERE is no place on the earth's surface so well adapted for holding an historical and archæological congress as Rome. There may be more intellectual charm about Athens, but we must remember its influence as a city was brief if compared with its conqueror. Assuming the foundation of Rome to date from seven centuries before our era, we have the unique instance of a city exercising power for about twenty-five centuries. The student of archæology and history has much to see there, and in a short time he must come to the conclusion that without a study of the physical geography of Rome as well as its architectural and engineering remains the history of Rome must have more or less obscurity. One other important lesson it would also be well to learn, which is that the reputation of the Romans was in a large measure obtained under false pretences. We might go so far as to say that Rome was founded by a brigand, and that renown as well as territory was obtained dishonestly.

Everyone has heard of the Seven Hills to be found in the city. It would be more correct to state that there were nine or more of them. But in the old days so much virtue was attached to the number seven, it was considered well to have the capital connected with so lucky an omen. Hills, although of no great height, offered more security than plains, and, as we see in Greece, the majority of the cities began with hilly sites, which from their original importance became sanctuaries. The ground near the Tiber offered a choice of elevated sites, and was therefore utilised, not only by wanderers from Alba, of whom ROMULUS was the chief, but by other settlers. There is little doubt that the Pelasgians were among those who earlier held possession of one or more of the hills, and various other peoples occasionally occupied them. There is, in fact, reason to support the theory expressed by the late Lord LEIGHTON in one of his Academy addresses, when he said that Greeks and Romans were twin offshoots of the same stock, and that "the forefathers of the Greek and Roman races continued to dwell together after leaving their ancestral home." The word Romans should, however, be given a wide interpretation. Sabines had likewise claims on one or all of the hills, and if the Etruscans did not seize on the whole seven, their forbearance was probably dictated by the absence of any necessity for a space so circumscribed.

Protection was undoubtedly the chief inducement for a settlement on the hills, but if any soothsayer like CAPYS was able to read the future he could have pointed out that no spot was better adapted for the creation of a great city. The ground provided excellent building materials. There was clay on the other side of the Tiber from which most enduring bricks could be made, and the soil yielded peperino, pozzolana, travertine, and at no great distance paving-stones were to be obtained on which years could have no effect. ROMULUS and his brigands showed their shrewdness in dispossessing the inhabitants of the Palatine Hill and of adapting the old houses to their own use.

It is unnecessary for us to remark that the legends concerning the early history of ROMULUS are likely to be of less value than the majority of myths. The word Rome

was not derived from him, for it was associated with a Pelasgian stronghold in existence before his arrival. The tradition that he was a son of the war god MARS probably originated with a view to gain support for the martial enterprises of the rulers. The other legend about the connection of the Trojan ÆNEAS with the city was likely to have been devised by some Greek romancist desirous of flattering his master or patron. The only countenance for such a belief to be found in the "Iliad" is the speech of NEPTUNE when he wished to save ÆNEAS from ACHILLES, in which he says:—

Saturnian Jove hath hated now long time
The family of Priam, and henceforth
Æneas and his son, and his sons' sons,
Shall sway the sceptre o'er the race of Troy.

It is now impossible to determine whether ROMULUS was able to construct any works in stone on or about the Palatine. It has been recorded from generation to generation that he enclosed his city by a wall with gates, from which it was known as Roma Quadrata. But modern experience is in favour of the view taken by MONTESQUIEU, who regarded early Rome as one of those tumble-down villages in the Crimea, having only wooden shanties to enclose cattle, corn and booty. The legends relating to the life and death of ROMULUS are incredible, but they do not claim for him any great genius in construction. His end was as marvellous as his birth, and the credulous imagined that after his death the Sabines, who were supposed to be his enemies, bestowed on him the title of their god QUIRINUS, and erected a temple in his honour. There is no doubt a Temple of Quirinus existed in Rome, but there was no Temple of Romulus. The humble house in which he lived was pointed out to successive generations. Not only PLUTARCH, who wrote heroic romances in the guise of biographies, OVID and VIRGIL, the poets, but VITRUVIUS himself declared he had seen it. It was made of wood covered with reeds; it was several times destroyed by fire, but on each occasion a new structure arose, and was duly accepted as original.

The followers of ROMULUS could not have been powerful, for after his death they fell under the rule of a Sabine king. NUMA appears as a peaceable sovereign with a weakness for introducing the worship of a great many gods. Whether the Romans derived their love for a multitude of deities from him, or whether the later Romans were really Sabines who somehow had changed their name, there is no doubt that polytheism was cultivated to an incredible extent in the city. The number of gods and goddesses was continually increased and there never was the least difficulty in making additions. It was easier to become a deity than a patrician. It is doubtful if a complete register of them ever existed, even in the Pantheon. The system was excellent in one way, for building was encouraged by the continual demand for new temples. A great many old walls unearthed in various parts of Rome are accepted as fragments of the primitive Sabine temples. The name of ROMULUS or his tribe is never associated with any of them. Sometimes a temple served for two or three deities, and the arrangement may be due to policy or economy. History

is now disposed to give the credit for famous deeds to Sabine families instead of to Romans; but there can be no question that the patronage of building in the early days of Rome must be credited to the Sabines, and to them alone.

TULLUS HOSTILIUS, who succeeded NUMA, is represented as a tyrant. We are assured he was a Sabine. His name was connected with one great work, the Curia Hostilia, where the senators used to meet. Its site is not determined, but it was probably beside the Forum. He was a political organiser as his predecessor was a religious organiser, and two of the elements of Roman power must therefore be traced to Sabine kings. As was to be expected, TULLUS HOSTILIUS considered his work was the more important. He imagined that, like NUMA, he could call down lightning from above. He is said to have succeeded and was the victim of a thunderbolt.

In what way the Sabines and the Etruscans were connected is no longer clear. There was a second NUMA in ANCUS MARCIUS. But after him the power passed to three Etruscan kings in succession. The Sabines, however, continued to be the patricians of Rome, while the descendants of the followers of ROMULUS were mostly plebeians. Wherever they came from, whether they were Greeks or Germans, the Etruscans were remarkable for their skill in art. The results were not always uniform, for in single examples grace and ugliness are introduced in an incomprehensible manner. From the Etruscans the Romans derived their skill in construction and the power to create works on a grand scale. How much the Romans owed to Etruria was never more clearly described than by LORD LEIGHTON:—

Etruria gave them kings, augurs, doctors, mimes, musicians, boxers, runners; the royal purple, the royal sceptre, the fasces, the curule chair, the Lydian flute, the straight trumpet and the curved trumpet. The education of a Roman youth received its finishing touches in Etruria. Tuscan engineers had girt Rome with walls; Tuscan engineers had built the great conduit through which the swamp, which was one day to be the Roman Forum, was drained into the Tiber. What wonder, then, that in architecture, also in painting, in sculpture, in jewellery and in all the things of taste Etruscans gave the law to the ruder and less cultured race? Accordingly Etruscan architects adorned Rome with temples. So also the Etruscans gave to the dwelling-houses of the Romans their most characteristic feature, the atrium, with its portico and its tank. So, again, sculpture in Rome was wholly in the hands of the Etruscans. The terra-cotta figures which, even in the days of Cato, adorned the pediments of the Roman temples were of Etruscan workmanship. For bronzes, wherein Etruria was famous, Rome was again beholden to her. In the minor and purely decorative arts and industries, Rome was furnished from the same source; the booths in the Tuscan street under the Palatine Hill were gay with artistic manufactures of every kind; here Etruscan tradesmen displayed their famous mirrors, smooth, graven and embossed, their lamps, their candelabra, their cups and vases, their weapons, their musical instruments; here the Roman ladies indulged their passion for those masterpieces of the goldsmith's art for which Etruscan artificers were famous. As in carving, casting and chasing, so also in painting, Etruscans led the way. And this Etruscan supremacy in the things of art lasted for some four or five centuries—lasted, in fact, until it was first sapped, and then finally swept aside by a counter current of influence which, about the third century before Christ, began to filter through Campania into Rome from the opposite end of the peninsula, and after the fall of Syracuse triumphantly invaded and possessed the Roman world—the direct influence of Greece.

Each of the three Etruscan kings recognised the value of public works. The first TARQUIN raised a temple on the Tarpeian Hill; it was dedicated to JUPITER in order to gratify the Latins, and to MINERVA and JUNO, who were honoured by the Etrurians, JUNO being also a protector of the Sabines. The original building was low with thick columns set wide apart, and it was almost as broad as it was long. That was the Etruscan manner. Afterwards there was a proposal to enlarge the building, but this aroused so much opposition, all that could be done was to increase the height. The precise position is unknown, but it is believed the church of Ara Coeli occupies the site. There were several statues in front and a quadriga which, we suppose, was above. TARQUIN in addition constructed a circus, which did not correspond with the Greek hippodrome, and was intended for horse races and pugilistic exhibitions. A more useful undertaking was the embellish-

ment of the market-place in which the plebeians traded. He surrounded it with a portico. His endeavour to conciliate the Latin races excited the jealousy of the Sabine aristocracy, and TARQUIN is thought to have lost his life by the assassins they employed.

SERVIUS TULLIUS who succeeded was, according to a Sabine legend, only the son of a slave. His name is said to have been originally MASTARNA, and possibly he was once a soldier of fortune. He aided the first TARQUIN, and on the death of that king was able to obtain the crown by favour of the Senate. SERVIUS TULLIUS was another temple builder, and one of the first he erected was dedicated to Fortune, of whom he considered himself the favourite. Henceforth that deity seemed to be the best adapted of all for Roman invocation. But the cult of the goddess was not an innovation, for it had been introduced by the Pelasgians. Policy dictated that SERVIUS TULLIUS should raise temples to deities in favour among the plebeians. A large part of the agger which he had constructed, consisting of a wall and a deep trench, still remains, and in HORACE's time was used as a promenade. He also fortified the summits of the hills in order that they might serve as citadels in times of commotion. It is believed that the money coined during his reign was in imitation of Greek models. The art of writing was derived about the same time from the Greeks, and it was said that the earliest example of a written treaty was one concluded between SERVIUS and the plebeians. It was preserved in the Temple of Diana erected by him. It is remarkable that the arts of peace should have made such progress under a ruler who was at first a warrior. If history is to be accepted, he was assassinated at the instigation of his son-in-law TARQUIN, and what is incredible, his daughter TULLIA drove a chariot over his body.

TARQUINIUS SUPERBUS, the next sovereign, was a tyrant, but he remained faithful to Etruscan traditions and endeavoured to elevate the character of the Romans by setting splendid buildings before their eyes. He was not satisfied with works in Rome; he also raised buildings elsewhere. But he is principally known by his completion of the Cloaca Maxima. The arching in a portion of the sewer still remains. It was only a part of the sewage works which were then carried out. The Romans of succeeding ages strove to imitate, although they could not surpass, the sanitary efforts of the TARQUINS. The construction of the sewers caused discontent among the people, who were forced to labour in gangs, and the resulting agitations led to the deposition of TARQUINIUS SUPERBUS and the establishment of the republic. The crime of his son SEXTUS, of which the Sabine LUCRECE was the victim, excited the anger of the patricians, and the Sabine BRUTUS became leader of the revolt. TARQUIN fled, and the "Lay of Horatius" has made English boys acquainted with what followed—how he obtained the aid of LARS PORSENA of Clusium, who swore by the nine gods "that the great house of TARQUIN should suffer wrong no more;" how thrice thirty thousand of Etruria's warriors accompanied him to the side of the Tiber; how among them was SEXTUS, and how they were all foiled by the courage of HORATIUS and his two companions.

Whatever may be the faults of the Etruscan kings, there can be no question they were the first to attempt the creation of architectural Rome. Any earlier works executed should be credited to the Sabines. It is well also to remember that HORATIUS COCLES was a Sabine, and the names of his two companions are more Etruscan than Roman. Sufficient discrimination has not been exercised by those who treat of Roman history about these facts. At a later time the Latin race, through discipline, formed excellent soldiers and citizens, but in the early days of the city they did not distinguish themselves in any way. The plebeians are credited with performances of which they were only the spectators, or, it may be, in which they acted as labourers under Etruscan or Sabine direction. They were adapted to construct aggers and thick walls of concrete. When they obtained power they were forced to depend on foreign artists. It is difficult to persuade people in our time about the true conditions of Roman history, and we hope one of the results derived from the congress which has just completed its labours will be a more general recognition of the historic fact that what

was best in Roman construction was not the work of the race who alone are supposed to have been the genuine Romans.

OLD HOMES.*

IN his preface, Mr. Moss acknowledges that he "had never pretended to know anything whatever about architecture, no more than of the differential and integral calculus." He has, however, in his "Pilgrimages to Old Homes" produced what is, from its illustrations, an interesting book on English architecture. His success is not to be ascribed to his want of knowledge, for, indeed, his descriptions of buildings would have gained by an acquaintance with construction. Fortunate in possessing a genuine admiration for old buildings, he has been enabled

care only for the stately homes of England amidst tall ancestral trees, or the cottage homes amidst glowing orchards and nooks of leaves. But the old houses of gentry or middle-class folk, the franklins of a past age, which have survived are only observed by professional students. A few of Mr. Moss's subjects, such as Moreton Hall, Tintern and Valle Crucis Abbeys, &c., have been introduced in architectural treatises. But many subjects are in out-of-the-way places, inaccessible from the roads shown on maps intended for cyclists. For instance, the Clock House is at Alderley, a place well known to Manchester people, but we are informed how "anyone wishing to get to the house has to go along a cart-road in the field, until that cart-road becomes a mere track and then loses itself altogether, gets mixed up in the grass, and the traveller must walk or wander by faith,



MEES HALL.

to discover many examples which hitherto have been known only locally. The pages show what can be done by a man with the aid of a bicycle and a friend with a camera. The numerous views are so excellent, not only in clearness of detail but in treatment of light and shade, they might all have been prepared to demonstrate the possibilities of some manufacturer's photographic apparatus. But no purpose of that kind is announced.

One advantage of the book by which it is distinguished from others of the same class is to be found in the character of the buildings selected. As a rule, amateurs in photography

for across one or two fields there is not a vestige of a path. The house derives its name from the painting of a clock face on the front, and it is one of those partly-timbered houses which must have been erected when oak trees of a large size were to be obtained cheaply. The difficulty of access was not uncommon at the time it was built. People were then so accustomed to bad roads near their own dwellings they became indifferent to the construction of public high roads, and road making could hardly be considered as one of the practical sciences until a comparatively recent period.

There is no formality in the book. The author and his friend, who has occupied Abney Hall for more than fifty years, have followed a zigzag route. We hear only of such adventures as any pair of cyclists might encounter at the

* *Pilgrimages to Old Homes, Mostly on the Welsh Border.* By Fletcher Moss. With 242 Illustrations. (Didsbury: Published by the Author.)



SHIPTON HALL.



TREAGO CASTLE.

present day. Mr. Moss had apparently no definite purpose in view, and in his descriptions he is not ambitious to exhibit any special knowledge or to advance any political or other theory. He is one of the lucky men who could travel from Dan to Beersheba without finding anything barren on the way. Whatever he says therefore corresponds with the photographs in being truthful representations of what passed during journeys in pleasant weather, for as far as we can discover all the scenes recall summer days. The journey books of travellers in former times are prized in proportion as we are impressed with their veracity, and we have no doubt the "Pilgrimages to Old Homes" will hereafter find many a congenial reader who will be glad to possess so faithful a record of what was antique in one part of England at the beginning of the twentieth century.

Such delight in old structures as Mr. Moss is blessed with we wish was more widespread. To read the essays of some reformers it might easily be concluded that what was most needed at the present time is a class of architects unlike the majority of practitioners. Still more desirable is a class of clients who will not be satisfied with commonplace buildings, or buildings even worse, viz. those which depend on an excess of vulgar ornamentation. But we cannot attain that desirable end until the men who give commissions for buildings are able to perceive the difference between what is good and bad in building. To gain that power it is unnecessary to make journeys to foreign cities. The qualities constituting true architecture are visible in such old habitations as Mr. Moss has visited, and they are as eligible standards as could be required for ordinary purposes. The ancient habitations, no doubt, fail to always comply with modern sanitary requirements, and as becomes a municipal councillor Mr. Moss may sometimes have thought he was not altogether doing his duty when he admired them regardless of their deficiencies. In describing the Red Coat Hospital in Hereford, he says:—

On the ruins of a hospital which had once been stolen from the Knights Hospitallers of St. John of Jerusalem, one Sir Thomas Coningsby erected this home of rest for worn-out soldiers and servants. The founder's badge of conies (or rabbits) is graven on the stones of the walls. The motto he chose for the men was in Spanish, meaning, "Be soldiers—doers, not talkers;" and their costume was rather fantastic, little remaining of it now but the long red cloak in which they go to church or festival. The quaint old houses prop one another up around a tiny yard, where a venerable stone pump is in the middle, with beds of brilliant flowers by the walks and creepers up the time-worn walls and lichen-covered tiles of the roof; all mouldering in long-enduring calm decay. The tottering inmates cling to life with a tenacity that is helped and fostered by the homes and associations in which they live. Modern sanitary inspectors would condemn the court and be shocked at the pump. Modern councils would never allow such artistic homes to be built; so that we must be thankful that some of the legacies left by our half-civilised forefathers have escaped the spoiler, and were made before councillors, medical officers, surveyors, inspectors, officials, "et hoc genus omne," were called into existence to strut and fret their little hour on the stage of public life. If we had an ideal Home of Rest in Manchester—and up Shudehill on Mayes's land there once was an attempt at one—the reformer, the economist and the fool would all agree in agitating for the site to be sold and shops and offices to be erected in endless, wearisome, horrible monotony.

The extract will suggest the position of the author. He has a sympathy with antiquity as expressed in buildings, but it is not altogether on account of their beauty; an interest in the successive generations of occupants is also operative with him. Even when describing Mess, Mees or Meece Hall at Swynnerton, "the desolate home of my fathers," all that is remarked about the building itself in the chapter on the subject is the single sentence, "It is built of big blocks of warm-coloured stone up to the eaves, with stone-mullioned windows, three timber-built gables and big stone chimneys, and it stands by the little river Mees or Sow." An architect would find much else worth notice within and without the building. But the passage is characteristic, for in general the photographs are left to be their own expositors. The ruins of Ludlow Castle are expressive of the state and strength of those who ruled the

Welsh border lands. They are dumb stones to Mr. Moss, or at most they recall the first performance of MILTON's "Comus." He might at least have told us something about the part of the building where the masque was presented. A view of the interior reveals the roughness of the masonry in the banqueting-hall before it was concealed by plaster. SAMUEL BUTLER was steward of the castle, and it is supposed "Hudibras" was there composed. Admission to the castle is no longer free. In one instance, Mr. Moss is forced to give a few particulars about the appearance of a building. It is when he comes to the Vern Farm, near Bosbury, which some artists have considered as the most picturesque in England. Of its present state he says:—"Sanitary authorities have evidently been before us, and marked the place for melancholy and their own. The thatched roof is hidden with corrugated iron, the finely carved overhanging gable is also covered with the galvanised abortion. Parts are newly bricked, and iron is painted brick colour, the dovecot is gone, the dairy looks like a butcher's shambles. Even our bikes seemed to shudder, and with damp feet and heavy hearts we sadly turned away." If it were not for this passage it might be imagined the interest of the pilgrimages was confined to the journeying, and that when the goal was reached there was disappointment which is suggested by silence.

The majority of the buildings mentioned in the book would be described as half-timbered dwellings, and they are, without exception, admirable specimens of that variety. There are, however, some interesting examples of masonry buildings. One is Treago Castle, near the village of St. Weonards, in Herefordshire. It is claimed that it is one of the oldest houses in England, but it must have undergone many changes. Some of the walls are said to be 6 feet or more in thickness; the floors are on different levels. "At the very top of one of the corner towers is a tiny secret chamber in the wall. It is only a few feet square," and, we presume, was intended to shelter some proscribed priest. In the house is the portrait of a Jesuit who was among the victims of TITUS OATES. Shipton Hall is in Corvedale, on the road from Much Wenlock to Ludlow. The interior is equal to the exterior. The house is reported to have been built by the MYTTONS three hundred years ago. The property was lately sold.

All who can appreciate English architecture will find enjoyment in every one of the numerous illustrations. That such photography is the work of an amateur is a hopeful sign. We trust Mr. Moss, with the aid of his anonymous friend, will be able to produce similar works. We desire, however, to make one suggestion, which is, that in future expeditions he would seek to be accompanied by a companion who is an architect or an archaeologist as well as by one who is a photographer. On the other hand, attention to architecture might not be acceptable to the general public, for whom the volume is intended.

EDINBURGH ARCHITECTURAL ASSOCIATION.

AT last week's meeting of this Association, Mr. Hunter Crawford, the president, in the chair, Mr. Frank Caws, Newcastle-on-Tyne, gave an address on "Fireproof Floors and Construction." He pointed out that since the great fire in London, which caused quite a revolution in the substitution of brick walls for those of timber, there had been but very slow progress in fireproof construction. Latterly, however, the comparatively new material, Portland cement, had made fireproof floors a feature, the mode of construction of which permitted of great variation, and the practice of architects and experts showed wide differences in matters of detail. Generally speaking, said the lecturer, the introduction of steel girders as supports for the concrete had been carried to a very unwise excess, inasmuch as the action of fire upon the steel, causing it to expand, made it most injurious to the concrete floors, and instead of being a support, it proved in such cases the means of their destruction. Therefore he advocated a method of constructing floors in large slabs of concrete, with a minimum amount of steel bearers, so disposed and protected from the fire as to give the necessary support without introducing an element of weakness. In closing, Mr. Caws described his own practical experience in buildings he had erected on the principle which he advocated. His remarks were illustrated by blackboard sketches, and at the close he was awarded a hearty vote of thanks.

EXCAVATIONS AT KNOSSOS.

THE following telegram from Mr. Arthur Evans at Knossos has been received by Mr. Macmillan:—
 "Important discoveries. West of north court of palace double flight of broad steps flanked by bastion leading down to paved area, apparently served as seats for spectators. Anticipation of theatre. Analogous to similar steps outside palace at Phaistos. In early building near, deposit of bronze basins, beautiful leaf and lily decoration, and bronze vase with reliefs. North-east of palace house of fine construction running into hill-side, remains of two storeys with three flights of stairs. On a landing stood tall painted jar with magnificent papyrus decoration partly in relief and unique in style. Great extension of works entailed by these various developments."

Even this brief announcement makes it clear, says Mr. Macmillan, that the new season's work at Knossos will be at least as fruitful as that of the three previous years, and that ready works of art of great beauty and interest have been discovered. The suggestion of a theatre promises other results of no less importance to the history of civilisation. But the last sentence in the telegram makes it clear also that the season's outlay has been greatly under-estimated. Setting aside 200*l.*, which has been earmarked for the excavations being carried on at Palaioakastro in Eastern Crete by the Director of the British School at Athens, we had hoped that about 1,300*l.* would have sufficed for the completion of the work at Knossos. It now seems clear that not less than 2,000*l.* will be required for this work alone, besides the deficit of more than 1,200*l.* on the work of previous seasons.

In response to previous appeals the Cretan Exploration Fund has received rather more than 1,500*l.* for the present season's work. Of this only 1,300*l.* are available for Knossos. To enable the explorer to carry on his splendid work without financial anxiety, the managers of the Cretan Exploration Fund desire to raise another 2,000*l.*

GLASGOW ARCHITECTURAL ASSOCIATION.

AT a meeting of this Association, Mr. W. J. Blane, vice-president, in the chair, Mr. Fra. H. Newbery, headmaster of the School of Art, lectured on "Ideals." At the outset Mr. Newbery declared himself an idealist, arguing that what to-day might be ideal and unpractical to-morrow became possible. He deprecated the too close following of tradition, particularly bookwork, believing that, just as the Greek, the Roman and the Mediæval architects worked unconsciously of style," giving but material form to the manifold influences around them, so our own times, through our great business houses, the general wealth, and the high excellence of modern technique, offered the rarest opportunities to the artist, not perhaps for the immediate evolution of a new style, but for a more complete and positive expression of present-daylife and ambitions. Mr. James Lochhead, A.R.I.B.A., proposed a vote of thanks, which was cordially awarded, to the lecturer.

SURREY ARCHÆOLOGICAL SOCIETY.

THE following report was presented at the annual meeting at Guildford:—

The Council, in its forty-eighth annual report, stated that the annual excursion was held on Thursday, July 17, the meeting-place being Horley, whence Charlwood Church, Horley Church, Thunderfield Castle and Smallfield Place were visited. An afternoon meeting of the Society was held in St. Saviour's Church, Southwark, on Saturday, October 11. The annual volume of the "Collections" (vol. xvii.) has recently been issued to all members whose subscriptions to the year 1902 inclusive are not in arrear. In this volume are valuable papers by Dr. F. R. Fairbank, F.S.A., Mr. H. E. Malden, M.A., Mr. A. Ridley Bax, F.S.A., Mr. Philip M. Johnston, Mr. Cecil T. Davis, Mr. M. S. Giuseppe, F.S.A., the Rev. A. J. Pearman, M.A., and Miss Eleanor Lloyd. Two of the original drawings made by John Evelyn in 1640 of Wotton House have, by the kind permission of Mr. W. J. Evelyn, F.S.A., been reproduced as illustrations for this volume. The Council is pleased to be again able to congratulate the members of the Society upon a slight increase in their numbers, and this despite the fact that the losses during the past year by death or resignation have been unusually heavy. But as a set off against the future occurrence of such losses, and that the standard of efficiency maintained by the Society in past years may not be impaired through this cause the Council feels that it must still urge upon all members the great necessity of inducing their friends who are not already members, but are interested in the archaeology of the county, to submit their names for election to membership.

The season of 1902 at Waverley has been a busy and, on

the whole, very satisfactory one. Work has been confined to the area, partly explored last year, west of the cellarium and church. The north wall of the fine infirmary hall of the Lay Brethren was found to extend westward, and formed the northern boundary of what appears to have been a large garden extending nearly to the river bank. Near the south-west corner of this garden was a range of buildings running almost due west, the use of which has not at present been ascertained. The ground immediately north of the lay infirmary has been carefully explored, but though foundations have been found, they are so irregular and detached that nothing can be made of them at present, except that the position of the kitchen and its offices has been confirmed. Further west, however, an important building has been found, measuring roughly 46 feet by 16 feet, and supposed to have been a guest house. The most interesting discovery of the year has been a second guest house of the same date as the later portion of the lay infirmary. The dimensions of this building are nearly 44 feet by 21 feet; the buttress bases and those of the central buildings were found to be in excellent preservation. This building is to the west of the church, and almost joins on to it. The entrance to this guest house was on the south side, and appears to have connected with a large courtyard having an important western gateway.

The Council has to tender the heartiest thanks of the Society to the Rev. T. S. Cooper, who has again superintended these excavations, and also to Mr. Henry Horncastle, who has devoted much valuable time and labour during the past few years to the work. Owing to the discovery of foundations of buildings in somewhat unexpected positions, it is impossible to say exactly how much further work may be necessary before the excavations can be completed. If, however, permission to continue them is again forthcoming, the present year should certainly see an end to the undertaking. Possibly a few weeks may be all that is required. Unfortunately the Council has to report that the expense of the excavations has been greatly in excess of the amount raised by the kind contributions of members and others—notably one of 25*l.* received last year from the Society of Antiquaries—to the special fund created for the purpose. The deficit now amounts to 110*l.*, and the Council, that it may not feel any hesitation in sanctioning the completion of this, perhaps the most important piece of work the Society has ever undertaken, has once again to appeal to the generosity of members to reduce this debt, and thus to relieve the ordinary funds of the Society of a burden that must otherwise hamper its work in other directions for some years to come.

With reference to the resolution which was passed at the last annual general meeting, whereby the Council was requested to lend its assistance to the foundation of the proposed Surrey Parish Register Society, the Council has heard with much pleasure that an immediate start with the work of publication by this new Society is now in contemplation. Additional subscribers are, however, very urgently needed to insure the success of the Society, and those interested in its work should apply for particulars to Mr. W. Bruce Bannerman, F.S.A., hon. sec. *pro tem.*, The Lindens, Sydenham Road, Croydon.

Mr. Thomas Howse, F.L.S., having ceased to reside at Guildford, has resigned his office of hon. librarian to the Society. The Council, while expressing the thanks of the Society to Mr. Howse for his past services, has to announce that it has appointed Mr. Frederick H. Elsley, at a small annual salary, librarian and curator to the Society. The library, it may be mentioned, is now becoming a very valuable one, in consequence of the system of exchange of publications adopted with most of the leading archaeological societies of the kingdom, and it is hoped that during the present year a new catalogue may, with the assistance of Mr. Elsley, be completed.

Among the losses by death the Council has to deplore that of Colonel John Davis, A.D.C., F.S.A., whose very valuable services to the Society, both as a member of the Council and as hon. local secretary for Farnham, will be greatly missed. The vacancy on the Council thus caused by Colonel Davis's death has been filled by the due election of Mr. Philip M. Johnston.

The following members of Council retire by rotation, but are eligible for re-election, viz. Lieutenant-Colonel Godwin-Austen, F.R.S., the Hon. George C. Brodrick, D.C.L., Rev. T. S. Cooper, M.A., F.S.A., Mr. Edmond Foster, Mr. Robert Hovenden, F.S.A., Mr. Mill Stevenson, B.A., F.S.A., Mr. Arthur J. Style, F.R.I.B.A., and Sir John Watney, F.S.A.

The number of members is 405, viz. annual, 313; life, 91; honorary, 1. During the year 29 new members have been elected, viz. 28 annual and 1 life. By death the Society has lost 15 members, viz. 11 annual, 4 life. By resignation, 9 members; total, 24; gain over loss, 5.

The cash account showed the total receipts to be 355*l.* 18*s.* 3*d.*, which included 144*l.* 10*s.* in annual subscriptions. The balance at bank at the end of the year was 107*l.* 4*s.* 10*d.*

NOTES AND COMMENTS.

THE military system of the Germans seems to inspire their archaeological arrangements. The exploration of a new district is followed out according to a regular plan of campaign. As in war, commanders belonging to different services are selected for special duties, so in archaeology specialists are employed according to a theory that is held about the difficulties which will have to be overcome. This excellent method is about to be put in practice in the researches to be made in Palestine. There is a union or Society for the purpose, and there is another devoted to Oriental archaeology. Both have agreed to combine their forces for digging in the Plain of Jezreel about Megiddo. A civil engineer, Dr. SCHUMACHER, will have charge of the work. It has, however, been arranged that Dr. THIERSCH, of the Archaeological Institute in Athens, whom we may consider as an officer of the general staff, is to make a reconnaissance of the district in order to ascertain if any part is adapted to meet the particular aims of the Oriental Society. In order to assist him a theologian will be sent from Leipzig to aid with his Biblical knowledge. We have only given a general outline of what is contemplated. When Dr. THIERSCH prepares his report the work may assume larger proportions, and call for the creation of several sections, but it is evident that the spirit of MOLTKE animates the scheme.

It would be a remarkable event if a Prix de Rome were this year to be carried off by one of the lady candidates. M. GUILLAUME, the sculptor, who has for several years administered the Villa Médicis, is in favour of the innovation. His reasoning on the subject is worth consideration. He says that for several years women have been allowed to exhibit in the Salons. They have been awarded medals from time to time. Last year it was doubtful whether a lady would not obtain the Prix d'honneur in painting. They can overcome the difficulties which await the sculptor. They have also been allowed admission to the Ecole des Beaux-Arts, and as they have won prizes of several kinds, why should they be prohibited from obtaining the highest prize? M. GUILLAUME says that during several years he has superintended the competitions required for obtaining the privilege of teaching in France. Male and female students worked in common, and no inconvenience followed. Indeed, he sometimes found that the young ladies were capable of greater exertion than the men. At the Villa Médicis they would have the use of ateliers which are only intended for one occupant. They would lodge in Rome. M. GUILLAUME can only see advantages in the efforts of the new students, and he considers that in the interests of French art they should be allowed to share in the benefits of the Villa Médicis, and it would be an injustice to prevent them passing through its portals. This declaration from an artist whose advice has always been received by his brother artists with respect, must remove the last of the obstacles against the development of women artists in France.

SCULPTURE may be said to be identified with beings that belong to antique myths. The noblest examples of painting, on the contrary, are generally associated with Christianity. Owing to the peculiar position of sculpture the medallion of St. CECILIA, which belongs to Lord WEMYSS, has been universally admired. In this country, at least, it has been copied more often by students than any work of its class. There was no doubt raised about its genuineness or that DONATELLO produced it. Although there is no mention of it by VASARI, yet we know from that biographer that DONATELLO made adaptations of Greek mosaics, and the *St. Cecilia* might well be one of them. It has antique refinement, but the modesty of the dress, the form of the tiara, and, above all, the nimbus, suggest sanctity. It is cut in very low relief out of "pietra serena," which is as fine as alabaster. Of late years the relief was ascribed to DESIDERIO DA SETTIGNANO, a pupil of DONATELLO. Signor BONOLA, who has written much on the history of Italian art, has now entered the field, and expresses doubt of its authenticity. There is, however, a current of scepticism passing over many works of art, but, whatever may be said about the authorship of the medallion, we hope it will still be prized as a work admirably adapted to inspire incipient sculptors.

ILLUSTRATIONS.

GREAT EASTERN HOTEL, LIVERPOOL STREET, E.C.

THE original portion of this magnificent hotel, which forms but a small part of what now exists, was designed by Mr. CHARLES BARRY, and the builders were Messrs. WM. BANGS & Co., the materials being red bricks and Corsehill stone. The vast extension, of red bricks and terra-cotta, was built by Messrs. MAPLE & Co., LTD., under the personal superintendence of Mr. THOMAS HOLLOWAY, from plans furnished by Colonel ROBERT W. EDIS, F.S.A. The visitor on arrival finds in the hall and lounge reception office, lift, &c. The dining-room is entered from the hall, and the rich red scagliola columns supporting the roof give contrast to the light scheme of colour and gold enrichments. Just above, on the mezzanine floor, is the smoking-room, and a billiard-room adjoins it. On floors above are the drawing-room, the private billiard-room and an elaborately decorated Masonic temple. The bedrooms and suites of self-contained apartments are distinguished by their comfortable proportions and cheerful scheme of decoration. The bedrooms in all number upwards of 300. The Abercorn Rooms, the chief entrance to which is in Bishopsgate Street, are unique of their kind. In the hall or music lounge, the grand staircase, the dado, pilasters, columns and mantelpiece are all in alabaster and white veined marble, while in the stained-glass windows are introduced the arms of the chief cities and towns on the Great Eastern system. The Hamilton Hall, which measures nearly 100 feet long by 42 feet wide and 23 feet high, is adapted from one of the best examples of French work of the early part of the reign of Louis XV., and is taken from a room in the Palais Soubise, Paris, formerly the residence of the Prince DE SOUBISE, and now the Musée des Archives Nationales.

DESIGN FOR MONUMENT AT GLASNEVIN CEMETERY.

AMONG the first memorials erected in the Glasnevin Cemetery was a copy of the tomb of one of the SCIPIOS in Rome. It was intended as a memorial of CURRAN, the Irish orator, who was appointed Master of the Rolls. With such an example it was reasonable to conclude that some care would be afterwards exercised in the selection of the monuments in the new cemetery. But owing to local and trade influences as commonplace a collection as can be found in the world meets the eyes of strangers. There are a very few exceptions, but the majority of the memorials show monumental masons' work at its worst. The example we illustrate this week must therefore be considered as an innovation, and it should have the effect of convincing the people of Dublin that it is not necessary in selecting memorials to be confined to a very few stock patterns which might be turned out by machinery. The monument has been lately erected by Mr. CHAS. MARTIN, D.L., of Dublin, to his late brother, Sir RICHARD MARTIN. The firm has been long known in connection with building. The work was carried out by Messrs. HARRISON & SON, carvers, of Dublin, and is made of green Labrador spar and white marble. The ornamental parts are in appliqué bronze, cast and chased. The models for the bronzework were done by Signor CARLO CAMBI, of Siena, Italy. The total cost of the work has been only 580z., and it has been designed by Mr. THOMAS MANLY DEANE, architect, and executed under his superintendence.

CATHEDRAL SERIES.—WORKS: FROM LADY CHAPEL, LOOKING INTO SOUTH-EAST TRANSEPT.

THE DRAWING-ROOM, CHICK-AND-PRIORY, SHEFFORD, BEDS.

IN 1150 or thereabouts a Gilbertian Priory was founded at Chicksands, or Cricklands, in Bedfordshire. As the Order was instituted in 1148, Chicksands would be one of the earliest houses. GILBERT of Sempringham, the founder, was a native of Lincolnshire and the son of a knight. The peculiarity of his Order was that in each case there was a house for women and another for men, which were separated by very high walls. The men followed the same rules as the Augustinian canons. The Order was abolished by HENRY VIII., and Chicksands was granted to a layman named SNOW. The monastic buildings were altered and adapted to secular use. The house consequently has a remarkable appearance, and presents a mixture of styles that testifies to the history of the buildings and its ancient connection with the church.

ANDREA PALLADIO: HIS LIFE AND WORK.*

(Concluded from last week.)

Country Houses

PALLADIO introduces the subject of country houses with a few preliminary remarks on situation and the various compartments in these words:—"As certainly 'tis highly creditable and convenient for a gentleman to have a house in the city where he is obliged sometimes to reside; so perhaps he may receive no less pleasure and advantage from a house in the country, where he passes the rest of his time in seeing and improving his own possessions, in augmenting his substance by industry and agriculture, where, by exercising himself either in walking or on horseback—which are only proper for the country—he preserves his body strong and healthy, and where, in a word, the mind, being over-laboured by the fatigue of the city, will be singularly recruited and recreated." The open position and extended space available are then dwelt on in comparison with town sites, and the necessity for finding "commodious and healthy places" is referred to at some length.

The Italian sixteenth-century country house had very different requirements from one in modern England. In all of our master's draughts a central *corps de logis* is provided for the master and his family, and this has generally a frontispiece of columns, either flush with the front wall or in advance, and crowned with entablature and pediment. On either side are the wings containing the steward's apartments, the stables, the stores and granaries. Such dependencies in England are generally placed at some distance from the house, and often do not form part of the group. Palladio's types of country houses may be divided as follows in regard to plan:—Type 1.—Block type (as the Villa Capra) without wings. Type 2.—Central block (or *corps de logis*) with quadrangle. Type 3.—Central block, with straight wings. Type 4.—Central block, with quadrant wings. Type 5.—Central block, with returned wings. The kitchen and offices were invariably placed in a basement or lower storey, and an upper storey is often provided and used for granaries. Only a few typical houses can be referred to.

The Villa Capra, also known as the "Rotonda," was originally designed for Signor Paolo Armerico. He appears to have been of a cultured disposition, for "after having travelled a long time to improve himself, and being come to settle at last in his own country after the death of all his friends, chose his abode at a country house he had on a hill." It is situated at the eastern base of Monte Berico, about 1½ mile from the town of Vicenza.

Palladio seems to have been much impressed by the beauty of the site, for he goes on to describe how it is surrounded by several hills "that seem to form a great theatre." This is probably the best known of all Palladio's works, and owes much to its open position and to the excellent views on all sides. It has a central hall, 40 feet in diameter, carried the whole height of the building, which was to receive its light by means of circular windows in the dome. Four angular staircases bring the central portion to a square, around which are placed the living apartments. On each of its four façades is an Ionic colonnade projecting about 14 feet and having an internal width of about 34 feet. These appear to have been placed because of the excellent views to be obtained on all sides. The basement containing the kitchen, &c., extends under the whole of the house, "for the use and convenience of the family," as Palladio quaintly puts it. The ground floor is raised about 11 feet 6 inches by means of wide flights of steps, giving access to each portico. For a sunny climate the Rotonda is undoubtedly a very excellent and suitable design, the central hall forming a convenient retreat from the heat of the summer sun, while the projecting porticoes are so placed as to catch every available ray of sunshine at different periods of the day, meanwhile protecting the interior of the house by means of their deep shadow. The hall has a projecting gallery at the first-floor level, giving communication to the first-floor rooms. The bedrooms, however suitable for the period and country, would undoubtedly be dark and inappropriate in England, as also the passages leading from the central hall to each portico.

Inigo Jones's references to this house are not of great interest. He remarks that it "stands very solid and firm," and "that a great sum of money must have been spent in the building of this house and especially for the terraces," and also that in his time "the lanthorn at the top of the cupola is not set on, but a net to cover the top hole to keep out the flies;" also that "the tiling does not look well, considering the richness of the statues and the beauty of the building."

The exterior view shows the somewhat dilapidated condition of this building, and also that the windows in the dome are not executed, the light being obtained from a very small lantern at the top of it.

In spite of these drawbacks this design has exercised an extraordinary fascination for European architects, who have imitated it again and again. The first imitation in England appears to have been Mereworth Castle in Kent, by Colin Campbell, the architect. It was also copied by Lord Burlington in 1729 in his villa at Chiswick (now used as an asylum), and which belongs to the Duke of Devonshire, and on a larger scale for the Earl of Westmorland at Foot's Cray Place, Kent (now occupied by Mr. S. J. Waring), and also at Nuthall, Notts. On the Continent it served as a model also for the original Château de Bagatelle, near Paris, also for the Château de Marly-le-Roi (since destroyed), a building which was erected for Louis XIV. by the architect, J. H. Mansart, in 1676.

The sculptor Canova also built a house at Inverigo in Italy after the same design. It was still unfinished when Palladio died, and it was left to Scamozzi to finish his master's work.

The house at Maser has a central advancing block of two storeys in height, with straight arcaded wings, returned backwards on each side, and connecting the centre with the stable and kitchen wings. The whole forms an extent of about 280 English feet in length. The courtyard at the back is level with the first floor of the main building. It has a semicircular recess ornamented with Ionic pilasters, statues, sculptured cornices and festoons, and a small basin through which running water passes into a lake. The front view gives a very good idea of the setting of many of our master's country designs, and also shows one of the weak points of Italian country architecture, viz. the poor and ineffective treatment of the chimneys, which in this as in many cases appear merely as circular flue pipes, without any attempt at grouping or harmonising with the architecture. In most of Palladio's own drawings no chimney-stacks are shown. This view also shows the Ionic colonnade of the front, with an unusual arrangement of broken cornice and central window.

The house at Meledo for the Conti Francesco and Ludovico de Trissini has a plan of an unusual and ambitious kind, being a combination of types 1, 4 and 5. The central block resembles the Rotonda, near Vicenza, and has quadrant wings. In front of these are other returned wings. The main block was to be about 120 feet by 90 feet, and to have a central circular hall about 40 feet in diameter surrounded by various rooms and staircases. A columned portico of the Corinthian order is on each face, placed there because "every front of the house has a very fine prospect." Palladio describes its situation "as very fine, being on a hill that is washed by a little river in the midst of a spacious plain, and on a well-frequented road." The house proper is set well away from the lower porticoes containing the farm offices by means of the quadrant galleries—a great improvement on some of the smaller plans, in which the granaries and farm offices are in immediate proximity thereto. The cupola crowning the whole was intended to contain windows to light the central circular hall, and forms a fine terminal to the group, but in execution these windows have been omitted. The kitchens, as usually seen in smaller plans, were in the basement and the granaries in the roof.

Churches—Palladio refers in his writings to the ancient temples in Rome and elsewhere in Italy, and he dwells on the importance of buildings raised for devotional purposes. He then speaks strongly in favour of the circular shape, because it is "alone among all figures simple, uniform, equal, strong and most capacious . . . the extreme in every part being equally distant from the centre; it is therefore the most proper figure to show the unity, infinite essence, uniformity and justice of God."

The cruciform plan is referred to as commendable by Palladio, who says, "In this form I built myself the church of S. Giorgio Maggiore in Venice."

Il Redentore, Venice, situated on the island of La Giudecca, and consecrated to the Redeemer for the deliverance of the city from the plague which ravaged the town in 1576, was intended to express the devotional idea. The plan is in the form of a Latin cross, in the long arm of which are three chapels formed in the aisles on each side of the nave, which is twice its width in length. A dome crowns the crossing, having its base brought to a circle by pendentives.

The sanctuary at the south end of the building has a semicircular screen of Corinthian columns, and contains the principal altar, while the transepts are also of semicircular form. Behind the screen is placed the choir, severely plain, agreeing in treatment with Capuchin ideas.

The walls of the interior are ornamented by an order of Corinthian half-columns coupled between the chapels, and have two niches between them. The arches to the side chapels are semicircular, and rest upon impost mouldings supported by Corinthian pilasters. Each chapel is crowned with an internal semicircular vault, corresponding with the arch to the nave. The height of the nave vault, which is of brickwork, and rises from the main entablature, is about 65 feet, and in this semi-elliptical vault are semicircular windows lighting the nave.

The façade has a main order of the Composite type, expressing the interior nave. This order is formed as half

* A paper read before the Architectural Association by Mr. Banister F. Fletcher on Friday evening, April 5.

columns, the angles being formed as piers and they support an entablature and pediment. The pilasters throughout are diminished, and have an entasis in the same manner as the columns. This order is raised upon a stylobate, in the height of which is managed the principal flight of steps, which is as wide as the nave on plan. On either side of the central space the side chapels are designed as wings, ornamented with Corinthian pilasters starting from the same level as the principal order. Half columns of this same order flank the central door of the church and support entablature and pediment, and are also carried round the lateral façades. On either side of the central doorway are niches for statues, flanked by pilasters supporting entablature and pediment. Above the walls separating the side chapels are taken masses of masonry, forming buttresses to resist the pressure of the nave vault.

S. Giorgio Maggiore differs principally in the aisles, these taking the place of the side chapels of Il Redentore. The church is dated 1556, but the façade was added by Scamozzi in 1610. The plan is cruciform, consisting of a nave 40 feet in width and aisles about half that width. The length of the nave up to the crossing is about twice its width. The transepts have semicircular ends, and over the crossing is a dome constructed internally of brick and externally of timber and lead. One bay beyond the crossing is planned similarly to the nave, and at this point the aisles are stopped and the sanctuary and chapter-house are continued without aisles. In the interior a Composite order of columns and pilasters placed on pedestals a quarter of the column in height ornament the walls. Between the nave columns are semicircular arches resting on the entablature of the smaller coupled Corinthian pilasters without pedestals. The soffit of these arches, which extends over the width of two pilasters, is of considerable depth, and has a much bolder and better appearance than the thin arch in Il Redentore. The nave vault is 70 feet high.

The external façade is of a very similar type to that of Il Redentore, but a better proportion is obtained by raising the principal order on a pedestal and designing the minor order without one. The main order is Composite, resting on pedestals, which in their turn are placed upon a plinth about 3 feet in height. The seven steps at the entrance to the church are formed in the depth of this plinth. This church owes its picturesqueness to its position on an island of its own name, facing the eastern end of the Grand Canal, opposite the Piazza of St. Mark, from which a splendid view of it is obtained.

The little church at Maser is isolated in position at the end of a long road. The plan differs from those of the larger churches already described at Venice. It is circular, having an internal diameter of 40 feet, and is of the type Palladio admires and describes in his fourth book. A wide flight of steps leads to a projecting portico of the Corinthian order, with two lateral arches and a central doorway leading into the church. The length of this portico is nearly two-thirds of the diameter of the church, and Palladio has followed the same proportions as in the Pantheon at Rome, which, of course, had been measured by him. A dome crowns the whole, light being admitted through a somewhat high lantern. The festoons suspended between the capitals is a feature condemned by many. The two small bell turrets on either side crown the small staircase.

The façade of S. Francesca della Vigna, erected in 1562, bears a remarkable resemblance to that of S. Giorgio Maggiore, to which it may be compared, but to which it is inferior, especially as it repeats the defect of interrupting the stylobate by the principal doorway, a much better treatment being adopted at Il Redentore. Another fault is in the management of the orders, for too great a contrast is obtained by starting both the principal and subsidiary order from the same base, the treatment at S. Giorgio being preferable.

Palladio prepared five designs for the façade of the church of S. Petronio at Bologna. This church was commenced in 1390, in emulation of the cathedral at Florence; and some idea of its size can be imagined when we find that its area, if completed, would have rivalled St Peter at Rome. The façade has remained uncompleted. The difficulty Palladio was contending with was the application of a Classic façade to a Gothic structure, and it is interesting to see how he endeavoured to overcome these difficulties. Time, however, will not permit their discussion here, but I am able to show you his fourth design.

The convent of La Carità at Venice (now the Accademia delle Belle Arti) was partly executed during his lifetime, but a fire afterwards destroyed a large portion. The plan published by Bertotti shows an outer atrium, 60 feet long by 45 feet 6 inches wide, of Composite columns, two storeys in height, from which is reached the cloister court, 86 feet by 70 feet. This court is surrounded by three storeys of arcades ornamented with the Doric, Ionic and Corinthian orders. As in so many of Palladio's buildings, brick is the chief material employed. It is covered with stucco, the bases, capitals of columns and upper parts of cornices being in stone.

Of the atrium, of Corinthian columns forming part of this

building Sir Henry Wotton says:—"Mine eye hath never beheld any columns more stately—of stone or marble—for the bricks, having been first formed in a circular mould and then cut, before their burning, into four quarters or more, the sides afterwards join so closely, and the joints concentrate so exactly that the pillars appear one entire piece, showing how, in truth, we want art than stuff to satisfy our greatest fancy."

The centre of the north front of Houghton Hall, Bedfordshire, by Inigo Jones (dismantled 1794), is held to have been similar to the courtyard of Palladio's building, the principal feature being a recessed portico, about 22 feet by 12 feet, with four Doric three-quarter columns; above are the remains of an open Ionic loggia, a feature then new to England, but a favourite treatment of Inigo Jones and used also at the Queen's House, Greenwich, and elsewhere.

Influence—Perhaps few men, with the exception of Vitruvius, have exercised more influence in matters architectural than Palladio. This was chiefly effected by means of his great literary effort, published in four books in 1570, of which countless editions have been published and which has been translated into almost every European language. The most interesting to English students is the third edition, published in 1742, as it contains the notes by Inigo Jones taken from his manuscript in Worcester College, Oxford. Mention should also be made of the valuable Burlington-Devonshire Collection now in the RIBA Library. These drawings of ancient buildings and of his own designs are believed to be by Palladio himself. They show his careful study of ancient buildings in Rome and elsewhere, and from a perusal of them we may agree with Sir Joshua Reynolds that "the greatest natural genius cannot subsist on its own stock; he who has laid up no materials can produce no combinations. The more extensive his acquaintance is with the works of those who have excelled the more extensive will be his power of invention."

Inigo Jones (1572-1652) was the pioneer of Palladian architecture in England, and it must be confessed that no student so thoroughly studied his master's works as he did. He, however, had his transition period, in which the expiring Elizabethan and Jacobean style contributed the detail, as seen in the beautiful façade of St. John's College, Oxford, and in the north and south sides of the quadrangle in the same college. His journeys in Italy, and the notes on his own copy of Palladio's book, show that he went about his task in no half-hearted way, but carefully examined each building. Inigo Jones became, in short, saturated with Palladianism, which he naturalised in England, and through him Palladio became the great master of the English fully developed Classic Renaissance, or, as it is sometimes called, Anglo-Classic style.

The change introduced in architectural style by Inigo Jones's use of the Classical orders of architecture was extraordinary in its results and far-reaching in its effect.

The Banqueting House (afterwards the Chapel Royal and now the Museum of the United Service Institution) in Whitehall was the only part of his magnificent scheme which was carried out. This masterpiece shows the skill with which Inigo Jones, although working on the lines of his Italian master, gave to his designs that English character for which they are distinguished. The extraordinary amount of variety which he has obtained in this façade is remarkable, for no two adjacent columns are alike except the two central ones; the others, either by coupling or by making them three-quarter or half columns, are all different on each side of the central axis of the building. There is a sobriety and dignity about the building which well expresses Palladio's methods of design.

It was in the arrangement and design of the "Court Masques" of the Stuarts that the genius of Inigo Jones first found a field for the display of his Palladian principles, and it was in the interior decoration of his best works that he showed his extraordinary knowledge of architectural detail. Palladio's buildings were mostly shells in which the ornament was lavished on the exterior. Jones, however, carried the details of the style throughout the interior fittings, and excelled in such features as doors, windows and chimneypieces. His deeply coffered ceilings in compartments it is said were introduced from France, but they accord perfectly with the bold style of his architecture.

Among others of Inigo Jones's works which show Palladian influence may be mentioned the river façade of Greenwich Hospital, executed by Webb, one of his pupils. In this building the two storeys are included under one huge Corinthian order. York Water Gate, London; St. Paul's, Covent Garden; houses in Lincoln's Inn Fields; Chevening House; portions of Wilton House, including the Palladian bridge, may be mentioned as other typical examples.

Stoke Park, erected in 1630-34, shows very direct Palladian influence, especially in the plan. The central block, or *corps de logis*, has semicircular wings as colonnades, with a library and chapel at either end. This type of plan is one of many erected or designed by Palladio in the neighbourhood of Vicenza, several of which must have been seen by Jones during his visit to Italy.

The enthusiasm of Lord Burlington (1695-1753) for Inigo Jones is well known, and it is recorded how a design for a gateway by the latter was given to Lord Burlington by Sir Hans Sloane, who had it removed from Beaufort House, Chelsea, to Chiswick House, where it may still be seen. Lord Burlington paid many visits to Italy, and his life there among the artists of the day seems to have given him an extraordinary liking for and interest in the works of Palladio and his school. His collection of drawings by Palladio, already mentioned, and of works by other artists of the period, must have helped very much to have popularised the art of Palladio. Giacomo Leoni was brought over to England by Lord Burlington in 1715, especially, it would appear, to help in the translation of Palladio published in that year. Remaining in England, he executed a number of important buildings, such as Latham Hall, Moor Park, and others, which must have influenced contemporary architecture.

The fully developed English Renaissance architecture was, therefore, given its first great impulse at the commencement of the seventeenth century by Inigo Jones, who founded his style on that of his great master, Palladio, whose works he had studied so thoroughly in Vicenza and elsewhere. Jones, however, gave to them an English character, attempting to make them, in his own words, "solid, proportional, according to rules, masculine and unaffected." This tradition was continued without interruption to the close of the eighteenth century by a body of English architects who were in a general way influenced thereby. To trace this progress step by step would take us beyond the limits at our disposal, but a glance at a few of the principal architects and their works will help us to understand the development.

John Webb (pupil and nephew of Jones) was responsible for Amesbury House, Wiltshire, in the Palladian manner, and Dr. Henry Aldrich erected the Peckwater Quadrangle of Christ Church, and the church and campanile of All Saints, Oxford.

Sir Christopher Wren was born in 1632, or twenty years before the death of Inigo Jones in 1652. The amount of work executed by him, and the influence on him of Palladio and Inigo Jones, caused him to leave a number of buildings which have acted as models for succeeding generations of architects. Besides St. Paul's, London, Wren was responsible for the building of some fifty-three churches in the City of London between the years 1670-1711. In most of these there is discernible the influence of the Palladian ideals, and Classical columns and their entablatures are used in many novel ways. Wren carried out the Sheldonian Theatre, Oxford, the Inner Court and library of Trinity College, Cambridge, a portion of Greenwich Hospital, Chelsea Hospital, a portion of Hampton Court Palace, Morden College, Blackheath, and Temple Bar, London (now removed to Theobald's Park, Herts), all of which are examples of his extraordinary facilities in applying Palladian principles to various types of building.

In the eighteenth century a great number of country houses were erected in England in which the traditional plans of Palladio, imitated and improved upon by Inigo Jones and others, were erected. The pages of the "Vitruvius Britannicus," by Colin Campbell, furnish plans and views of many of the most important houses erected during the century, and form an eloquent tribute to Palladian influence.

Rainham Hall, in Norfolk, and Castle Howard, by Sir John Vanbrugh, are important examples, as are also Kedleston and Stowe House, by Robert Adam. In some cases, as at Kedleston and Holkham Hall, by W. Kent (1730), there are four quadrant wings. Similar types of plan are shown in Palladio, and must have influenced English architecture, as at Stoke Park, already mentioned. The peculiar Italian method of treating the ground floor as a basement storey for the kitchens and offices, and placing the principal apartments on the *piano nobile*, or upper floor, is carried out in most of these buildings. In fact, the peculiarities of the Palladian style, and its inappropriateness when unaltered to suit the English climate, were referred to in strong terms by the satirists of the day.

Symmetry and grandeur were the qualities which predominated in eighteenth-century architecture, due in a large measure to the disciples of the Palladian school.

Nicholas Hawksmoor (1666-1763), Colin Campbell (died 1734), Sir John Vanbrugh (1666-1726), James Gibbs (1683-1754), Thomas Archer (died 1743), William Talman (died 1715), the Earl of Burlington (1695-1753), Kent (1684-1748), Robert Adam (1728-92), and Sir William Chambers (1726-96), stand out pre-eminently as the followers of Palladio and Inigo Jones and as the developers of the truly national elements of the English Renaissance.

Sir William Chambers, by his writings, and especially his "Treatise on the Decorative Part of Civil Architecture," carried on the traditions of the Anglo-Palladian school, and objected to the Greek revival of architecture, which was then beginning to be felt.

Thus, till within a century ago, the school of Palladio and his English followers were bound up with the traditions of

English architecture. In the nineteenth century, tradition being broken up, the age of revivals commenced.

Mr. HUGH STANNUS, who proposed a vote of thanks for the paper, said to deal properly with the work of a man like Palladio one would have to divide it into three great divisions. First, to seek to identify, to isolate and formulate the principles on which Palladio worked; secondly, to endeavour to show where he found those principles; and thirdly, what those principles led to. Every principle formulated in an art was like a chemical solvent; it dissolved the existing or pre-existent art and led to recombination of materials or to the invention of new materials and new treatments. Palladio was compelled to build his brick palaces so that they looked as though they were of stone, but the blame for this should be laid against the patrons who desired this effect of stone. If Palladio had done nothing else he had taught architects how to use the orders, and it would be well to advise all young students who were beginning to study the orders to notice the way Palladio measured them and demonstrated the way to use them afterwards.

Mr. LEWIS AMBLER, who seconded the vote, said in Italy he had been led to study the Cinque Cento work more than the later work. He had to admit he did not admire Palladio's work so much then as he did now. An interesting part of the paper was the account of the connection between the work of Palladio and the English Renaissance.

The CHAIRMAN said he was afraid that with many young architects there was a feeling that Classical architecture and the architecture of the Renaissance were to some extent dry and uninteresting because they were governed so much by set rules and proportions. They were wrong, and the older they grew the more they would feel the beauty and dignity of Classical architecture. It was unfortunate that Palladio had not been able to build more of his buildings in stone instead of brick and stucco; he was compelled from considerations of economy to use these materials. In some cases, where the brickwork had not been covered by stucco, the effect was extremely good.

THE ROYAL ACADEMY AND ENGRAVERS.

A LETTER from Sir Walter Gilbey appeared in the *Times* on Wednesday. He says:—

The day is approaching when the one hundred and thirty-fifth exhibition of the Royal Academy will be opened and public interest in art will receive its annual stimulus. While matters artistic fill a prominent place in our minds I beg the hospitality of your columns for a letter on a subject which, in the opinion of many impartial judges, deserves more public attention than it has yet received. I refer to the position occupied by the profession which is the principal instrument in popularising art—that of the engraver.

My excuse for addressing you in the engraver's interest is that for many years past I have found great pleasure in the collection and study of engravings, while the preparation of two volumes on the "Animal Painters of England" impressed me with a sense of the magnitude of the debt which both painters and their admirers owe to the engraver.

It is not unusual to hear the engraver's art disparaged; there are some who suppose him to be a copyist whose work is purely mechanical. Perhaps the ease with which pictures can now be accurately reproduced and copied in practically unlimited quantity by photographic means may have done something to beguile the minds of those who do not know that engraving, whether in stipple, line or mezzotint, is a work of art of a very high order. This common misconception of the nature of the engraver's work, coupled with the moderate price for which good impressions of modern plates can now be purchased, may help to explain why the art of engraving fails to secure the degree of appreciation it merits. But perhaps a more potent reason is to be discovered in the attitude which the Royal Academy adopts towards the engraver.

In considering this it is necessary to glance at the history of the relations between the Royal Academy and the engraver's profession. It dates from the granting of the charter by King George III., in the year 1768, which omitted all mention of the engraver, though his art at that time had reached very high perfection in England in the hands of such masters as Sir Robert Strange, Valentine Green, Bartolozzi, James and Thomas Watson, and others. The establishment in 1770 of the grade of "Associate Engravers," which entitled the holders (limited to five) to add the letters A E R A after their names, was a concession for which the leading engravers of the time felt no very great gratitude, inasmuch as a marked distinction was thereby drawn between painters, architects and sculptors eligible for the A R A. on the one hand and the engraver's profession on the other. The disciples of the latter department of art may, I think, be pardoned for holding themselves slighted. How the rank of A E R A. was regarded on its inception the names of the five associate engravers first elected will tell us—*i.e.* Thomas Magor, Simon Ravenet, P. C. Canot, John

Browne, Thos. Chambers. Not till five years afterwards (1775) did an engraver of the first rank, Valentine Green, accept the honour. With this single exception not one of the great engravers, examples of whose work now command fancy prices, accepted a distinction which was he'd to be rather a slight than an honour; and it is highly probable that Valentine Green and others who did accept it were influenced in doing so entirely by the hope of being able to effect a change in the law. The position taken up by the Royal Academy towards the engravers was certainly a little inconsistent, for while this hard and fast line was drawn between the engraver and the painter, sculptor and architect, tuition in engraving was given in the R.A. schools from the first year of their establishment in 1778.

The endeavours which, from time to time, were made to persuade the Royal Academicians to take a more liberal view of the art on which the painter depends to make his work popular were unavailing until 1852. In that year, G. Burnett, G. T. Doo, W. Finden, E. Goodall, J. Pye, J. H. Robinson and J. Watt succeeded in enlisting the sympathy and influence of Her late Majesty Queen Victoria, who recommended the general assembly to consider means whereby the wishes of the engravers could be met. The result was an alteration of rule which had the effect of placing engravers on the same footing as their fellow artists in other departments. Under this altered rule engravers became eligible for election not only as "Associates," but for full honours as Royal Academicians; and in 1854 the first election of an engraver to Associateship took place, the recipient of the honour being Mr. Samuel Cousins, who became a Royal Academician in the ensuing year. This recognition of their art by the grant of the diploma to Cousins, followed as it was by the election to Associateship of Lumb Stocks (1855), G. T. Doo (1856), and G. H. Robinson (1856), satisfied the just ambitions of the engravers; and for a period of thirty years they had no great cause to complain of neglect. During the period 1854-83, eight engravers (including Cousins) were elected "A.R.A.'s," of whom five afterwards received their full R.A. diploma. The engraving interest was certainly not over represented in the Academy; but, its claims being recognised and the interests of engraver exhibitors being safeguarded, the profession was content.

This satisfactory condition of affairs, however, was not destined to continue; the Royal Academicians chosen from among the engravers died or retired, and the vacancies were filled by painters, sculptors or architects. In 1883 occurred the last election of an engraver as an Associate, Mr. Francis Holl; and in 1892 the retirement of Mr. Frederick Stacpoole removed the name of the last engraver from the lists of Academicians and Associates. Therefore twenty years have elapsed since the engraving profession has received any recognition at the hands of the Royal Academy, and for eleven years it has been without a representative on its Council.

It may be urged that no engravers have been elected because none have been found worthy, that engraving as an art has deteriorated, and that the works produced by modern engravers will not bear comparison with the works of those of their predecessors whose merits gained them the Associateship and diploma. I cannot accept the argument as sound, for nothing is more eloquent as to the merit of certain modern work than the demand for the services of our ablest engravers among the great art dealers, who are actuated by no sentimental motive. But even if we grant that there is not alive to-day an engraver whose work is equal to that of the former Royal Academician engravers, is a case made out for the exclusion from honours of modern men? Surely not. The Royal Academy do not, when electing an Associate or Academician, measure the painter's work against that of the old masters and say, "This painter, architect or sculptor is not deserving of the honour because he does not display the genius of Reynolds, Gainsborough, Banks or Flaxman." The idea of setting up such a standard would never occur to them. Their mission is to encourage and to recognise merit by singling out for distinction the ablest exponents of art, whether painting, sculpture or architecture, and surely similar treatment should be accorded to engravers.

In the absence of any representative in the Council or on the hanging committee, the interests of engravers suffer materially. It is notorious, I am informed, that in some instances photogravures have been accepted and hung as engravings, and that engravings have been rejected on the ground that they were photogravures. Such blunders, we must hope, are rare; but their occurrence serves to lend point to the engravers' argument that under the existing régime they cannot hope that engravings sent for exhibition will be selected with judgment or discretion. It must be admitted that this argument is a strong one.

In regard to the decline of engraving as an art. Assuming that it is declining—and it must be acknowledged that stipple engraving is a thing of the past, while pure linework is almost unknown nowadays—do not symptoms of decline or deterioration indicate the necessity for taking steps to revive and

encourage the art? Every consideration forbids the painter to regard with equanimity such a possibility as the disappearance of engraving; no mechanical process could replace the skill and sympathy which a good engraver brings to bear upon his work. The sale of pictures for engraving has long been an important source of income to the artist, and the copyright of a popular painting is an asset of great value.

And, apart from the question of justice, it may be suggested that expediency indicates the wisdom of extending the hand of encouragement to the engraver. It is, I believe, a fact that in the Royal Academy schools of the present day no tuition in engraving is given. If there be no students it can only be because no encouragement is given to them, and not because there is no demand for their work. It is permissible to suggest that this is a matter well deserving the attention of the Royal Academy. The claims of the engravers having been acknowledged by them for a long period of years, it does not seem necessary to combat the objection that engraving is "the art of copying" and, because it is not original, cannot be placed on the same plane as painting. Engravings have not always been and are not now invariably copies of pictures; the art has been, and is often, employed as the original medium of expression. The title of engraving to rank as an art is acknowledged, William Roscoe says:—"The principal excellence of an original print is equally estimable with that of a painting. We have every condition of design, composition and drawing; and the outline of an engraving or etching is frequently marked with a precision which excels that of the painting."

The remarks made by C. R. Leslie, R.A., in his speech at the Royal Academy Council in connection with the choice of an A.E.R.A. to succeed John Landseer, who died in 1852, may be quoted here. That eminent painter said that on former occasions, when the admission of engravers to full Academy honours had come under discussion, he had been among the opponents of the measure; but after careful examination of the question in its relation to the arts and to the Academy he had changed that opinion, and wished to take what steps he could to bring an alteration of the law on the subject. "The great battle," he added, "was always about the relative dignity of the arts; but, however that may be, I cannot look at the best works of the best engravers and not feel they are the productions of genius."

In conclusion I will ask the Academy if the two following extracts from the abstract of the constitution and laws of the Royal Academy are not worthy of consideration in connection with the subject.

Section 1.—Members.

1. The Society shall consist of forty members who shall be called Academicians of the Academy.
2. There shall be another order or rank of members, not exceeding twenty in number, who shall be called Associates of the Royal Academy.
3. There shall be another class of members, not exceeding four in number, consisting of Academicians and Associates, who shall be called Academician Engravers and Associate Engravers of the Royal Academy. Such class not exceeding four may at the discretion of the Academy consist of a less number, and the proportion of Academicians shall not exceed two.

Note.—That although such class of engravers shall be considered as a distinct class the privileges and obligations as Associates and Academician Engravers shall in no respect differ from those respectively of the twenty Associates and forty Academicians.

Section 5.—Election of Members.

Associates.—The Associates shall be elected from among the exhibitors in the annual exhibition; they shall be artists by profession, that is to say, painters, sculptors, architects or engravers, at least twenty-four years of age, and not apprentices.

DEVON AND EXETER ARCHITECTURAL SOCIETY.

THE annual meeting of the Devon and Exeter Architectural Society was held at Devonport on the 6th inst. The following report was read:—

Your Council have had several matters of professional import before them, including competitions, and in the case of St. Ives town hall it is gratifying to know that the exception taken to the conditions resulted in only one set of plans being submitted, and these were not adopted on the promoters' discovery that architects declined to compete under the unsatisfactory conditions. Your Council was unable to entertain the proposal to make a donation of 5*l.* to the Architectural Association Building Fund, feeling that our funds were required for local purposes. Two sets of measured drawings have been received. It was resolved that the book prize be awarded to "Portcullis," and that the drawings submitted by "Excelsior" be highly commended. Mr. C. J. Tait offered to

give a book to "Excelsior" The authors were found to be, of "Portcullis," Mr. W. W. Hitchins, and of "Excelsior," Mr. W. J. Halls. The subject of architects serving on street committees of urban councils and that of whole-time officials undertaking private work are receiving the attention of your Council.

During the past year the Three Towns branch has made considerable progress. Although no papers have been read, the committee have met a large number of times for the consideration of the very important subject of building by-laws initiated by the chairman of the branch, Mr. A S Parker, A.R.I.B.A., first in an admirable paper delivered before the members of the branch last session, and subsequently in committee, and it is confidently hoped that amendments such as are desired may be achieved. The Chairman has been untiring in his efforts to gain this end, and a strong hope is expressed that they will be crowned with success.

The president, Mr. J. M. Pinn, moving the adoption of the report, congratulated Mr Hitchins on being the winner of the first prize for the second year, but regretted that there was not more competition. It had been felt for some time that officials had been taking work out of the hands of private practitioners. Where men were not paid for their whole time they had to get their living, and had a right to enter into competition with private professional men; but where they were paid for their whole time they should not take private work. It was a very difficult matter to deal with, because those who employed a public surveyor were not likely to come forward and say what he had done. He had known cases in which work had been done by a surveyor and the plans signed by somebody else.

Mr. Cole seconded the motion. He remarked that after doing a day's work young people did not go sketching, as they used to do. They took the camera. It would be better if they spent more time in sketching and measuring old buildings; but people now took the quickest way, and but for photography they would have very few records at all. As to architects serving on street committees, in Exeter they had a curious state of things. The Council objected to architects being on the streets committee. The town clerk, as the law-giver, was generally a pretty cute man, but architects on the streets committee could tell him a bit of law, and could also quote his decisions given before. That was why he (the town clerk) did not like them on the streets committee; it gave him a little scope. Another reason given why architects should not be on the committee was that they might have to pass their own plans. Would anyone calling himself a gentleman, in order to do harm to a professional brother, endeavour to reject his plans? They found that men who had been assistants to architects became urban and rural district surveyors, and it followed that if a builder wanted to lay out an estate, he did not go to an architect, because the plans would have to come before the official, and he (the builder) thought if he went to the surveyor he would do the designing, keep him within the by-laws, and save him trouble. That was a most immoral state of things. With present-day competition they could not have these pirates interfering with them. Their city surveyors, if it was a question of asylum work, got down a code from the Asylum Commissioners, showing various plans, and worked on those to fit the site. The surveyor had quite enough to do to manage his own affairs without taking away the work of the profession, because he could not do the work so well as the average professional man. (A Member: And it will cost 25 per cent. more.) Although architects were thought but little of they paid the rates, and ought to have a voice in the affairs.

Mr Lethbridge remarked that at Plymouth the Corporation let a large property to a tenant who was bound to spend 10,000*l.* upon it. The Corporation thought they ought to have an architect to see that the 10,000*l.* was spent, and they decided that the borough surveyor should be paid 125*l.* for doing it. Was that a part of the duties of the surveyor? If it were, he should do it without extra remuneration. If it were not, an architect should be employed and paid at a fair rate for his services. As to Looe Street, after architects had been employed the borough surveyor was asked to prepare plans for buildings there, and arrangements had to be made with outside architects as to the fees to be paid. It was very unfair. Younger men should leave the camera severely alone until they had qualified themselves to enter business life. He did not know what a "progressive policy" meant, unless it meant rates. At the beginning of the municipal year a member of that Society was elected chairman of the special works committee at Plymouth, having been chosen by his own party and the opposite party; but at the next meeting a worthy alderman suggested that as that gentleman was an architect in private practice, and the plans of other architects had to be put in, he was not a fit and proper person to fill the position. That gentleman did not feel that on the *ipse dixit* of an alderman even he should resign without consulting the leaders of the party of which he was a member. At the next Council meeting it was referred back. It was stated as one of the arguments that the architects were up in arms, and

that they had held a meeting to protest against it. Both those arguments, he was assured by the secretary, were absolutely false. Anyone elected by a large and important constituency was a fit and proper person to fill any position in the Council. An extraordinary fact was that the lunatic asylum committee had a building committee, from which that member was excluded, while a builder, whose tender was not accepted, was included. It was rotten, and a matter of political, not municipal, honesty.

The Chairman presented the measured drawing prize to Mr Hitchins, and it was explained that Mr. Tait and Mr. Halls were unable to be present.

The Secretary offered a guinea book as a prize for a book of sketches during the summer.

Mr. Ralling complimented Mr. Hitchins on the advance in his work since last year.

Mr. Pinn, in his presidential address, remarked that the most important architectural matter during the year was probably the Liverpool Cathedral competition. That, like most other competitions, had not proved satisfactory to everybody. He was somewhat sorry it had latterly gone out of fashion to adopt the Gothic style for secular buildings. They had only to go to the adjoining town of Plymouth to see what a beautiful effect had been produced by the erection of the municipal Buildings in that style by an able and worthy member of their Society. He would impress on young members that when they had to design a building they should consider the purpose for which it was to be used, as well as other circumstances, and let the building, as far as possible, tell its own tale. They should not make a factory look like a church, nor a church look like a factory. As to the long-discussed subject of registration of architects, he had always seen the difficulty of dealing with the subject in a manner to be of use, and he was not much nearer being convinced that registration would benefit the profession than he was some years ago. He could not but think that if a real benefit would be obtained by legislation the Institute would take steps to further that object, but until it did see that it would do so, it was unlikely that there would be any legislation.

On the motion of the President, seconded by Mr. C King, Mr. A. S. Parker was unanimously elected president for the ensuing year, and, on taking the chair, remarked that the three principal objects of the Society were professional integrity, the promotion of architecture and the allied arts, and social intercourse between architects.

Messrs. C Cole, Harbottle Reed and G S Bridgman were nominated for the office of vice-president, and Mr. Cole was elected.

Messrs. J. E. Harvey, M. A. Bazeley and Coath Adams were elected members of the Council, and Mr. Ralling was reappointed treasurer and Mr. Reed secretary.

The officials were heartily thanked.

At the close of the meeting the members visited the offices of the Prudential Assurance Company at Plymouth, by permission of Mr. A. Waterhouse, R.A.

BRITISH SCHOOL AT ROME.

THE Rome correspondent of the *Times* writes under date April 10:—"Although Great Britain was less numerously represented at the Historical Congress, which is just coming to an end of its labours, than either France or Germany, the British delegates took a very substantial part in the proceedings, presiding in their turn over the various sections, and reading papers. At the Court dinner on Sunday in the Quirinal some nine or ten were present, and to one of them, Mr. Bryce, was given the place of honour on the right hand of the King. It was, however, unfortunate that, with the exception of Sir Alfred Lyall, who represented the India Office, there was no official representative of the British Government, an omission which was no doubt accidental, but is none the less to be regretted. A pleasant feature in the congress has been the receptions held at the different foreign schools. The Germans led the way, followed a few days after by the French and Americans, and on Tuesday, the 7th, by the British School. The reception at the British School was apparently very successful. In the absence of the director, Mr. Rushforth, who had been compelled by illness to leave Rome before the congress began, the guests were received by the acting director, Mr. Ashby, and the chairman of the committee, Professor Pelham. Among the guests were the British Ambassador and Lady Feo Bertie, Drs. Petersen and Huelsen, of the German School, Monsignore Duchesne, of the French School, Professor Norton, of the American School, the Vice-Chancellors of Oxford and Cambridge Universities, Sir A. Lyall, Sir Richard and Lady Jebb, Sir F. and Lady Pollock, Mr. and Mrs. Bryce, Professor Mahaffy, Sir James Ramsay, Mr. Frederic Harrison, Mr. and Mrs. Poole, Mr. and Mrs. Humphry Ward, Mr. and Mrs. Ashby, the Dean of Hereford, the Contessa Caistani-Lovatelli, Mdme Filippo de Filippi, Mrs. Crawshaw, Mrs. Waldo Storey and many others."

GLASGOW INSTITUTE OF ARCHITECTS.

THE annual general meeting of this Institute was held on the 7th inst. in the rooms, Pitt Street, Glasgow, Mr. Horatio K. Bromhead, president, in the chair. The Secretary read the thirty-fifth annual report, from which it appears that the number on the honorary roll is now eight and the number on the ordinary roll remains seventy-two. The usual exhibition of R.I.B.A. prize drawings and of those which gained the Institute prizes in the School of Art and Technical College was held for over a week in April. A local R.I.B.A. examination was held in November and the Council have arranged with the R.I.B.A. to hold similar local examinations in June yearly. The sixth triennial competition for the Alexander Thomson travelling studentship was held on February 26. Five sets of drawings were sent in, coming respectively from London, Liverpool, Edinburgh and Glasgow (two sets). While the trustees would gladly see a larger response in the number of competitors, they have reason to be gratified not only by the wide area from which these were drawn but by the high standard of excellence reached in most if not all of the works submitted. It had been decided that, should the results warrant it, a second prize of 20% (with somewhat similar conditions to those attached to the scholarship itself) should be awarded on this occasion. The Council had again under consideration the matter of the Royal Infirmary reconstruction scheme. No definite reply having been received to the two letters addressed by the Institute to the executive and managers in 1901, when the scheme was last prominently before the public, and in view of the statements made this year at the annual meeting of the infirmary, the Council of the Institute considered it advisable to again address the managers, drawing their attention to its position and proposals, and to press for more satisfactory assurances with regard to the same. To this a letter in general and guarded terms was received, and a reply to the managers was sent on March 27 recapitulating the items considered unsatisfactory.

The President, in moving the adoption of the report, said it appeared to him that the most remarkable event of the past year was the way in which the housing question had been thrust forward. The housing problem was a scarcity of small houses that the poor could and would like to live in. Usually the subject was regarded as like a jelly-fish without any backbone of its own, something that was nasty and must be pushed with a stick. But the backbone of the subject was the will, the desire of the poor. Some people would at once say, "That is the real difficulty. Many of the poor don't know how to live healthy, happy lives." If that was so, why not teach them? Why not have a pamphlet showing briefly the best way for a poor man to live? An average of 5s each from those interested would be enough money to give a copy to every one in the city, and this would probably wipe away the largest and dirtiest part of the housing problem. If, the President continued, the city were taxed to provide a new department in which working men could get a really good black frockcoat and white gloves at half their value, would they go and buy them? Not a bit of it. But if an addition to the Police Act compelled them to buy, what then? Why, it would be found that the working man had a command of language quite beyond what was known of him. He wanted "shoddy." It was shoddy houses that were wanted for the poor—cheap and wholesome houses that a man could pay an honest rent for, without the degradation of knowing that he was being made a pauper of by having his rent partly paid by taxes on other people. How were we to get these houses? If we got rid of our purse-proudness about the cost of our buildings, and got rid of the cruel exactions of our Police and Building Acts, and were to strive to have, right within the city bounds, districts where we might be proud of knowing that working people could and would like to live cheaply and comfortably, and yet where capital would not be cheated, we should have an ideal that would lead in a sound direction. In Liverpool City Council it was said that if they went on building for 2,000 people every year for fifty years they might make up arrears. In Glasgow a million pounds would be a mere drop of what was required. Perhaps the most important item that had happened was the letter to the Lord Provost from Dr. David Murray. In two ways it was exceedingly important. The reception his letter met with indicated the masterful way in which the Corporation were inclined to handle the subject, and also how clearly capital understood that. Secondly, it showed that there was capital in the hands of those who would gladly attend to the housing question if it could safely be done without a lot of blind interference that would render it financially impossible. The President went on to say that they had the Royal Infirmary reconstruction scheme still on the horns of a dilemma. The governing power there had a plan that, according to American phraseology, "can't be beat," and so they issued this plan to a few architects in a competition for decorating it. But alas! architectural human nature was also

weak. Not only did several of the architects venture to improve, or should he say alter, the "immaculate" plan, but the architectural assessor considered these the best, and gave his award accordingly. The committee, however, were equal to the emergency. They overruled the assessor's award, and chose the design that most closely followed their own "immaculate" one. Possibly they thought that its "immaculateness" far outweighed any and all of the bad and miserable features that might have been discovered in the design by the assessor.

The Council for ensuing year was elected as follows: Messrs. J. A. Morris, David Barclay, A. N. Paterson, John Keppie, H. K. Bromhead, Jas Lindsay, N. Macwhannell, T. L. Watson, J. M. Monro, Alex. McGibbon, J. A. Campbell, A. Balfour, W. J. Boston, Chas Gourlay, T. Baird, jun., and Andw. Black. The Treasurer's accounts, which were submitted and approved of, showed that the funds were in a satisfactory position. A meeting of the newly-elected Council followed, at which office-bearers for the year were appointed, viz:—President, Mr. Horatio K. Bromhead, F.R.I.B.A.; vice-president, Mr. John Keppie; auditor, Mr. David Barclay, F.R.I.B.A.; secretary and treasurer, Mr. C. J. MacLean. The various committees for the year were also appointed, including committees on public architecture and on architectural education, &c.

THE CAMPANILE BRICKS.

ACCORDING to the Rome correspondent of the *Morning Post*, Commendatore Boni gave to the members of the History Congress a lecture on various data provided by the examination of the remains of the fallen tower of St. Mark's at Venice. To illustrate his lecture Signor Boni had with him drawings of some twenty or thirty impressions of bricks which formerly helped to form the fallen Campanile.

Great numbers of these bricks were, it appears, roughly traced by the makers with all kinds of figures, sometimes with a number, sometimes with a private mark, and sometimes with letters. One brick, for instance, had the letters "DCL" impressed on it, evidently a sign that in the particular batch to which it belonged there were some thousand one hundred odd bricks.

The shape of the bricks betrayed the fact that they had been used for various purposes at a previous stage of their use. Some had been utilised for arches, some for fortifications, others for tops of walls. The most important feature about them, however, is that they are not Venetian but Roman bricks. This is deduced by Signor Boni from their general appearance, shape and texture. Moreover, he has discovered on close examination that the bricks when being manufactured were not manipulated like modern bricks and made from a mass of clay already stirred up and kneaded ready for use, but were formed from slices of the clay as it was found without its natural layers being disturbed. This process resulted in each individual brick being able to support a weight quite four times as great as that which can be borne by bricks of modern manufacture.

The lecturer showed pieces of ancient brick to his audience for inspection, and then showed them a piece of modern brick manufactured specially by him in exact imitation of the original out of Roman clay. He pointed out that it is quite possible for the new Campanile of Venice to be built with clay of the same origin as that formerly used, and in a manner more likely to prove enduring than that in vogue at the present day.

Some of the drawings showed marks which would have probably been deemed to be of no special importance by the casual and uninitiated observer, but which in reality are of the greatest interest. One of the bricks thus shown in design represented the impression of a horseshoe. The bricks are of the first century. Thus, it is now conclusively proved that at this early time horseshoes were known to and used by the ancients. In view of the heated discussions which have often been carried on regarding this point the discovery of this special brick possesses an importance of no mean order.

Another brick bore a curious impression of the points of a man's hand pressed quite deep into the clay. If, as Signor Boni pointed out, this mark had been found continually among the several thousand bricks examined, it would have been only natural to suppose that it was the result of a tight clasp in the hands of a number of bricks during their transport before being baked. This, however, is not the case; only about one brick in every thousand bears this impression. The lecturer deduced from this fact the supposition that the impression of the point of the hand was none other than a private mark, used once for every thousand or so of bricks that were baked by the manufacturer.

There were also many other and equally interesting marks on the bricks, marks left by animals which had been allowed to touch the clay before it had been baked. The impressions are so clear in each case that no mistake is possible as to their

origin. For instance, one is that of a large dog, perhaps a watch dog, one of a pig, one of a calf, three of a goat and several of sea birds.

The lecturer also exhibited a scientifically executed design of the lower portion of the Campanile, together with the foundation. The design delineates clearly the many different layers and the substructure of the soil on which the Campanile was built. Five metres below the surface have been discovered rows of beams set upright, not for the support of the tower so much as for the general solidification of the naturally damp soil. Further than this depth excavations have not yet been made, but the examination hitherto conducted is sufficient to give a very exact idea of the methods of building used and of the preparation of the subsoil prior to the laying of the foundations.

The first stone of the new Campanile will be laid on April 25. It is hoped that by next spring the first 30 metres will be built, and that the whole Campanile will be finished by the spring of 1906.

CULROSS ABBEY.

A MEETING of those favourable to the proposal to restore Culross Abbey, which was founded in 1217 by Malcolm, Earl of Fife, but which, after passing through strange vicissitudes, is now represented only by the choir of the original building, was held in Edinburgh. A scheme of restoration has been prepared by Sir R. Rowand Anderson, and it is estimated that the restoration will cost 5,000*l*. Of that sum the heritors have offered to pay 2,000*l*., and with a view of raising the remaining portion committees are being formed in Culross, Edinburgh and Glasgow. The meeting was attended by about twenty gentlemen. Rev. Dr. Russell, Moderator of the Established Church Assembly, presided. Apologies for absence were received from Lord Balfour of Burleigh, Sir Henry Campbell-Bannerman, Lord Elgin, Lord Kinross, Sheriff C. N. Johnston and Mr. Younger. Mr. Dalgleish, Brankston Grange, moved that the meeting approve of the proposal, and that immediate steps be taken to carry out the scheme. Mr. A. Burn Murdoch seconded, and the motion was adopted. Mr. Laurence Dalgleish, Keable, Mr. James Arnot, Professor Lawson and others expressed themselves in hearty sympathy with the movement, and a subscription of 250*l*. was intimated by Mr. Erskine Beveridge, St. Leonard's Hill. A committee of seven gentlemen, with Mr. Thomas Aitken, Edinburgh, as convener, was afterwards formed. The Rev Dr. Scott thought it was a shame for a country to allow its historic buildings to fall into disrepair. Mr. Alex. Bogie was appointed honorary treasurer, and Mr. P. H. Cosens hon. secretary.

SOCIETY OF ANTIQUARIES OF SCOTLAND.

THE usual monthly meeting of the Society of Antiquaries of Scotland was held on Monday, Dr. Robert Munro, vice-president, in the chair.

The first paper read was a report on the excavation of Castlecary, one of the great forts or military stations on the line of the Roman wall of Antonine, situated six miles west of Falkirk, which had been undertaken by the Society in 1902, the duration of the work extending from March to November. The history of the site and description of the excavations and their results were given by Dr. D. Christison, secretary; the plans and sections of the structure of the fort itself and of the buildings within it as disclosed by the excavations were supplied by Mr. Mungo Buchanan, a corresponding member of the Society; and the notices of the various articles found, including pottery, bronze, iron and other objects pertaining to the Roman occupation, were given by Dr. Joseph Anderson. In the beginning of last year, the attention of the Council having been called to the probability of the ground close to the fort being feued for building purposes, they resolved to undertake the excavation as their next work in continuance of the investigation of Roman sites in which the Society has been engaged for the past eight years. Permission having been freely granted by Lord Zetland, the proprietor, and every facility given by Mr. Charles Brown, his factor, the direction of the work was committed to Mr. J. H. Cunningham, C.E., and Mr. Thomas Ross, architect, with Mr. Alexander Mackie again acting as clerk of works, Mr. Mungo Buchanan having again volunteered to fill the arduous post of surveyor. Before operations were begun, all that could be seen on the ground was a slight rise of the surface, the site having been successively destroyed and plundered of stones, first for improvement of the highway, which passes close to it; second, in 1769 and again in 1771, for the works in connection with the construction of the Union Canal; and lastly in 1841, when the North British Railway was driven obliquely through the fort. Many notices of Castlecary, as one of the principal forts or stations on the Roman wall, are found in the

works of Sir Robert Sibbald, Alexander Gordon, Horsley, Maitland, Roy, Stuart and others, but their accounts are necessarily meagre and often contradictory. The present excavation has shown that the fort had been surrounded, not by an earthen rampart or ramparts, but by a well-built stone wall 6 feet 6 inches in thickness, consisting of a core of concrete, with outer and inner faces of dressed stones. The masonry is unusually massive, perhaps the most massive hitherto met with in Roman buildings in Britain, many of the stones in the lower courses weighing from half to three-quarters of a ton. The shape is that of a rectangular oblong, with slightly rounded corners, abutting on the line of the wall, which formed the north side of the enclosure, the space inside being roughly about 450 feet long by 350 feet wide. In the south-west corner the foundation of a tower remained, three of its sides being straight, and the fourth formed by the rounded corner of the enclosing wall of the fort. The south-east corner being covered by the railway embankment, it was impossible to determine the existence of a similar tower there, and the south-west tower consequently remains the only angle tower of Roman work hitherto met with in Scotland. Outside the stone wall of the fort were two trenches, surrounding it on the three free sides. Each trench was 14 feet wide and 7 feet in depth, the space between them being 10 feet wide, and the inner trench 5 feet distance from the base of the wall. The fort was entered by four gateways, those in the north and south sides being in the middle of the length of the walls, and those in the east and west sides considerably nearer the north than the south side. Each gateway was single and only 9 feet in width, but flanked by returns inward of the wall, making a passage 14 feet in length. As these returns were 8 feet thick at the base, the walls would be strong enough to carry an archway over the passage, with some tower or other superstructure over the gate for its defence. As the north wall of the fort is fitted into the earthen rampart of the vallum, with which it is aligned, there must have been some special provision to hinder the enemy from obtaining access to the interior of the fort from the vallum, and the widening of the wall at the angles seems to indicate that towers or strong walls were placed here to face the vallum, and bar all access to the fort from it. The general plan of the interior of the fort corresponds to that of all the Roman stations hitherto examined in Scotland, the pretorium being in the centre with the space on either side of it occupied by long, narrow buildings running parallel to it. The only other important structure discovered was an interesting buttressed building with apertures splayed inwards between the buttresses. A building with sundry apartments, described by Nimmo as having been discovered in 1770, is now covered by the railway embankment, but a plan of it has been preserved by General Roy, and in a small part of it not covered by the embankment a well-preserved latrine was laid open. The existence of an annexe to the Castlecary fort was quite unsuspected until it was revealed by the present excavation. It lies on the east side of the fort and is irregularly five-sided, the north face formed by the vallum and the western by the east side of the fort. These were thus strongly protected, but the other three were defended merely by an earthen rampart about 14 feet wide, and a ditch of the same width and 7 feet deep. No remains of buildings were found in the annexe. The question of how far structural characteristics may help in the determination of the dates of Roman forts in Scotland is one of special importance, and in this connection the records of the German Lines Commission may be advantageously consulted, because the period dealt with corresponds closely with that of Roman activity in Scotland. In Germany earthen forts are only very rarely met with as Roman works, out of forty-eight stations excavated the defensive works of forty-five being built of stone, and only three constructed of earth, and these weakly fortified by a single palisaded trench. Thus it appears that on the German frontier line earthen castles had been almost entirely superseded by stone castles, and this carries the stone type of construction back to the reign of Domitian, possibly to A.D. 90. Those that can be dated range roughly from the reign of Domitian to those of Trojan, Hadrian and Antonine. But the four earthen forts excavated in Scotland—viz. Birrens, Lyne, Camelon and Ardoch—are strongly contrasted with the German earthworks, from the elaborate nature of their exterior fortifications as well as by the uniform plan of the arrangement of their interior buildings, and from these features and the inscribed stones found in them they may be referred to a later period than the German earthworks, and this is corroborated by the date of A.D. 151, assigned by the inscribed tablet found in Birrens to the repair, if not to the original construction, of that fort. But the regular manner in which the fort of Castlecary fits into the Antonine vallum, and the fact that the angles of the fort at the junction with the vallum are sharp, whereas the free angles are rounded, go to prove that the fort and vallum are of the same date—about A.D. 142. The relics found in Castlecary are by no means so numerous or so varied in character as those from Camelon, but they present the same mixture of broken pottery,

and glass, some of the Samian ware being finely embossed, and a few fragments of the glass representing vessels of graceful shape. A single intaglio in carnelian, representing Jupiter with his eagle, was found. The usual blue ribbed heads and bronze fibulæ occurred; but perhaps the most interesting of the objects found were the remains of the leather foot gear of the occupants found in the ditch, into which no doubt they had been tossed as they were disused. These remains consist chiefly of fragments of shoes and sandals of various sizes and shapes, the soles of the largest measuring 11 inches in length by 4 inches across the widest part, and the smallest being daintily made shoes of soft leather, with soles about 8 by 2 inches, the uppers scolloped and cut out in openwork, with ornamental tabs at the heels and cut, stamped and sewed work along the sides, evidently made for women.

The second paper, entitled "Additional Notes on Ingram of Kethenys and his Mural Tomb in the Church at Tealing," by the Right Rev. John Dowden, D.D., was a supplement to a paper read before the Society in 1896 by Mr. A. Hutcheson, Broughty Ferry.

In the third and last paper, Mr. John Sinclair, F.S.A. Scot., gave some notes on the disputed tomb of Queen Mary of Guildres and the Stuart vault at Holyrood.

MONKS' LAVATORY, DURHAM CATHEDRAL.

DURING the last few days some important excavations have been carried out in the cathedral cloister garth with a view of ascertaining the site of the old lavatory which was used by the monks for the purpose of washing their hands and faces before proceeding to partake of their meals in the refectory. Up to the present it has always been supposed that the lavatory was situate near the north side of the cloister garth, but the recent excavations prove the site to be at the opposite side, *i.e.* the south side. The idea of searching for this old relic of the monastic days originated in Dr. Fowler. The latter gentleman is at present engaged in rewriting Surtees' "Rites of Durham," and in doing so came across the following passage:—"Within the cloister garth, over against the Frater house door, was a fair laver [basin] or conduit for the monks to wash their hands and faces at, being made in form round, covered with lead, and all of marble, saving the outermost walls. Within the which walls you may walk round about the laver of marble having many little conduits or spouts of brass." Hitherto this "over against the Frater house" [refectory] was construed to indicate the north side of the garth, but Dr. Fowler, whilst considering the correct reading of these words, came across two holes for wall-plates in the bay of the south wall of the cloister. This, coupled with the fact that in the base of the outer wall immediately beneath the wall-plates there is a discontinuation of the plinth which runs round the remainder of the cloister wall, suggested to Dr. Fowler that the old lost lavatory was somewhere close at hand, and he obtained the necessary permission to make search. On excavating immediately beneath the plate-holes the foundations of the old lavatory, so long lost sight of, were brought to light. The laver referred to in the above quotation is the basin-like structure which has occupied a position in the centre of the cloister garth of late years. An examination of this laver reveals at least one of the "conduits or taps of brass" spoken of by Surtees. Internally the old lavatory had a diameter of some 19 feet, and the laver, when in its original position, probably occupied a spot in the centre. Externally at any rate the building was octagonal, with angle buttresses somewhat similar to those of the chapter-house apse, and, according to "Rites of Durham," "had seven fair windows of stonework," and the south side, which adjoined the south cloister, "over against the Frater house door," had a doorway in it. The roof of the old lavatory was a lead-covered one, surmounted by a "fair dovecot, covered finely over above with lead, the workmanship being both fine and costly." The account of Durham Cathedral says the lavatory was erected A.D. 1432-33.

The recent excavations have brought to light several perplexing problems, one of them being the finding (at a lower level) of what appears to be a second lavatory basin of earlier—probably Norman—character. This occupies a position quite out of the centre of the other—the fifteenth-century building. The foundations of the earlier—the Norman lavatory—indicate a building square in form, and 15 feet by 15 feet in size internally. Several old drains have been laid bare. Those in connection with the later fifteenth-century lavatory are in part constructed of moulded stones, whilst the single drains in connection with the older Norman lavatory are all plain. The use of the moulded stones in the drains of the later lavatory is considered as clear evidence of the destruction of the earlier building, the moulded stones of which the latter was constructed having to all appearances been used for the purpose of making drains for the later building. A portion of the ancient lead pipe, 2½ inches in diameter, still remains in

the centre of the bed of the earlier basin. It is hoped when the finds have been more completely studied none of the problems now raised will remain unsolved. Plans and photographs of the foundations have been taken, and the excavations will shortly be filled up.

GENERAL.

The King has commanded that the portrait of His Majesty just painted by Mr. Emil Fuchs shall be exhibited at the Royal British Artists, of which Society Mr. Fuchs is a member. The King is represented in the uniform of the 1st Regiment of Prussian Dragoons (Queen Victoria's). The portrait will be on view at the Suffolk Street Galleries from April 17 next.

The Prince of Wales will open, on April 29, the new buildings of the Royal School of Art Needlework. The design has been prepared by Mr. F. B. Wade.

Mr. Richard Philip Day, architect, has died at his residence, Bloomsbury Square, from cancer. Mr. Day was diocesan architect and surveyor for Canterbury and a surveyor of ecclesiastical dilapidations for the diocese of London.

A Monument is to be erected to Emile Zola. The work has been entrusted to two sculptors, MM. Constantin Meunier and Alexandre Charpentier.

Mr. Logie, of Huntly, Aberdeenshire, has been awarded the contract for the masonry in connection with the monument to be erected in the Matoppos to the late Mr. Cecil Rhodes. The contract for the whole erection was obtained by the Rhodesian Contracting Company, and it is expected that the cost of the masonry alone will amount to 16,000*l.*

The Institution of Civil Engineers have elected as honorary members Prince Auguste D'Arenberg, Mr. Chamberlain, F.R.S., M.P., and Sir Archibald Geikie, F.R.S.

The Marquis de Pienne, Court Chamberlain under Napoleon III., has presented the Academy of Agram, near which town he resides, with his valuable collection of paintings by the most famous painters under the Empire.

A Committee, composed of the Marquis de Lafayette, the Marquis de Grasse, the Comte de Rochambeau and others, is about to present a bust of George Washington to the United States. It is to be a replica in bronze of the one in marble by David d'Angers which was destroyed by fire in Washington.

In Connection with the centenary of the French Academy in the Villa Medici, Rome, several architects have received promotion in the Legion of Honour. M. Pascal becomes a commander, MM. Gerhardt and Marcel Lambert officers, and M. André chevalier.

The Trustees of the National Portrait Gallery have accepted as a gift from the Right Hon. W. E. H. Lecky, O.M., a plaster bust of Henry Grattan, the Irish statesman, modelled by P. Turnerelli in 1812, and formerly the property of Grattan's daughter. The trustees have also acquired by purchase a posthumous miniature portrait of Edward FitzGerald, the translator of the Quatrains of Omar Khayyam, painted by Mrs. Rivett-Carnac.

The Exhibition in the Grand Palais of the Champs-Élysées, of which the subject will be the dwelling-house, is to be opened on July 30. The providing of houses at a cheap rate will receive special attention.

The Jury of the section of architecture in this year's Salon will be composed of MM. Pascal, Laloux, Moyaux, Vaudremer, Daumet, Girault, Scellier de Gisors, Raulin, Deglane, Redon, Gaudet, Mayeux, Paulin, Bonnier.

An Exhibition of photographs of Roman tympana and lintels with figures or symbolical sculpture to be found in churches in the United Kingdom opened at the Guildhall this week. The exhibitor is M. Charles E. Keyser. The photographs number nearly 200, and will be on exhibition for a month.

The Prefect of Constantine has asked the local council to grant him a vote in order that the representatives of the Paris journals who have followed M. Loubet to Algiers can be sent to the Roman remains of Timgad. The traction will be by means of automobiles.

The Exhibition of the Société Nationale des Beaux-Arts, or the rival Salon, will contain 2,608 pictures, or 165 more than last year. There are 1,922 paintings and drawings, 512 examples of sculpture and *objets d'art*, 172 engravings and 102 architectural designs.

Mr. Bertram Mackennal, an Australian sculptor, has received the commission to execute the memorial to Queen Victoria which is to be erected at Blackburn. Mr. Mackennal was for a time a student at the Royal Academy, but it was before day classes for sculptors were established in the schools. He continued his studies in Paris, where he exhibited several times in the Salon.

DESIGN FOR MONUMENT

AT CLASNEVIN CEMETERY

TO

THE RIGHT HON^{BLE} SIR RICHARD MARTIN BART. D.L.

ixθyς
ιησους χριστος θεου υιος γεννη
τε *χρ* = *κ* the Labarum of Constantine.
ιης = *ih̄s*. = also *Jesus* hominum *Salvator*.



IN IHS = IHS
C = E

MONAGRAMS—
ON
—BASE OF CROSS—



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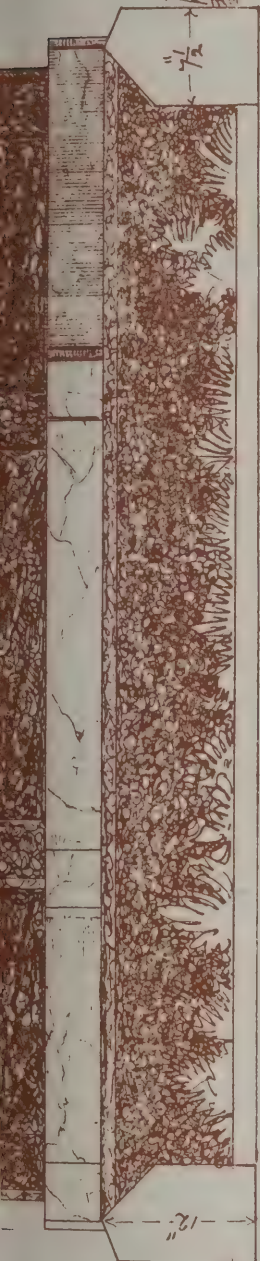
MONAGRAMS—
ON
—BASE OF CROSS—



IN SACRED &
LOVING MEMORY OF
THE RIGHT HON
SIR RICHARD MARTIN
BART. D.L.
BORN 17 MCH 1831
DIED 18-OCT 1901.

-INSCRIPTION-
-PANEL-

-ALTERNATIVE-
-PANEL-



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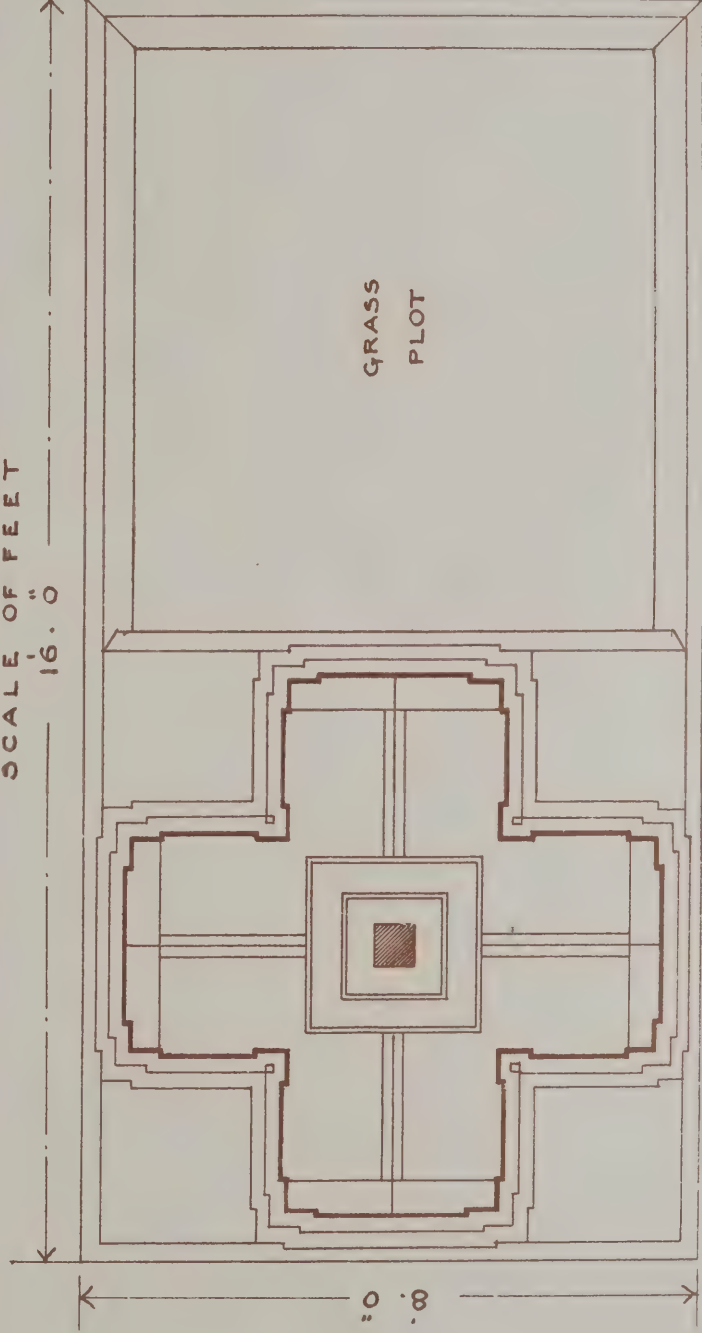
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Thos Manly Deane
Die & Int
14 Jan. 1902

ELEVATION



SCALE OF FEET

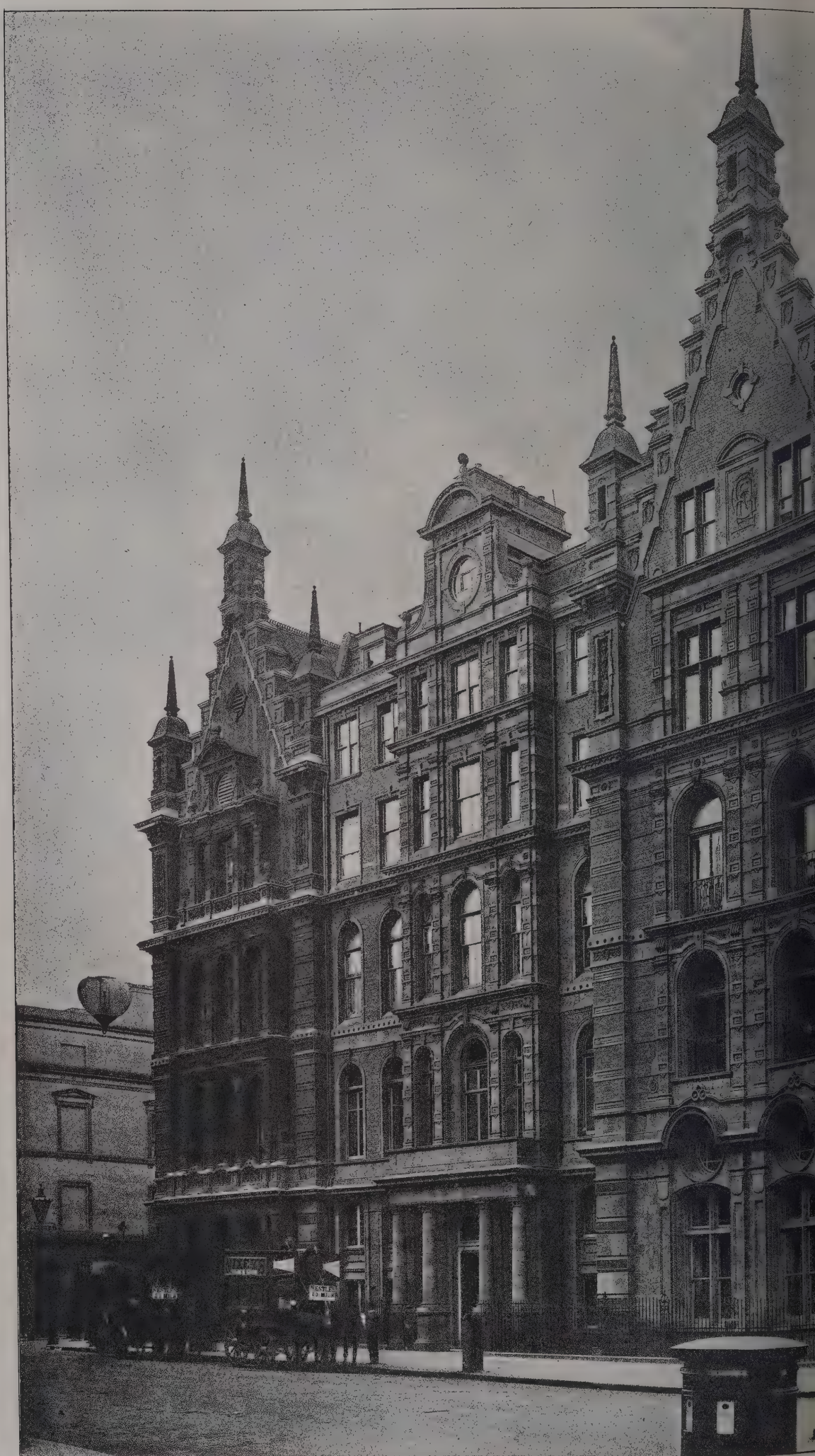


GROUND PLAN



SCALE OF FEET

THOS MANLY DEANE ARCHT
DUBLIN.



GREAT EASTERN

Col. R

7th 1903.

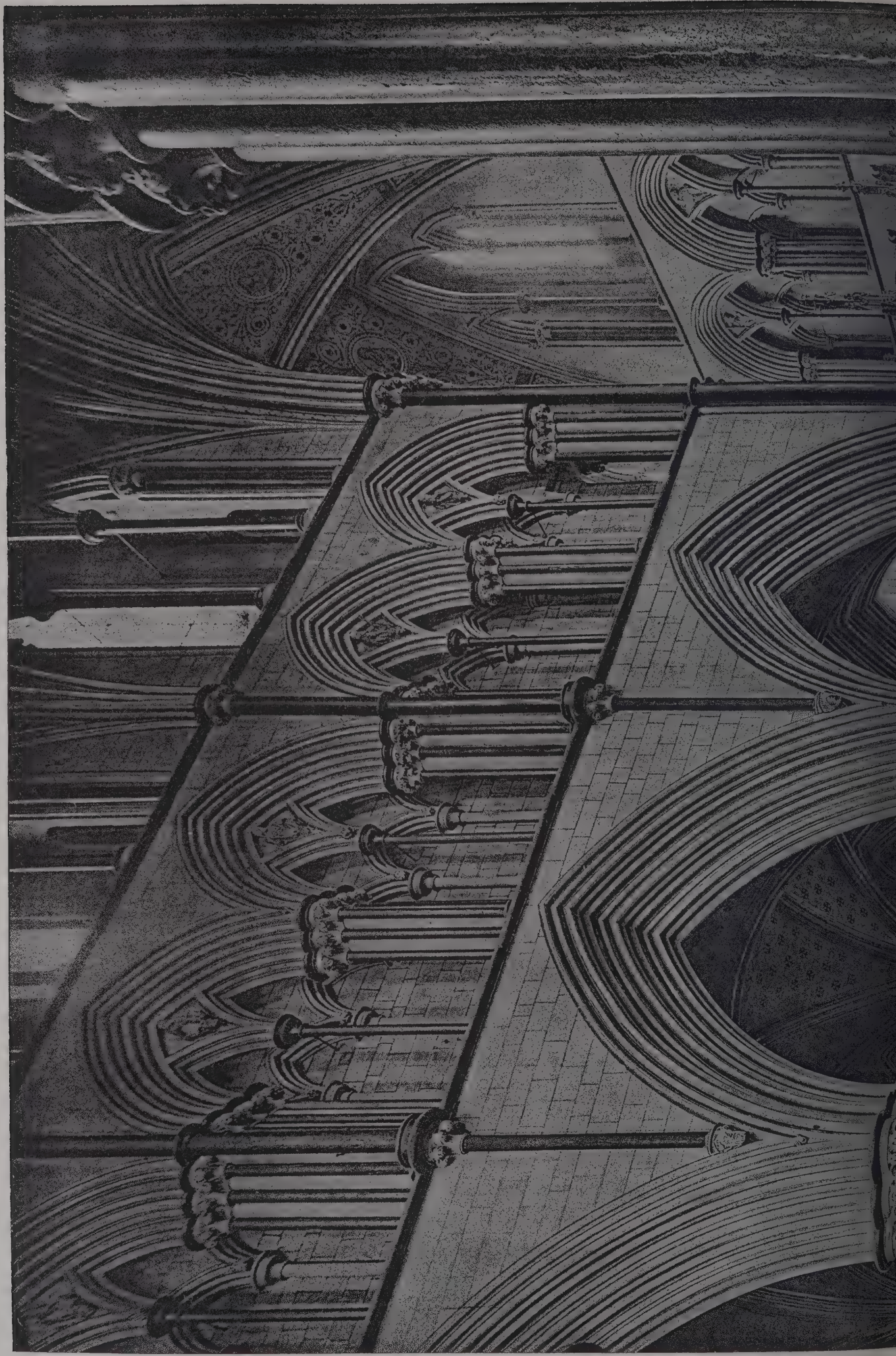


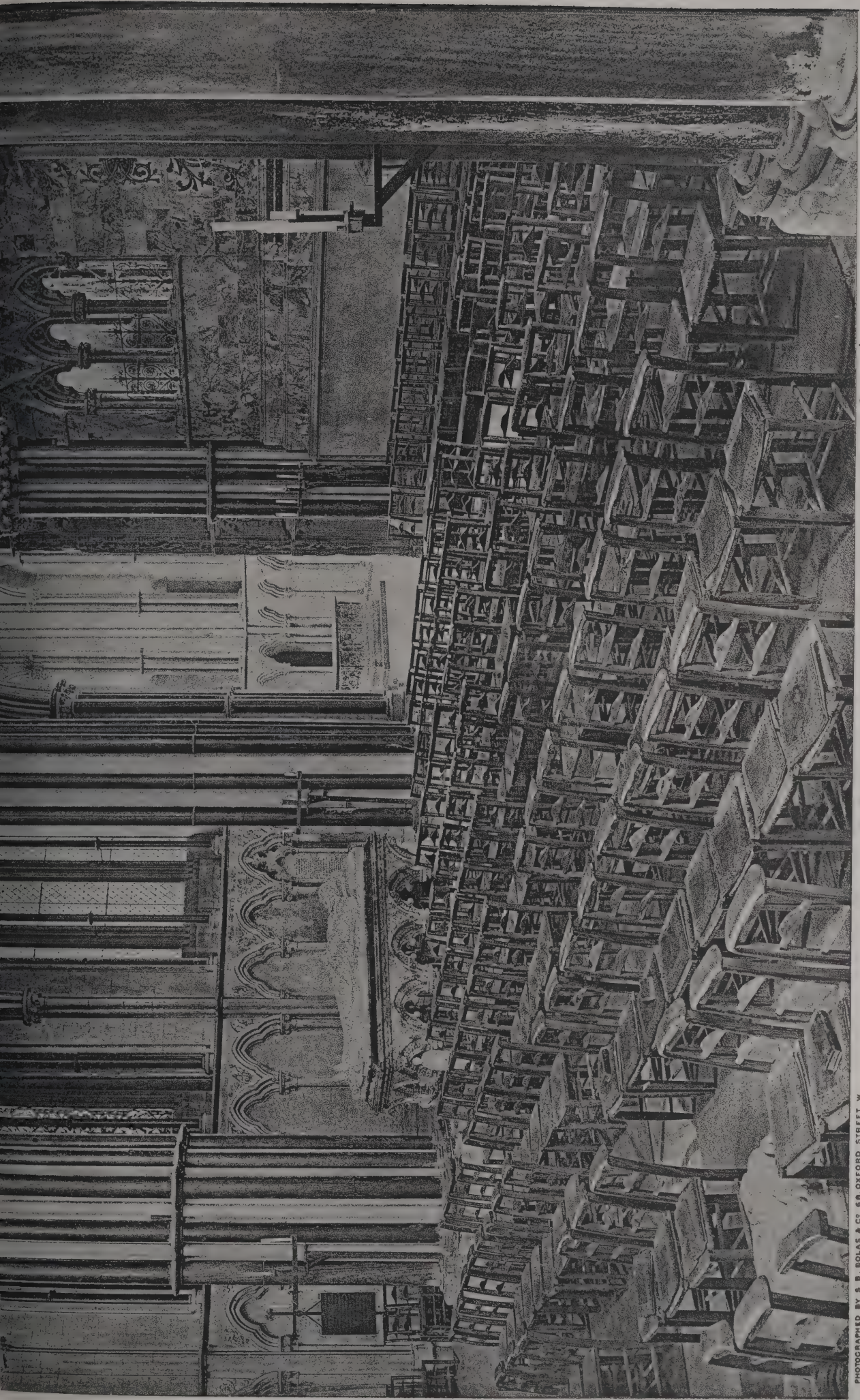
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POOL STREET, E.C.

rchitect.

The Architect, April 17th 1903.





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CATHEDRAL SERIES, No. 442.—WORCESTER: FROM LADY CHAPEL, LOOKING INTO SOUTH-EAST TRANSEPT.



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1903.



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THE DRAWING-ROOM.

THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—June 30.—The Corporation of Blackpool offer premiums of £100, £50, £30 and £20 respectively for designs for new picture poster. Mr. C. Noden, Corporation advertising manager, Town Hall, Blackpool.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60*l.* and 30*l.* are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000*l.* Premiums of 75*l.*, 50*l.* and 25*l.* respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

NEW BROMPTON (KENT).—May 30.—Designs and plans are invited in competition for public swimming and slipper baths to be erected in Windsor Road, New Brompton. Three premiums are offered, one of £20 to the author of the design which is considered to be the first in order of merit, one of £10 and one of £5 respectively for the second and third. Mr. F. C. Boucher, clerk, New Brompton, Kent.

STOCKTON-ON-TEES.—May 13.—Designs are invited for a girls' high school, to be erected as a memorial of Her late Majesty Queen Victoria, at a cost not exceeding 5,000*l.* Premiums of 25*l.*, 15*l.* and 10*l.* respectively will be awarded. Mr. C. J. Archer, 77 High Street, Stockton-on-Tees.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100*l.*, 50*l.* and 25*l.* will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

CONTRACTS OPEN.

ALNWICK.—For the erection of a house at Alnwick. Mr. George Reavell, jun., architect, Alnwick.

ALNWICK.—April 20.—For the erection of a villa residence at Alnwick. Mr. William T. Spence, architect, Ashmount, Shotley Bridge.

ASKERN.—For the erection of stabling for nine horses, sheds and other buildings to the Railway hotel, Askern, Yorks. Messrs. Garside & Pennington, architects, Ropergate House, Pontefract.

BAILDON.—April 23.—For the erection of a house at Baildon, Yorks. Messrs. Walker & Collinson, architects, Swan Arcade, Bradford.

BALLIDON.—For the erection of extensive farm buildings, &c., at Ballidon, Derbyshire. Messrs. William Sugden & Son, architects, Leek.

BISHOP AUCKLAND.—April 20.—For the erection of seven workmen's houses with outbuildings at Cockton Hill, Bishop Auckland. Mr. R. Askwith, engineer, South Road, Bishop Auckland.

BLACKBURN.—April 22.—For rebuilding the Punch Bowl hotel, Chapels, Darwen, and reconstructing the Cross Guns hotel, Church; Swan hotel, Blackburn, and York inn, Broadfield, Oswaldtwistle. Mr. Jas. Bertwistle, architect, Tacketts Street, Blackburn.

BLACKPOOL.—April 22.—For the erection of ornamental shelters and bandstands in connection with the promenade widening works. Mr. John S. Brodie, borough surveyor, Town Hall, Blackpool.

BRIDLINGTON.—May 9.—For the erection of engine-room, boiler-house, boiler settings, chimney-shaft and offices. Mr. Ernest R. Matthews, borough surveyor, Town Hall, Bridlington.

BRIDPORT.—April 29.—For the erection of a 13-bed iron hospital at Bradpole, near Bridport (G.W.R.), Dorset, with commodious administration block, foundations, baths, earth-closets, grate, and furnished complete for occupation, water storage 150 gallons; and for the erection and fixing of an iron building with foundations at Bradpole, nearly adjoining the last-mentioned building, to contain ambulance, mortuary, laundry, coal and disinfecting chambers, with earth-closets, water storage 150 gallons. Mr. John J. Roper, Rural District Council clerk, 74 East Street, Bridport.

BRISTOL.—April 24.—For the construction of four underground concrete electrical sub-stations. Mr. H. Faraday Proctor, city electrical engineer, Temple Back, Bristol.

BRISTOL.—April 28.—For alterations and additions to a shed at Pylle Hill, Bristol, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

BURY.—May 4.—For the Blackford Bridge improvement works, comprising the taking-down of the present bridge and the construction of a new skew masonry bridge 50 feet between parapets, 66 feet span, with retaining-walls, road formation, &c., for the Joint Committee of the Lancashire County Council and the Corporation of Bury. Particulars may be obtained at the County Bridgmaster's Office, Preston.

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CAMBERWELL.—May 12.—For the erection of public baths and washhouses in Old Kent Road. Mr. E. Harding Payne, architect, 28 John Street, Bedford Row, W.C.

CANNOCK.—April 22.—For the repairs to the flooring of and provision of wood-block flooring at the old infirmary at the workhouse, Cannock, Staffs. Mr. A. W. Carver, clerk, Union Offices, Cannock.

CLEATOR MOOR.—April 20.—For raising roof, making an additional storey and building additional out-premises at 79 High Street, Cleator Moor, Cumberland. Mr. L. Billington, High Street, Cleator Moor.

CLEATOR MOOR.—April 30.—For alterations and additions of a classroom for St. Patrick's schools, Cleator Moor. Mr. R. Robertson, architect, Public Offices, Cleator Moor.

DUKINFIELD.—For the erection of ten houses in Grenville Street, Dukinfield. Messrs. George & Son, architects, Old Square, Ashton-under-Lyne.

DURHAM.—For the erection of house and shop at Stanley. Mr. John G. Grundy, 24 Simpson Street.

DURHAM.—April 23.—For the erection of eleven dwelling-houses upon the Alergate Building estate, Durham. Mr. George Ord, architect, 16 The Avenue, Durham.

EASTBOURNE.—April 25.—For the erection of a fire-station Grove Road, Eastbourne. Mr. Philip A. Robson, architect, Palace Chambers, 9 Bridge Street, Westminster, S.W.

EXMINSTER.—May 1.—For erection of female observation ward, male infirmary, and No. 5 male ward, at the Devon county asylum, Exminster. Mr. E. H. Harbottle, County Chambers, Exeter.

FOWEY.—April 29.—For the erection of a masonry light-house tower upon a site near St. Catherine's Point, at the entrance to the harbour of Fowey, in the county of Cornwall. Mr. W. J. Graham, clerk to the Fowey Harbour Commissioners, Harbour Office, Albert Quay, Fowey.

GUILDFORD.—April 20.—For repairs and painting at the Anglican and Nonconformist chapels, caretaker's lodge, &c., at the Guildford Cemetery. Mr. A. J. Sturges, architect, 25 High Street, Guildford.

HALIFAX.—April 23.—For the erection of a farmhouse at Westercroft, Northowram. Messrs. Walsh & Nicholas, architects, Museum Chambers, Halifax.

HALIFAX.—April 24.—For the erection of four shops, work-rooms, offices, warehouse, stable, &c., in Horton Street,

Halifax. Messrs. Walsh & Nicholas, architects, Museum Chambers, Harrison Road, Halifax.

HARROGATE.—For the erection of a pair of semi-detached houses in Harlow Oval. Messrs. Bland & Bown, architects, North Park Road, Harrogate.

HEADCORN.—April 21.—For the erection of an Oddfellows' hall at Headcorn, Kent. Messrs. Jeffery & Lacey, architects, 13 North Street, Ashford.

HEIGHINGTON.—For building a four-roomed house near Heighington station, Durham. Mr. J. Copeland, Post Office, Staindrop.

HOLBEACH.—April 29.—For additions to the infirmary at the workhouse. Mr. Burdett Ward, architect, Wisbech.

HUDDERSFIELD.—April 23.—For the erection of a bungalow, outbuildings, boundary walls, &c., in Grimscar Woods, Huddersfield. Messrs. John Kirk & Sons, architects, Huddersfield.

HULL.—April 21.—For the erection of a junior department at the Northumberland Avenue Board school. Mr. W. Stephens, Penygarn, Carmel, Llandebie.

HULL.—May 1.—For the foundationwork of the Beverley Road baths. Mr. A. E. White, city engineer, Town Hall, Hull.

ILFORD.—April 28.—For the erection of buildings, &c., and chimney for the new boiler plant at Ilford, Essex. Particulars can be obtained from the Engineer, Engineer's Office, Gasworks, High Road, Ilford.

IPSWICH.—April 23.—For the erection of a probationary house, Britannia Road, Ipswich. Mr. Henry J. Wright, architect, 4 Museum Street, Ipswich.

IRELAND.—April 21.—For the erection of a sessions house at Larne. Mr. Samuel Robinson, assistant surveyor, Barnhill, Larne.

IRELAND.—April 22.—For improvements to St. Patrick's Church, Donaghmore. Mr. Edward J. Toye, architect, 20 Great James Street, Londonderry.

IRELAND.—April 22.—For the erection of a belfry at Craigavole Church, co. Derry. Mr. Edward J. Toye, architect, 20 Great James Street, Londonderry.

IRELAND.—April 23.—For the erection of a parochial residence in Cookstown. Messrs. E. & J. Byrne, architects, 4 Waring Street, Belfast.

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IRELAND.—April 29.—For the erection of a fever hospital in workhouse grounds, Claremorris. Mr. John Ritchie, architect, Ballinrobe.

KENDAL.—April 24.—For alterations and additions to Birks, Sedbergh. Mr. Stephen Shaw, architect, 48 Highgate, Kendal.

KENSINGTON.—April 20.—For erection of a chapel of rest for the dead at Avondale Park, North Kensington. The Town Clerk, Town Hall, Kensington.

KIRKBY-IN-FURNESS.—April 30.—For the restoration of St. Cuthbert's Church tower, Kirkby-in-Furness. Mr. J. Standen-Adkins, architect, 3 Maze Row, Kew.

LEEK.—May 2.—For the erection of an electric-lighting station in Station Street, Leek. Mr. John Taylor, architect, Leek.

LONDON.—April 20.—For construction of underground conveniences in Offord Road by Caledonian Road, N. Mr. J. Patten Barber, Town Hall, Upper Street, N.

LONDON, E.—April 21.—For the erection of a new sorting-office at Manor Park, E., for the Commissioners of H.M. Work and Public Buildings. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, &c, Storey's Gate.

LONDON.—April 22.—For erection of a disinfectant house and greenhouse and the formation of a drying-ground and refuse-stalls at the Tooting Bec Asylum, Tooting Bec Common, S.W. Messrs. A. & C. Harston, architects, 15 Leadenhall Street, E.C.

MANCHESTER.—April 29.—For putting-in the foundations of the proposed chief fire station and police station in London Road, Fairfield Street, Whitworth Street and Commercial Street. Mr. William Windsor, surveyor, 37 Brown Street, Manchester.

MANCHESTER.—April 21.—For the erection of a goods shed at the dépôt at Trafford Park, Manchester, for the Lancashire and Yorkshire Railway Company. Mr. R. C. Irwin, secretary, Hunt's Bank, Manchester.

NORTH BERWICK.—April 30.—For the erection of new gasworks, for the North Berwick Town Council. Mr. A. D. Wallace, town clerk, North Berwick.

OLDHAM.—April 28.—For the erection of public baths in Chapman Street and Humphrey Street, Lowermoor. Messrs. Groome & Grant, architects, 2 St. Peter's Square, Manchester.

PLYMOUTH.—April 21.—For the erection of a police and fire station at Ford Park, Mutley, Plymouth. Mr. James Paton, borough engineer and surveyor, Municipal Offices, Plymouth.

PORTSMOUTH.—May 5.—For the erection of a technical institute and free library in Park Road. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea.

PRESTON (LANCS).—May 4.—For the construction of a new skew masonry and brick bridge, 24 feet between parapets and 10 feet span, with the approaches thereto and diversion of the stream. The Clerk of the County Council, Preston.

RAVENSTHORPE.—April 21.—For the erection of eight workmen's dwellings at Netherfield Road, Ravensthorpe, Yorks. Mr. John Wm. Burrows, architect, Birstall.

ROWLEY REGIS.—April 20.—For erection of the Siviter's Lane Board school at Rowley Regis, for 300 boys and girls mixed and 300 infants, with cookery, laundry and manual training-rooms, &c. Messrs. Meredith & Pritchard, architects, Bank Buildings, Kidderminster.

ST MARY BOURNE.—May 1.—For the extension of the cloakrooms at the schools, St. Mary Bourne, Hants. Mr. Spencer Clarke, clerk, Whitchurch, Hants.

SCOTLAND.—April 20.—For the erection of goods shed at Kelvinbridge, for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

SCOTLAND.—April 22.—For the erection of public library buildings at West Calder. Mr. William Baillie, architect, 223 Hope Street, Glasgow.

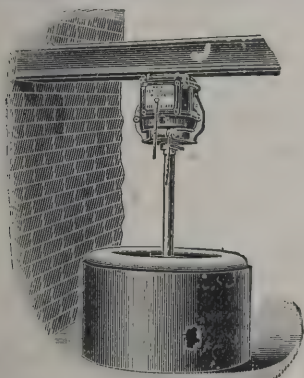
SCOTLAND.—April 27.—For the erection of sanitary conveniences at the docks. Mr. R. Gordon Nicol, harbour engineer, Aberdeen.

SCOTLAND.—April 27.—For the erection of a tenement of houses, offices, show and store-rooms, workshops, &c., at Assembly Street, Leith. Mr. James M'G. Jack, clerk, 25 Waterloo Place, Edinburgh.

SCOTLAND.—April 30.—For alterations and additions to the steadings at Posnet, Cairnie and Brownhills, Aberdeen. Messrs. Alex. Stronach, jun., & Son, advocates, 20 Belmont Street, Aberdeen.

SHILDON.—April 24.—For alterations and the reseating of the Primitive Methodist chapel, Shildon. The Rev. W. Gelley, 21 Wesley Crescent, Shildon, R.S.O.

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SHOEBURYNESSE.—April 24.—For the erection of an infants' school (to accommodate 200 children), with necessary offices, &c., at Richmond Avenue. Messrs. Burles & Harris, architects, Clarence Chambers, Southend-on-Sea.

SOUTHAMPTON.—April 24.—For the erection of a corn market at the cattle market, Southampton. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

SOUTHAMPTON.—May 4.—For erecting the superstructure of the new electricity supply station on the Western Shore. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

SUNDERLAND.—May 1.—For erection of Whickham Street, electrical sub-station and engine foundations, &c., at the Hylton Road electric-lighting station. Mr. John F. C. Snell, borough electrical engineer, Town Hall, Sunderland.

SWINDON.—April 20.—For erection of the engine-house, boiler-house and chimney at the waterworks at Ogbourne St. George, Wilts. Specification, &c., can be obtained on application to the Borough Surveyor, Town Hall, Swindon.

TAMWORTH.—April 20.—For erection of an infirmary at the workhouse. Mr. Jas. Wm. Godderidge, architect, 4 Bolebridge Street, Tamworth.

TINTAGEL.—For the erection of a house at Tintagel, Cornwall. Mr. J. Augustus Souttar, architect, 41 Bishopsgate Street Within, E.C.

TORKSEY.—April 28.—For demolishing the existing chimney-shaft and boundary-wall at the Torksey engine-house, and the erection of new shaft, 90 feet high, with flues to connect same with boilers, new boundary-wall, timber bridge, &c. Messrs. Herbert Walker & Son, engineers, King Street, Nottingham.

WALES.—For the erection of a hall, High Street, Neath, for the Presbyterian Church of Wales. Messrs. Habershon, Fawckner & Groves, architects, 14 Pearl Street, Cardiff.

WALES.—April 20.—For erection of a Congregational church and school at Pontypool. Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport, Mon.

WALES.—April 21.—For the erection of schoolroom and classrooms at the rear of Wesley Chapel, James Street, Ebbw Vale. Mr. R. L. Roberts, architect, Abercarn.

WALES.—April 21.—For renovating the Tabernacle chapel, Haverfordwest. Mr. Arthur H. Thomas, St. Thomas's Green, Haverfordwest.

WALES.—April 23.—For the erection of schoolroom for the trustees of St. Paul's Welsh Wesleyan chapel, Great Darkgate Street, Aberystwyth. Mr. J. Lewis Evans, architect, 21 Great Darkgate Street, Aberystwyth.

WALES.—April 25.—For the adaptation of buildings at Ely schools, Cardiff, for workhouse purposes. Mr. Edwin Seward, architect, Queen's Chambers, Cardiff.

WALES.—April 25.—For the erection of a Welsh Baptist chapel at Pontrhydyfen. Mr. G. P. Davies, architect, Port Talbot.

WALES.—April 27.—For the erection of a school for boys and girls and a school for infants, to accommodate respectively 540 and 396 children, necessary out-offices, boundaries and playgrounds, Abertillery. Mr. R. L. Roberts, architect, Abercarn, Mon.

WALES.—April 29.—For the erection of a mortuary at the workhouse, Pontypool. Mr. T. Watkins, clerk, Club Chambers, Pontypool.

WALES.—April 30.—For the erection of a new C.M. chapel at Carno. Mr. Richard Swancott, Cae-du Cottage, Carno.

WEST WYLAM.—For the erection of fifty workmen's cottages at the West Wylam Colliery. Mr. Sidney Bates, The Grange, Prudhoe-on-Tyne.

WINDERMERE.—April 24.—For addition to the joint hospital buildings. Mr. Robert Walker, architect, Windermere.

YORK.—May 9.—For the erection of engine and boiler-houses, offices, &c., at the electricity generating station. Mr. A. Creer, city engineer, Guildhall, York.

THE Council of the British Archaeological Association having heard of the threatened demolition of a portion of the remains of the town walls of Berwick-on-Tweed, passed at their recent meeting a resolution deploring such a proceeding, and expressing the hope that the municipal authorities will adopt a more enlightened course and refuse to sanction the destruction of the ancient ocular evidence of the history of their town. The walls of Berwick are almost unique at the present day, and forcibly recall to the mind of the observers the past famous history of the ancient borough. To preserve these remains for generations to come is a duty which, it is hoped, the Town Council will not overlook.

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R. Dempster & Sons	1,120	0	0
Drakes, Ltd.	1,115	0	0

BIGGLESWADE.

For alteration in bank premises, High Street, Biggleswade, for the London and County Banking Co., Ltd. Mr. THOS. COCKRILL, architect, Market Square, Biggleswade.

C. Wright	£390	0	0
G. BARTLE & SON, Potton (accepted)	355	0	0

For the erection of a dwelling-house, Sun Street, Biggleswade. Mr. THOS. COCKRILL, architect, Market Square, Biggleswade.

W. Battson	£370	0	0
C. Wright	360	0	0
STONES & SKELTON, Biggleswade (accepted)	355	0	0

BILLERICAY.

For an addition to the reading and recreation-rooms.

A. Woodward	£84	0	0
F. A. Fordham	75	13	9
J. W. WAYLETT, Billericay, Essex (accepted)	75	0	0
F. C. Clark	63	0	0

BRADFORD.

For the erection of woolcombing works in Longside Lane. Messrs WALKER & COLLINSON, architects, Swan Arcade, Bradford.

Accepted tenders.

Roberts & Cottam, Bradford, mason.
Rhodes Bros., Saltaire, joiner.
J. Hodgson, Bradford, plumber.
J. F. Rawnsley, Bradford, plasterer.
Hill & Nelson, Bradford, slater.
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H. Barrett & Sons, Bradford, steelwork.
A. Pulman & Sons, Halifax, cast-ironwork.

BRADFORD—continued.

For the reconstruction of conveniences at the abattoir, St. James's Market.

Accepted tenders.

J. Totty, Bradford, excavator, mason and bricklayer.
F. Robertson, Bradford, carpenter and joiner.
G. Jackson, Bradford, glazier and plumber.

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For the erection of an isolation hospital in Bampton Lane.

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A. Gardam	3,576	0	0
Smallwood & Shaw	3,570	0	0
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J. H. Hudson	3,292	12	0
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J. Sawdon	2,999	0	0
G. STORR & SONS, Bridlington (accepted)	2,910	0	0

For the erection of a house in Station Road. Mr. A. T. MARTINDALE, architect, &c, 66 Wellington Road, Bridlington.

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Hoggard	563	6	0
Sampson & Siddall	540	0	0
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Gardham	481	13	0
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E. CORNE, Bridlington (accepted)	472	10	0

BRIERFIELD.

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W. Sutcliffe	522	11	6
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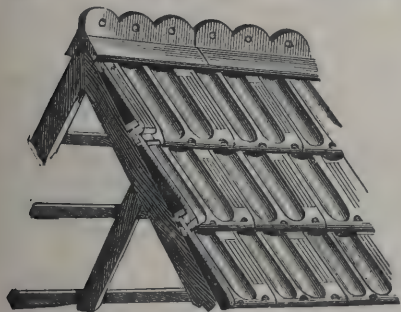
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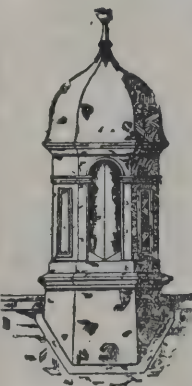
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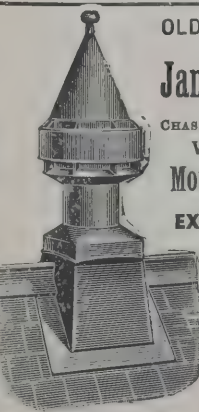
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W. Hutton, Fulneck, near Leeds, excavator, mason and bricklayer.

W. Proctor, Fulneck, near Leeds, carpenter and joiner.

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W. T. Henley & Co., London, underground lighting feeder and connections.

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J. PARSONS & SONS (accepted) . . . £196 0 0

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KETTERING.

For the erection of an electric-light and power station and refuse destructor, and a chimney-shaft for the same, near Rockingham Road.

Electric-light buildings.

F. Barlow	£6,660	0	0
G. Henson	6,639	0	0
J. Parnell & Son	6,512	0	0
A. Faulks	6,400	0	0
C. & F. Henson	6,298	0	0
A. Lewin & Son	6,179	0	0
A. Bamford	6,095	0	0
E. Brown & Son	5,994	0	0
E. HAYCOCK & SONS, Great Glen, Leicester			
(accepted)	5,947	0	0
Kettering Co-operative Builders	5,941	0	0

Destructor buildings.

J. Parnell & Son	2,318	0	0
A. Faulks	2,260	0	0
Kettering Co-operative Builders	2,045	0	0
F. Barlow	2,035	0	0
A. Lewin & Son	2,020	0	0
G. Henson	2,014	0	0
C. & F. Henson	2,010	0	0
A. Bamford	2,004	0	0
E. Brown & Son	1,944	10	0
E. HAYCOCK & SONS, Kettering (accepted)	1,900	0	0

Chimney-shaft.

W. Neil & Co.	2,902	17	3
Blackburn, Starling & Co., Ltd.	1,592	0	0
E. Brown & Son	1,467	10	0
J. Parnell & Son	1,427	0	0
A. Faulks	1,390	0	0
G. Henson	1,250	0	0
E. HAYCOCK & SONS, Kettering (accepted)	1,143	15	0

LONDON.

For the erection of twelve houses at Bissom Road. Mr. J. M. H. GLADWELL, architect, Essex House, High Street, Stratford, E.

A. Kendall	£5,980	0	0
C. North	4,272	0	0
H. E. Jones	4,264	0	0

MENSTON.

For the construction of a new storage reservoir in the parish of Menston, Yorks. Mr. E. J. SILCOCK, engineer, 10 Park Row, Leeds.

J. Barnes	£7,187	0	0
V. Balmforth	5,716	0	0
E. Kellett	5,233	0	0
O. Lister	5,213	0	0
Ward & Tetley	5,116	0	0
Jones & Co.	4,987	0	0
A. Dickenson	4,921	0	0
R. W. Barker	4,868	0	0
Cowling & Son	4,850	0	0
Hird Bros. & Co.	4,800	0	0
Flesher & Sons	4,775	0	0
I. Gould	4,732	0	0
T. Smith	4,685	0	0
Waugh & Sons	4,660	0	0
Braithwaite & Co.	4,624	0	0
M. Hall	4,578	0	0
Egan & Sons	4,460	0	0
T. Young & Sons	4,452	0	0
A. Dixon & Co.	4,425	0	0
T. E. Sugden	4,250	0	0
H. V. ROBINSON, Keighley (accepted)	3,832	0	0

NELSON.

For the erection of a Scotch Baptist school-chapel in Bradshaw and Entwistle Streets, Nelson, Lancs. Mr. HARRY WHITTAKER, architect, 21 Market Street, Nelson.

Accepted tenders.

A. Robinson, Victoria Avenue, Brierfield, mason	£660	0	0
Co-operative Society, Nelson, joinery	330	19	8
Co-operative Society, plumbing, glazing and heating	99	7	0
W. Schofield, Colne Road, Burnley, slater	89	12	3
E. Butler, Barrowford, plasterer	36	5	0
H. A. Jackson & Co., Burnley, electric lighting	22	10	0
R. Clark, York Street, Barnoldswick, painter	20	0	0

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For Index of Advertisers, see page x.

NEW SHOREHAM.

For supply and delivery of about 10,000 yards of cast-iron pipes. Mr. FREDK. SLAUGHTER, engineer, West Street, New Shoreham.

S. Mason	£2,283	0	0
J. & S. Roberts	2,098	0	0
Macfarlane, Strange & Co.	1,931	0	0
Laidlaw & Son	1,901	0	0
Cochrane & Co.	1,895	0	0
Stanton Iron Co.	1,861	0	0
Staveley Iron Co.	1,822	0	0
J. Abbott & Co.	1,820	0	0
Biggs, Wall & Co.	1,786	0	0
Sheepbridge Iron Co.	1,719	0	0
D. M. STEVENSON & CO., Glasgow (accepted)	1,698	0	0

For the laying of about 10,000 yards of water-main, &c. Mr. FREDK. SLAUGHTER, engineer, West Street, New Shoreham. Quantities by the engineer.

Pedrette & Co.	£2,498	0	0
J. & T. Binns	2,445	0	0
A. Wilcox	2,256	0	0
A. G. Osenton	2,121	0	0
S. Mason	2,088	0	0
Jenkins	1,717	0	0
J. G. Pickard	1,656	0	0
W. H. Holman	1,652	0	0
E. Nuttall	1,563	0	0
J. W. Dean	1,541	0	0
P. W. Berttin	1,460	0	0
J. A. Ewart	1,453	0	0
W. A. Small	1,434	0	0
Peerless, Dennis & Co.	1,387	0	0
A. E. Nunn	1,374	0	0
E. H. King	1,210	0	0
M. S. Kitteringham	1,195	0	0
J. H. Macdonald	1,134	0	0
W. L. Meredith	1,099	0	0
C. Mayo	1,094	0	0
STREETERS & TODHUNTER, Godalming (accepted)	1,057	0	0

NORTHALLERTON.

For the erection of three dwelling-houses at Brompton, near Northallerton. Mr. JOHN WALTON, architect, Northallerton.

T. Willoughby	£767	0	0
D. Oakley	675	0	0
Dunning & Willoughby	674	0	0
A. W. Peacock	585	0	0
W. Foster, Northallerton*	578	13	6

* Recommended for acceptance.

PURTON.

For the erection of cattle sheds, cart-house, &c., and repairs to house and buildings at Restrop Farm, near Purton, Wilts. Mr. ROBERT J. BESWICK, architect, 35 Regent Street, Swindon.

W. WARREN, Chiseldon, near Swindon (accepted)	£467	10	0
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PORTSMOUTH.

For the erection of workshops and offices at Gladys Avenue, North End, Portsmouth.

H. Sweetland	£10,800	0	0
J. Hunt	10,568	0	0
W. W. Evans	9,900	0	0
J. W. Perkins	9,797	0	0
J. Smith & Sons, Ltd.	9,729	0	0
P. H. Dowell	9,425	0	0
W. T. Dugan	9,151	0	0
S. Salter	9,089	0	0
J. Cockerell	8,999	0	0
M. COLTHERUP, 24 Lombard Street, Portsmouth (accepted)	8,150	0	0

SCOTLAND.

For works at the proposed attendants' houses at Woodilee Asylum, Lenzie, Glasgow.

Accepted tenders.

W. Fletcher, Kirkintilloch, mason	£1,862	10	6
Wither & McNab, Kirkintilloch, joiner	1,334	1	0
Steel & Wilson, Glasgow, plumber	449	0	0
J. & A. Williamson, Kirkintilloch, plasterer	347	2	0
J. Fraser, Kirkintilloch, slater	241	13	0
J. Montgomery, Kirkintilloch, painter	163	8	10

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SCOTLAND—continued.

For (A) laundry machinery, (B) painting and paperhanging at western district hospital, Oakbank, off Possil Road, Glasgow.

Painting.

A. Jordan	£1,689	1	3
T. Lawrie & Co.	1,627	14	8
MacFarlane & Smith	1,598	11	8
Hobbs & Samuels	1,446	14	0
A. Bankier & Co.	1,389	13	9
J. Paul & Sons	1,316	2	2
W. Horne	1,260	19	6
McCulloch & Co., 154 West Regent Street (accepted)	1,169	13	8
J. Duncan	1,116	13	8
J. Edgar	1,110	0	10
J. McLuskie	1,067	17	0
P. McKerracher	977	17	2
C. Paton	961	1	2

Laundry machinery.

D. & J. TULLIS, Kilbowie Ironworks, Clydebank (accepted)

1,125 10 0

For electric wiring and fittings for the Western District hospital at Oakbank, off Possil Road, Glasgow.

McCulloch, Potter & Co., 127 West Regent Street (accepted)

£1,300 0 0

For the erection of parapet walls and iron railings to enclose portions of the site of new general hospital at Stobhill, Springburn, Glasgow.

J. J. & P. McLACHLAN, Larbert (accepted)

£551 4 0

For the erection of a cottage at Bothwell Park, near Bellshill. Mr JAMES DAVIDSON, architect, Academy Street, Coatbridge.

Accepted tenders.

Miller & Renwick, Bothwell, builder	£411	0	0
E. N. Harvie, Bellshill, joiner	241	0	0
G. Fleming, Bothwell, plumber	100	0	0
M. Cameron, Uddingston, plasterer	56	16	11
J. Young, Bellshill, slater	41	13	6
A. K. McLeod, Coatbridge, painter	20	17	2

SHEFFIELD.

For the erection of five dwelling-houses and conveniences in Loxley New Road, Malin Bridge, Sheffield. Messrs. HALL & FENTON, architects, 14 St. James's Row, Sheffield. Quantities by the architects.

J. Bertram	£1,610	15	0
J. Robertson	1,494	0	0
R. S. Saville	1,225	2	6
R. Charlesworth	1,213	17	0
W. Ainsley	1,123	18	0
J. Reed	1,103	0	0
C. Earl	1,090	0	0

M HANCOCK, 71 Roebuck Road, Crookesmoor (accepted)

1,081 0 0

For the erection of stabling, &c., to the Falstaff inn, Wicker and Willey Street, Sheffield. Messrs. HALL & FENTON, architects, 14 St. James's Row, Sheffield. Quantities by the architects.

C. H. Gillam	£943	0	0
J. Mastin & Son	925	0	0
G. Allen	915	0	0
A. Bradbury	901	13	0
E. Moore	877	10	0
T. MARGERRISON, Church Street, Dronfield (accepted)	877	0	0

STAINLAND.

For the supply of 50 lamp-posts, 50 street lamps and accessories complete.

BAXENDALE & CO, Miller Street, Manchester, £2 11s. per lamp complete (accepted)

WALES.

For the erection of twelve workmen's dwellings at Penmaen-mawr, North Wales. Mr. RICHARD DAVIES, architect, Bangor.

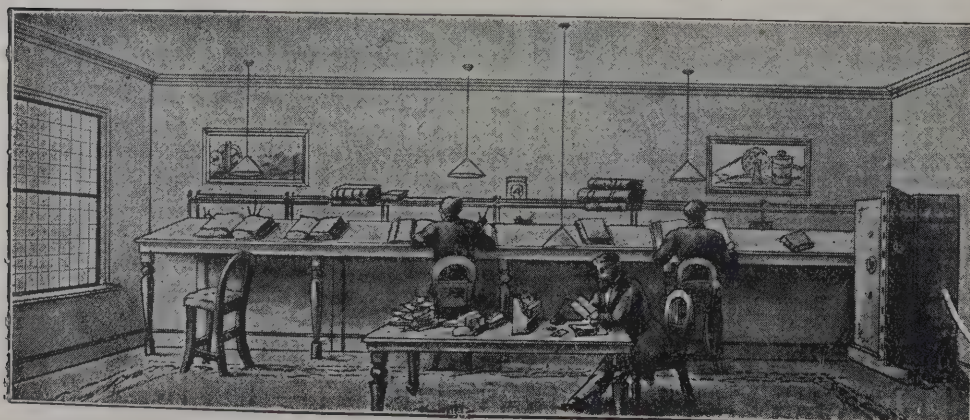
Jones & Prichard	£2,921	0	0
Roberts Bros.	2,916	0	0
Roberts & Owen	2,581	2	8
R. G. Williams, Llanfairfechan *	2,052	0	0
W. G. Williams	1,829	12	8

* Amended tender, with four of the houses reduced in size, £1,956 (accepted).

WILSON'S PATENT "MULTILUX" WINDOWS



The above illustrates an office where the light coming from the sky falls on to the floor and is absorbed, thus leaving the back part of the room dark. The illustration below shows the same room with WILSON'S PATENT MULTILUX WINDOW fixed. This refracts the rays of light and throws them horizontally, thus preventing them falling on to the floor, and lighting up the whole room.



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WALES—continued.

For the erection of a villa residence at Llanelltyd, near Dolgelly, North Wales. Mr. RICHARD DAVIES, architect, Bangor.

Masonry.

J. Thomas	£590	0	0
Williams & Roberts	510	0	0
E. EVANS, Dolgelly (accepted)	365	0	0

Carpentry and joinery.

R. Evans	762	0	0
H. Williams	589	9	0
W. & J. Owen	452	0	0
J. ADAMS, Barmouth (accepted)	396	12	6

Slating, plastering and outside plumbing.

J. Williams	247	0	0
H. PARRY, Dolgelly (accepted)	238	0	0

Inside plumbing.

H. EVANS, Dolgelly (accepted)	48	5	0
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For the whole in one contract.

J. P. Lewis	1,202	0	0
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For the erection of a residence at Cemaes, Anglesey. Mr. RICHARD DAVIES, architect, Bangor.

D. Owen, Llandegfan	£1,100	0	0
H & J. Williams, Llanrhuddlad	872	0	0
Jones & Humphreys, Rhosgoch	798	0	0
R. Thomas, Llanerchymedd	784	0	0
O. Thomas, Almwh	765	0	0
H. J. Owens, Cemaes	683	18	6
J. Parry, Llanfechell	666	0	0

WALES—continued.

For the construction of about 6,200 lineal yards of 18-inch and 21-inch stoneware and iron pipe sewers in the Rhymney Valley, Caerphilly, with manholes, flushing chambers, &c. Mr. ALFRED O. HARPUR, surveyor.

T. Rees	£16,093	12	6
W. E. Willis	16,053	0	0
W. T. Davies	15,544	10	6
W. Jones & Sons	14,067	9	2
M. Harding	13,942	8	3
E. Powell	13,237	17	8
A. J. Rossiter	13,222	5	4
J. E. Evans	12,953	13	8
F. F. Howells	12,689	8	4
Barnes, Chaplin & Co.	12,653	5	2
J. Riley	12,448	10	0
G. Rutter	12,447	15	2

For additions to Stelvio, Newport, Mon. Messrs. SWASH & BAIN, architects, Newport.

D. W. RICHARDS, Marlborough Road (accepted)	£1,077	0	0
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For the erection of shops, bakehouse, warehouse, &c, in Llanarth Street, Newport, Mon. Messrs. SWASH & BAIN, architects, Newport.

JERRETT & FISHER, Mellon Square, George Street (accepted)	£2,649	0	0
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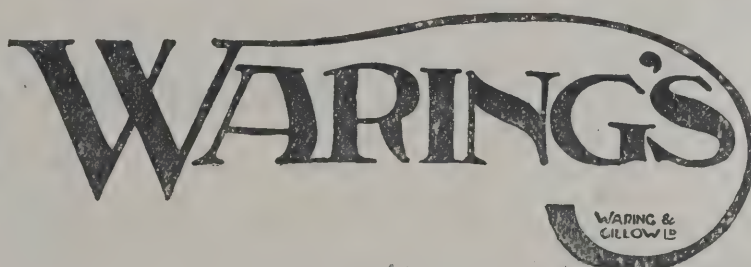
For the erection of a house at Pontlottyn.

T. Davies	£450	0	0
J. Lewis	412	10	0
E. Davies	405	0	0
DAVIES & FRANCIS, Pontlottyn and Barry (accepted)	394	0	0

WALLINGTON.

For alterations to the Windmill public-house. Mr. A. BROAD, architect, 22 George Street, Croydon.

Smith & Sons	£490	0	0
W. Potter	448	0	0
Hanscomb & Smith	435	0	0
Pearson & Co.	429	0	0
Akers & Co	429	0	0
Dawson & Son	407	10	0
E. J. BURNAND (accepted)	389	10	0



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WARRINGTON.

For supply and erection of the following plant:—(Section 12) two water-tube boilers and pipework, (13) two 750-kw. steam dynamos (Willans engines), (14) extension of switch-board.

Accepted tenders.

Babcock & Wilcox (section 12)	£3,282	0	0
Siemens Bros. (section 13)	11,434	0	0
Kelvin & White (section 14)	446	15	0

WEST HARTLEPOOL.

For piling the sea banks between Newburn Bridge and Staincliffe, Seaton Carew. Mr. J. W. BROWN, borough engineer

LEGGOTT & SPEIGHT, Holderness Road, Hull (*accepted*).

WHITLEY.

For the construction of a concrete retaining wall and steps and approach to the beach, with manholes and other incidental works in Whitley Bay, Northumberland. Mr. J. P. SPENCER, architect, 30 Howard Street, North Shields.

Miller	£1,294	0	0
Davidson	1,065	0	0
Thornton & Co.	1,048	0	0
J. & W. SIMPSON, North Shields (<i>accepted</i>)	950	0	0

WINCHESTER.

For the erection of three cottages at Houghton. Mr. THOMAS STOPHER, surveyor, 57 High Street, Winchester.

ANNETT & SONS, Andover (*accepted*) . . . £650 0 0

WOOD GREEN.

For street works in Albert Road (second section) and Prince's Avenue. Mr. C. J. GUNYON, surveyor.

Prince's Avenue.

W. Griffiths & Co., Ltd.	£1,791	0	0
E. T. Bloomfield	1,743	0	0
Grounds & Newton	1,722	0	0
T. ADAMS (<i>accepted</i>)	1,645	0	0

Albert Road (second section).

E. T. Bloomfield	1,498	0	0
W Griffiths & Co., Ltd.	1,482	0	0
Grounds & Newton	1,459	0	0
T. ADAMS (<i>accepted</i>)	1,409	0	0

WINDSOR.

For sewerage works in St. Leonard's Road.

A. H. Reavell	£98	0	0
H. BUNCE, St. Mark's Road (<i>accepted</i>)	97	3	6

WOOLWICH.

For the supply of five water-vans and three water-carts.

GLOVER & SONS, Warwick, water-carts 25*l.* 10*s.* each, water-vans 48*l.* (*accepted*).

WREXHAM.

For the supply of glazed pipes and channel tiles during the year ending Lady Day 1904.

WYNDHAM & PHILLIPS, Delph Works, Ruabon (*accepted*).

WYKE REGIS.

For the sewerage works at Wyke Regis. Messrs. LEMON & BLIZARD, engineers, Southampton.

R. H. B. Neal	£7,667	0	0
J. A. Bartlett	6,894	0	0
Bugbird & Co.	6,203	0	0
F. W. Trimm	5,481	0	0
Streeters & Todhunter	5,288	0	0
A. G. Osenton	5,129	17	3
S. Wood	5,009	10	5
J. T. Whettam, jun.	4,980	0	0
B. Cooke & Co.	4,900	0	0
JESTY & BAKER, Portland (<i>accepted</i>)	4,600	0	0

Received too late for Classification.

MANSFIELD.

For street works in new streets off Westfield Lane and Broomhill Lane, Mansfield. Messrs. VALLANCE & WESTWICK, surveyors, Mansfield.

Fisher Bros.	£842	12	0
W. Cordon	710	0	0
J. & F. L. Parsons	670	0	0
A. F. Houfton	669	0	0
H. Bennett	594	17	0
J. Greenwood	586	0	0
H. Ashley	580	10	0
Lane Bros.	565	10	0
J. Bradley	529	16	0

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Sole Manufacturers of Vyle's Patent (Easily Tested) Lightning Conductors.

Fixed complete by experienced workmen, and their efficiency tested by competent electricians.

DIXON & CORBITT

AND

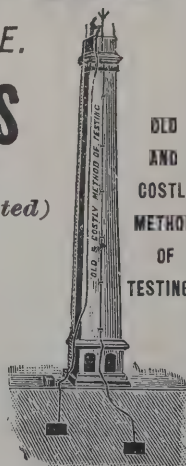
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CARDIFF.

For Index of Advertisers, see page x.

NEW CATALOGUES.

THE British Accumulator Company, of Parliament Mansions, Victoria Street, S.W., are about to issue their illustrated catalogue for 1903, and have sent us an advance copy. It contains a detailed description of the accumulators which are the firm's specialty, lists giving the dimensions and prices of their cells, &c. The Company ask us to mention that they will be glad to forward a copy to any of our readers who are interested in accumulators.

FROM the Dermatine Company, Ltd., of 95 Neate Street, S.E., we have received a catalogue, also illustrated, descriptive of Dermatine and the purposes to which it can be applied. Dermatine is, it appears, a manufactured product composed of various gums and chemicals, the use of which in combination, or, to speak more exactly, in conjunction, was the original idea of Mr. Ziegler, who had for many years occupied himself with trying to find a substitute for gutta-percha. In 1884-85 he took out patents for Dermatine as a substitute for leather, applicable for soles, belts, roller coverings, &c. His original ideas have, however, undergone considerable extension in recent years at the hands of Mr. John Cooper, the present managing director of the Dermatine Company, Ltd. It is now employed for the manufacture of machine belting, circulating and ball valves, brick pads, buffers, hydraulic cup and press pump rings, packing rings, all kinds of hose and tubing, mats and stair treading, &c.; indeed, its uses are multifarious.

TRADE NOTES.

THE partnership existing between Messrs. A. Estcourt & Sons, builders and contractors, Gloucester, was dissolved from January 1, 1903, by mutual consent. The business will be continued by George Oliver Estcourt and H. Percy Estcourt in the name of A. Estcourt & Sons.

MESSRS. POWER, POWER & CO., 5 Philpot Lane, E.C., notify us that they have purchased the goodwill, business and works of Deane, Ransome & Co., Limited, of Plymouth Wharf, Wharf Road, Cubitt Town, E., where they will continue the manufacture of girders, roofwork and constructional iron and steelwork generally as hitherto.

IN consequence of the death of Mr. W. Harry Stanger, we have been requested to announce that the son, Mr. R. H. Harry Stanger, will continue the practice as a consulting engineer with the late Mr. Stanger's colleague, Mr. Geo.

Blake Oughterson, at the same address, 2 Broadway, Westminster.

MESSRS. MATHER & PLATT, LTD., of Salford Iron Works, Manchester, have in hand, or have lately completed, the following plants for dealing with water softening by the Archbutt-Deeley process:—Steel works, 6,000 gallons per hour; colliery, 6,000 gallons per hour; hosiery factory, 4,000 gallons per hour (in each of the above cases the plant supplied is a duplicate of an already existing one previously supplied by Messrs. Mather & Platt, Ltd.); steel works, 16,000 gallons per hour; colliery, 10,000 gallons per hour, as well as other smaller installations. They have also in hand orders for their patent automatic sewage appliances for the following places:—Creswell, Somerset; Brigg, Thornton, and the smallpox hospitals at Troon and Ayr. They have further lately erected three of their patent gravity filters for the water committee of the Hereford Corporation to deal with water from the river Wye, which is subject to high floods at intervals, when the water is very heavily charged not only with clay and similar substances, but also with vegetable fibre. The combined output of the three filters is 1,500,000 gallons per 24 hours, and they have been found most efficient in extracting the matters suspended in the water, even under the exceptional cases of flood mentioned above.

ELECTRIC NOTES.

AT a meeting of the Kilmarnock Town Council on Tuesday, Provost Hood presiding, the draft provisional order for the electric traction scheme was discussed and approved. The estimated cost is 65,000/.

THE electric-lighting committee reported, at a meeting of the Paisley Town Council on Tuesday, that they had considered the report upon the tenders received for supply of engine and alternator, and agreed to recommend the acceptance of the engine and alternator tendered for by Davey, Paxman & Co. (Schuckert Combination), being an exact duplicate of the existing 300-k.w. alternator, at the price of 2,400/.

IT was also agreed that Mr. Parkinson should submit to next meeting a statement of the probable cost, along with plans, of new building proposed to be erected for accommodation of additional plant.

AT a meeting of the Kingswinford Rural Council on Wednesday the Clerk said with regard to the arbitration

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between the Council and the Midland Electric Corporation for Power Distribution, the award was absolutely in favour of the Council's contention on all the points they raised. He had seen officials of the company that day, and they stated that they had spent something like 6,000*l.* in the Council's district in laying cables, and it would cost 7,000*l.* or 8,000*l.* to complete the work. They asked him to tell the Council that in a fortnight's time they would have a definite scheme to put before the Council. The Clerk said the Corporation now realised they had to do the work *in toto* or to pay the Council damages, according to their agreement.

A BODY of about 200 members and students of the Institute of Electrical Engineers, with Professor Thompson at their head, arrived at Como on Friday, April 3, by special train from Switzerland. The mayor, several Government officials, and a number of ladies and gentlemen were in waiting at the station, and as the visitors alighted from the train a band played the English and Italian National Anthems, while all present cheered and shouted "Long live England!" The Englishmen were evidently deeply touched by this spontaneous demonstration. The visitors were driven through the town in a long file of carriages, the procession passing the Volta monument, which was illuminated. In the evening the English electricians were entertained at a concert. On Saturday morning they visited the electrical installations at Valtellina, and on Sunday the grave of Alessandro Volta, where they deposited an artistic bronze memorial tablet sent by the Institute. The visitors were subsequently entertained by the municipality of Como.

THE committee appointed to advise the Bath City Council what to do with the offer made by the Bath Electric Tramways Company to acquire the electric-lighting works on a lease of thirty-two years, has decided practically unanimously to recommend that the offer be not accepted, and that the Corporation do not consider further the question of parting with the works under any circumstances. The offer was to pay to the Corporation, as rental, sufficient every year to pay the interest and sinking fund on the present capital (110,000*l.*), and the company said they would also pay the Corporation, by instalments spread over the period of the lease, the sum of 5,100*l.*, which represents the actual cost to the rates of the undertaking. These two sums together represent an annual rental of 6,660*l.*, but as the Corporation can already rely on a gross profit of that amount the offer was not attractive. The decision not to part with the works commits the Corporation to a further large

capital outlay, probably 50,000*l.* As, however, the Council are not prepared to sanction the immediate outlay of 50,000*l.*, the committee suggest that half of the scheme representing that amount be carried out during the current year, and the balance the following year.

BUILDING AND BUILDERS.

THE foundation-stone has been laid of the Bishop Latimer Memorial Church in Handsworth New Road, Winson Green.

A MOVEMENT is in progress at Putney in the direction of erecting a hospital at a cost of about 20,000*l.*

A TENDER of 596*l.* for the erection of a new Welsh Wesleyan church at Glyndyfrdwy has been accepted. The highest of the four tenders received was 631*l.*

THE erection of the building at Hendon which is to serve as a storehouse for the newspapers at present in the British Museum is to be proceeded with without delay, and it is hoped that within three years the place will be ready for the transfer of the papers to their new home. The total estimated cost, including the purchase of the site, is stated to be 18,000*l.*

It is proposed to build a new parsonage in place of the present building at Royton. The site, hitherto held on a 999 years' lease, has now for a nominal sum been conveyed by the Roman Catholic lord of the manor, Sir Percival Radcliffe, to the vicar and churchwardens for the purpose of a parsonage house. The building is estimated to cost about 1,900*l.*

THE foundation-stone of a new drill-hall which is being erected on the banks of the Rheidol, Aberystwyth, was laid on Tuesday. The drill-hall will be 130 feet long by 68 broad, and will contain rooms for officers, non-commissioned officers and men, harness-room, armoury and a detached magazine.

AT Tipton the memorial-stone was laid on the 13th inst. of the Park Methodist New Connexion church school. The building is connected with the Oldbury circuit, and is situated in close proximity to the Victoria Park. It is being erected by Mr. Walker from plans prepared by Mr. J. Dallow, at a cost of 500*l.*, and will provide seating accommodation for 200 people.

AT a meeting of Kingswinford Rural Council on Wednesday, Mr. Horne presiding, the Clerk read a letter from the Local Government Board relating to the sewerage scheme, for which the Council are asking for a loan of 70,000*l.* The Department had made certain suggestions which the Clerk stated would

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considerably increase the estimated cost of the scheme, and in reply to the Council's request that the Department would receive a deputation they now wrote that they thought no practical advantage was likely to result from an interview, and they asked for written replies to the points to which they called attention. It was resolved that the replies should be drafted at a special meeting of the Council.

THE foundation-stone of an important extension of the Chelsea workhouse, situated off King's Road, was laid on the 8th inst. The new buildings, the contract price of which is £2,825, will provide accommodation for 200 additional inmates, the present workhouse buildings housing from 700 to 800, while the infirmary has beds for about 400. When the new buildings are completed an important object will have been achieved, for the Guardians will be in a position to dispense with the branch workhouse at Fairfield House, Footing. With all the indoor poor at one establishment a great saving in the cost of administration will, it is hoped, be effected. In addition to dormitories and day-rooms for the inmates and mess and recreation-rooms for the officers, the extension will comprise a new board-room and committee-rooms and relief offices.

MR. J. THOMPSON, jun., harbour engineer, Dundee, has issued a report to the members of Dundee Harbour Board on proposals for the improvement and reconstruction of Dundee river jetties at the east end of the harbour. The trustees have provisionally agreed to adopt a system of ferro-concrete piling similar to what obtains at Southampton, and the figures given by the engineer are on the basis of an amended scheme, the original cost being nearly 20,000. The engineer's estimate of the cost of a new wharf on a parallel line 10 feet further into the river is put at 13,900, with 8,500 for warehouses and the cost of dredging, making a total of 22,400. On a plan showing the wharf extended into the river 15 feet the cost is put at 13,200, the wharf proper costing 14,700, and warehouse and dredging 8,500, while at a line 110 feet further into the river the total cost would be 30,500, 18,000 being required for the wharf and 12,500 for warehouse and dredging. In the report it is stated that probably the most suitable plan would be that estimated at 23,200.

At a recent meeting of the Worcester City Council the order of Mr James Dickson, of Townsend, St. Albans, for £841, was accepted to carry out the necessary outfall sewers and provide an iron tunnel beneath the bed of the Severn, con-

taining duplicate syphons to carry the sewage to the Bromwich site for treatment. The Council discussed at some length what method should be adopted for the treatment of the sewage. The Local Government Board have already sanctioned a scheme for the chemical precipitation in tanks and coke breeze filters, the total cost of which is estimated to be 44,792. Compared with this, Messrs. Beesley, Son & Nichols, the engineers of the scheme, estimate the cost of the works necessary for septic treatment at 111,369, but whereas the annual cost of the chemical treatment would be 1,247, that of the septic treatment would be only 150. Capitalising the annual cost in each for thirty years, and adding to the capital cost, the respective amounts are:—Chemical precipitation treatment, 82,022; septic treatment 115,869. A very much larger area of land would also be necessary than that provided for the original scheme. A proposal by the Mayor that the scheme for chemical precipitation be proceeded with was defeated in favour of an amendment by Alderman J. Millington, that the question of treatment be deferred with a view to obtaining further information.

VARIETIES.

DINGWALL Town Council have resolved to offer a site for a public monument to the late Major-General Sir Hector Archibald Macdonald.

A NEW school is shortly to be built at Crayford, Kent, the architect for which is Mr. Morgan, of 43 Cannon Street, London.

THE City Temple is to be closed in June next for the purpose of renovating the building and the introduction of a new and up-to-date system of heating and ventilation.

A PRIVATE view of picture-miniatures painted by Mr. Charles Sainton, R.I., is to take place in the Quest Gallery, 172 New Bond Street, W., on Tuesday, April 21. The collection will include the paintings on ivory by Mr. Sainton that are the properties of H.M. the Queen and of H.R.H. the Prince of Wales. In order to show the manner in which the artist works, the original studies made for the picture-miniatures are to be on view. Further, in the collection will be included a few of the artist's water-colour drawings and some of his smaller pictures in oil.

MR. J. MILLER CARR (of Messrs Doulton's, Ltd.) will read a paper before the Society of Architects next Thursday. The

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subject will be "Modern Terra-cotta, Constructional Faience and Ceramic Mural Decoration." The lecture will be illustrated by working details, cartoons, photographs and actual examples of work.

THE great screen organ in York Minster, which has been rebuilt at a cost of nearly 5,000*l.*, was on Wednesday morning dedicated by the Archbishop of York, and reopened by Sir Walter Parratt, Master of the King's Music and organist of St George's Chapel, Windsor. The work of rebuilding has occupied twelve months, and the organ is now considered to be one of the finest in the country.

ARCHITECTS who have designed fire-stations are requested to communicate with Mr. Frederick R. Farrow, F.R.I.B.A., of 29 New Bridge Street, E.C., not later than Saturday, April 25, with the view of the possible exhibition of perspectives, elevations, photographs, or plans of modern stations in the architectural group of the impending International Fire Exhibition at Earl's Court.

A REREDOS has just been erected in the church of St. Michael and All Angels, Howe Bridge, from designs of Messrs. Austin & Paley, the architects of the church. The reredos is of Italian marble, the upper part of the panels being filled with mosaics executed in Venice from designs of Messrs. Shrigley & Hunt. On each side of the reredos arcading in red Devonshire marble extends to the north and south wall of the chancel. Lieutenant-Colonel Philip Fletcher, the donor, has also presented a new brass altar cross. These gifts were dedicated on Easter Eve.

A MEETING of the East of Scotland Engineering Association was held on the 25th ult. at 18 George Street, Edinburgh, Mr. J. D. Gibson presiding, when a paper was read by Mr. James Pirie, C.E., on "The Protection of Iron and Steel Structures." The necessity for protecting such structures from oxidation was pointed out, and most of the ordinary methods of doing so described. The advantages and disadvantages of the various materials used for the different paints were gone into, the author stating a preference for red lead as an under coating, finished with iron oxide. The imperative necessity of having a perfectly clean surface to paint and the usefulness of the sand blast for insuring this was also remarked upon. Mr. Pirie was awarded a hearty vote of thanks for his paper. Mr. C. J. Brown, C.E., exhibited and described a number of lantern views of railway work, principally of bridge renewals and similar matters.

CORPORATION CONTRACTS.

AT the Ayr Town Council meeting a discussion took place regarding the Town Clerk's fees for legal contracts in connection with Corporation work. A minute of the finance committee bore that the contractors for the heating of the town hall had requested the Corporation to relieve them of the half of the expense of the contract, but the committee refused to entertain the application. Bailie Allan proposed that their schedules in future, over and above indicating that contractors would have to enter into a legal contract, they should state the sum they would probably have to pay. It was evident that firms had been misled as to the sums they would have to pay. It touched his (Bailie Allan's) honour to some extent; he felt a little ashamed of, although he was only guilty in a corporate capacity. They were carrying out a practice somewhat original and singular. Certainly if it was not original it was unrivalled in the charge made for these documents. It would be more creditable if they could state in their schedules the amount to be paid. Mr. Craig said he understood it was stated in the schedule. Provost Templeton said it was stated that they would require to pay half the cost. Bailie Tait said it was explained that the sum could not be ascertained till the contract was completed. Deacons of Guild Allan thought the proper way would be for the town to pay the whole sum. If they adopted Bailie Allan's suggestion contractors would put that in the schedule, and the contract would be to that extent higher. Mr. T. Young thought it would be a good plan to have a scale of charges and a note fixed to every specification. He had suggested this long ago. The Provost said that might be a better plan. He moved that it be remitted to the sub-finance committee to draw up a scale, and report to the finance committee.

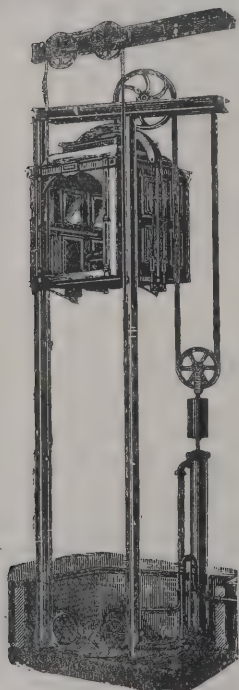
The Town Clerk (Mr. A. G. Young): I object to this drawing up of scales, because you have no power to do anything of the kind. Bailie Allan states that I charge more than the ordinary fees. I give a distinct denial to that.

Bailie Allan: I never said anything of the kind.

The Clerk: You insinuated that I did; you said it was abnormal.

Bailie Allan: I said we were evidently carrying out a practice different from any other Corporation, but I never for a moment insinuated that Mr. Young charged higher than other firms for if he did such a thing why the auditor would check that; once.

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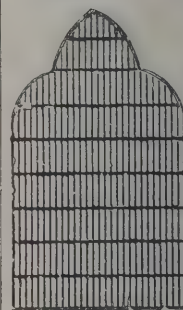
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The Clerk: Show me any Corporation that is charged different from us.

Baillie Allan: Tell me any Corporation that charges at all have been challenged to do so before.

Mr. Craig: In view of what has taken place I think this discussion should drop. The matter was then allowed to drop.

EGYPTIAN WORKS.

his report on Egypt and the Soudan Lord Cromer says that on previous occasions he alluded to the great want of public buildings in Egypt. No less than £E1,078,000 has been spent on the construction of these buildings during the past six years, but large sums of money must yet be expended before it can be said that all the departments of the State are properly supplied. The demands for new buildings are, indeed, increasing year by year. The question of repairs and maintenance is also becoming one of much importance. Nearly £10,000 was spent under this head during the past year, and this large amount of money is quite inadequate to meet the necessities of the case. The amount spent on new buildings in 1902 was £E154,000. The Egyptological Museum in Cairo was completed. The Arab Museum and Khedivial Library were well advanced; the transfer of the collections has commenced. The Agricultural College is practically finished. The construction of the School of Law is well advanced. The offices of the Governor, as also the new Post Office at Port Said, are both nearly completed. A sum of £E15,000 was spent on model workshops at Cairo. The tobacco store and customs warehouses at Alexandria were completed. Several courts, prisons and Government offices were constructed in the provinces.

The cadastral survey progressed steadily in 1902. The surveys of the provinces of Menoufieh and Fayoum have been completed, and those of Galioubieh and Dakahieh commenced. The completion of these two latter provinces, the whole of the Delta will have been surveyed. The triangulation of the Matruh and Girgeh provinces has also been commenced. The Meteorological Service has furnished daily weather reports; telegrams are exchanged daily between Alexandria and various Mediterranean ports. It is hoped that very shortly this communication will be extended to Cyprus. The new observatory at Helouan have just been commenced. The work of the Geological Survey has consisted mostly of collecting geological specimens from the Eocene strata of the western desert.

Parties have also been engaged in an examination of the cataracts and of the desert lying to the east of Cairo.

The Caisse de la Dette granted £E20,000 some while ago to be spent on improving the streets of Cairo. Some delay occurred in deciding how the money should be employed. The question has, however, now been settled. The sum allotted will enable about two miles of road to be laid down with asphalt. There will for the time being be no increase in the cost of maintenance, the asphalt company having agreed to keep the new roads in order for a term of twenty years. A further heavy expenditure will be required if all the principal streets in Cairo are to be metalled. It is, however, satisfactory to know that a commencement has been made. During the course of last year the scavenging and watering service of Cairo was taken over by the Sanitary Department. The whole of the town is now cleansed and watered daily, except in those quarters where the roads are in such a condition that it is impossible for carts to pass. In view of the great increase of traffic, the question of constructing a second bridge over the Nile at Cairo is becoming one of some urgency.

The most important work of the antiquities service during the past year has been the transfer of the collections from the Ghizeh Museum to the new building in Cairo. The removal of the cases began on December 3, 1901, and by July 13, 1902, the last train-load of objects was removed. By September 10 the collections were completely arranged and classified in the new building. That such a work should have been possible in so short a period of time, without the loss or destruction of a single object, is a feat of which M. Maspero and his very competent staff have every reason to be proud. At Karnak the foundations of those columns of the great hall, which collapsed in 1899, have been rebuilt. At Abydos and Edfou the roofs have been repaired. M. Maspero reports, however, that several of the monuments are still in a dangerous state, more especially at Kom Ombo and Edfou. Some interesting discoveries were made last year in the course of excavation. At Karnak fourteen royal colossi have been brought to light, among them being one of an unknown king. At Sakkarah, the tomb of one of the earlier kings, whose monument already existed at Abydos, has been discovered. The catalogue has made good progress. Four new volumes have been published, viz., those of "Vases en Faïence," "Royal Tombs and Monuments" and "Greek Pottery and Stelæ of the Middle Empire." Five other volumes are in the press, and six more are in course of preparation.

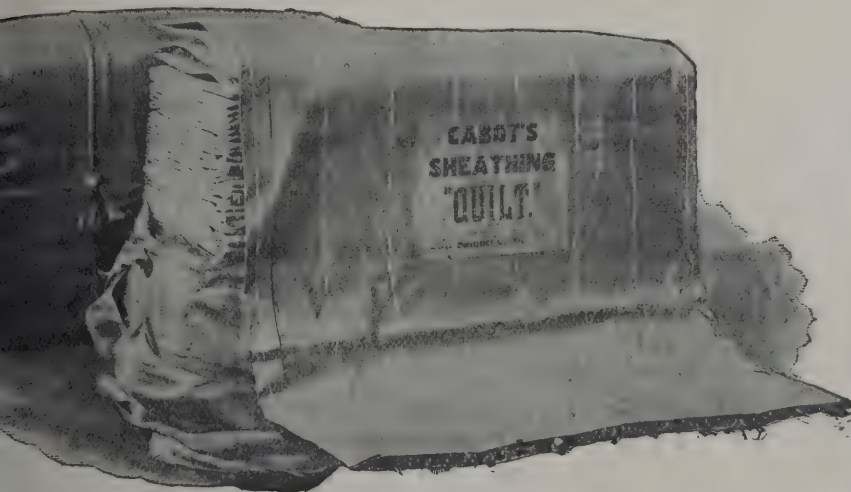
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About £7,600 was spent on the preservation of Arab monuments during the past year, £4,000 of this sum being provided by the State, and the balance by the Wakf Administration. It will be borne in mind that, in March 1896, a grant of £20,000 was made by the Caisse de la Dette, to be expended on the preservation and repair of these monuments. Of this amount, £18,000 has now been spent. The balance of £2,000 was reserved for expenditure on Coptic monuments. In 1902, an additional grant of £2,500 was made by the Caisse de la Dette. As regards Coptic monuments, it is satisfactory to know that an arrangement has at last been made with the Patriarch. Work has been commenced on one of the principal churches in Cairo. The estimated cost of the repairs is £1,200, of which one-half will be paid by the Patriarch at the rate of £200 a year. Up to the end of 1902 a sum of £700 had already been spent.

BRADFORD TOWN HALL EXTENSION.

THE finance and general purposes committee of the Bradford Corporation have passed the recommendation of a sub-committee "that the extension of the town hall and municipal buildings be forthwith proceeded with." The town hall at Bradford, which is modelled on the lines of that at Manchester, has long been inadequate for the administration of the city, and one of the chief considerations that helped to bring the Corporation to a decision was the fact that at present an outlay of nearly 1,000*l.* per annum is being incurred in rent, rates, &c., for the housing of important departments away from the town hall. This decision of the finance and general purposes committee, if it be ratified by the City Council, will mean the erection of a new building at the rear of the present town hall and upon the site of the old conditioning-house, as well as the addition of another storey to the present town hall. The cost of the work is estimated at 75,000*l.*, and the plans have been drawn by the city architect (Mr. Edwards). Mr. Norman Shaw, R.A., is acting as consulting architect. Mr. Edwards, in the plans which have been approved, has provided for the housing of all departments at the town hall. There will be a new council chamber, having accommodation for 102 members, the seating being arranged in tiers of circular benches. The chamber will also have two side galleries for the public, each capable of accommodating fifty-four persons. Then there will be a new mayor's parlour and luncheon-room, with large banqueting-hall, ante-room, robing-room, &c. The

present council chamber will be converted into a second police court, and new offices for the chief constable (Mr. Joseph Farndale) and his staff are allotted on the ground floor of the present building. The city coroner (Mr. J. G. Hutchinson) will be provided with a better court and the town hall superintendent with new quarters. The floor levels of the new premises will be made to correspond with those in the old, that no steps will occur in the main corridors of communication. By this extension the floor space of the town hall will be increased by 52,300 feet. It was Mr. Norman Shaw who recommended the addition of another storey to the present building, and it is anticipated that this alteration, besides providing fine rooms and offices, will very much improve the appearance of the hall.

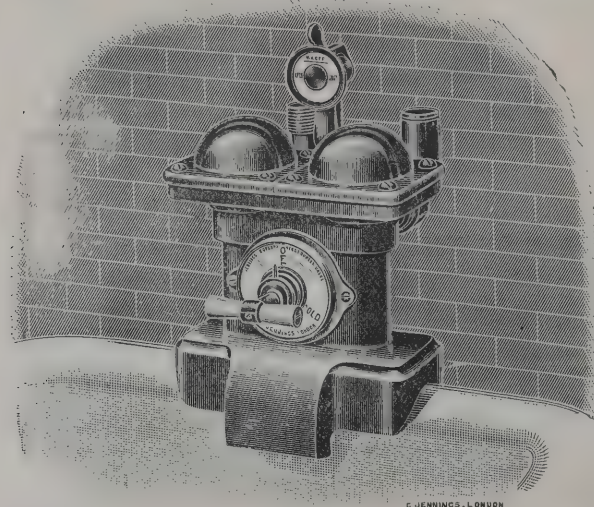
CRYSTAL PALACE SCHOOL OF ENGINEERING.

SIR GEORGE BARCLAY BRUCE, past president of the Institution of Civil Engineers, last week presented the certificates won by the students of the Crystal Palace Company's School of Practical Engineering during the past term.

The reports of the examiners having been read by Mr. Maurice Wilson, the vice-principal, Sir George Bruce addressed those present, and referring to the reports, said they were very glad to have laid before them testimony so reassuring to the value of the Crystal Palace School of Engineering. He was told that it was twenty-five years since his last visit to the school, and the impression made upon his mind by what he had seen that day was that the Institution had not stood still but that it had advanced with the times. When he was a boy there was little scientific teaching, and the great want in our common schools to-day was teaching in scientific subjects. He was quite sure that what a boy learnt in early life of science, mathematics and physics would stick in his mind afterwards but unfortunately schools did not give that kind of instruction. We English were told that we were very silly people, that we were nothing like the Germans and Americans, and that we were altogether behindhand. He did not believe that, but he did think we ought to do more for education in mathematics and science in our schools and colleges. He recommended the students to learn all they could of their profession while they were at an institution, when they had someone to guide and direct them. In conclusion he urged them to do their best and keep up the traditions of a great profession.

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The certificates were then distributed, Mr. C. T. Richardson being awarded the medal of the School of Art, Science and Literature for having obtained during his course through the school the necessary eight certificates, none being below in order of merit.

On the motion of Mr. J. A. Botham, assistant manager of the Crystal Palace Company, a hearty vote of thanks was recorded the examiners.

Mr. E. de B. Sanderson, Mr. A. T. Bean and Mr. Sidney Vtelli replied, and all joined in congratulating the students on the work done in the several departments.

Mr. J. W. Wilson, the principal, stated that some 1,570 students had passed through the school, which had been in existence about thirty years. They did not try to cram students in theory, but gave them practical instruction. He mentioned that one of their old students had been in charge of the work on Kew Bridge, which was to be opened shortly by the King.

A vote of thanks to Sir George Bruce concluded the proceedings.

STORM-FELLED TIMBER IN IRELAND.

GREAT many trees were cast down in various parts of the land in the recent gale, and there is difficulty in dealing with them. The Irish Forestry Society has prepared the following suggestions to meet the case:—

The economical handling and preservation of fallen trees after a destructive gale is one of the most serious of all practical forestry problems. In Ireland more especially the storm of Thursday, February 26, and Friday, the 27th, is believed to have done more damage to woods, parks and plantations than anything experienced since the "big wind" of 1839. The barometer acted most erratically on the night of the early morning of the gale we have mentioned. The lowest reading was 28.49, and occurred between three and four o'clock on Friday morning, and it was between 2.30 and 4.30 A.M. that most of the damage to timber took place.

In the Phoenix Park, near Dublin, above 3,000 trees were uprooted or broken off, and 54 of the permanent labourers of the Park and 20 extra labourers were employed at a considerable cost in clearing the roads and ground. Four hundred men of the 21st Lancers were also employed for two days in clearing the road behind the Viceregal Lodge so that the military could get in passing to or from the Park. To an advertisement

for the sale and removal of the fallen timber only one dealer replied, and the terms offered were so small and the time limit for the removal so excessively deferred that the offer he made had to be declined.

All over the counties, from Waterford to Dublin and northwards to Drogheda, trees are prostrate by the thousand. At Carton and Straffan great devastation has taken place amongst both ornamental as well as forest trees, 5,000 trees having been counted on the estate at Straffan alone. This is nothing, however, to what took place at Knockdrum Castle, Westmeath, where 60,000 trees were blown down, and over 40,000 are said to be prostrate in the plantations and woods of Emo Park, near Portarlington, Queen's County.

The immediate problem before us consists of two main heads, viz. firstly, how best and most cheaply to preserve the best of the fallen timber; and secondly, how best to replace the loss by replanting new or young trees. As the latter operation cannot now be entertained on any large scale until the autumn of this year, attention must be turned at once to storing the best of the timber now down in view of a future demand. No doubt a large proportion will lie as it fell until next winter, seeing that at present both farm and garden work is in full progress, and men and horses fully employed in other necessary work that cannot be kept waiting. As we have seen, the clearing of roads and ornamental grounds has already been a heavy tax in time and cost of labour.

Wherever possible, the best way of dealing with fallen timber in woods will be to dress or trim the trunks, sawing them into the most convenient and useful lengths, say multiples of 7 or 9 feet, and finally stacking them on sleepers or bearers of inferior quality, so as to guard against ground damp or earth moisture. Each pile, made as close to convenient roads or drives as possible, may then be roofed with the smaller logs, birch branches, gorse and bracken and topped with sods or corrugated iron sheeting, to throw off rain. The logs may best be piled crosswise in alternate layers so as to allow of free ventilation, and as so protected will season as well as if in a timber yard.

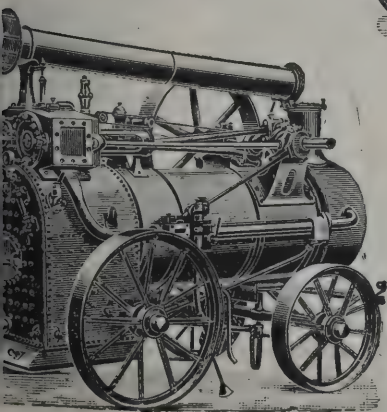
Coming to the treatment of particular kinds of trees, elm is next to useless, and there is now no demand for it; it cannot be sold, and has in some cases been given away for the sake of getting it removed out of the way. A fair market may be found for ash, beech, oak and sycamore, and these may be trimmed, measured and advertised, or otherwise offered for sale as soon as possible. Very heavy logs may be trimmed

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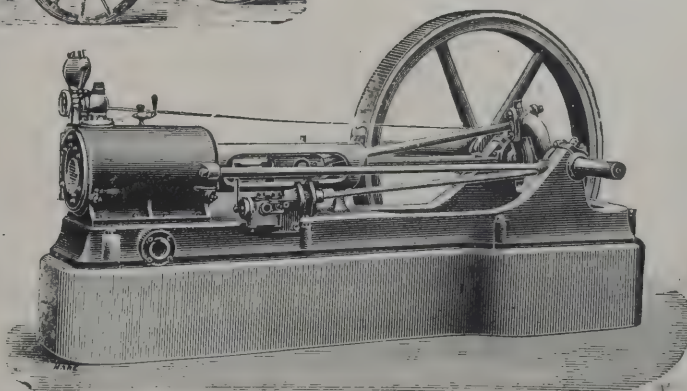
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and rolled with levers on to smaller logs as sleepers, so as to allow a current of air to pass all round them. Some timber trees such as beech, horse chestnut and sycamore do not store well, and should be cleared and disposed of as soon as possible.

All other trunks may be stacked or rolled on to sleepers as above recommended.

No matter how the timber is stored for seasoning and future sale or utilisation, the cost of clearing the woods will be very large, no matter how cheap the local labour, or how good and suitable mechanical appliances may be.

The same excess of rainfall which helped to loosen the earth around the roots of the fallen trees, and so rendered them unable to resist the gale, has also rendered most woods and plantations quite impassable for timber hauling at the present time, hence either leaving the trees as they fell until next winter, or roughly stacking and protecting them as we now recommend, are the only practicable alternatives. Eventually portable steam or other sawmills may rip up the timber in the woods where it now lies, and so minimise the hauling difficulty. In many cases the old stumps will be left to rot in the ground, except where passages for hauling timber or machinery must be made. When stumps must be removed Nobel's dynamite cartridges are efficient and cheap in the hands of careful men, or the firmly-anchored engine of a steam plough and its wire cable may be utilised in dragging large trunks to the stacks or for removing old stumps.

In any case this gale has destroyed the profitable sale of home-grown timber in Ireland for some years to come, and as much of it as possible should be stored, seasoned and ripped up for utilisation on the home estate.

From all points of view the simple plan of stacking the best of the fallen timber in the woods or plantations where it now lies seems to be the least costly and laborious, and the best that can in the majority of cases be adopted.

We fear that Irish timber will be a drug in the local markets for a long time to come, and in some cases we have heard of wood buyers having actually demanded premiums for removing fallen timber in addition to the value of the timber removed.

One patent result of the gale has been to show the lack of woodcraft ability in the case of ordinary labourers, who are practically helpless in dealing with disasters of this kind.

Since the above was written a letter from the Recorder, Sir Frederick R. Falkiner, to the *Irish Times* of March 31, suggests that as some millions of trees have fallen, owners

might co-operate in procuring labour, proper machinery or other appliances to deal with the timber. It was suggested him that in such an emergency as this the Army Reserve might or at least some of them, might be utilised in repairing disaster, and he concludes by expressing a hope which cordially re-echo, viz, that "the havoc, and the carnage, and unsightly desolations of the winter of 1903 may evolve in lasting and national blessing."

SOCIETY OF ENGINEERS.

At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on Monday evening April 6, Mr J. Patten Barber, president, in the chair, a paper was read on "Road Maintenance and Administration," by Mr. Robert J. Thomas, M. Inst. C.E.

Prefacing his remarks by emphasising the necessity of keeping to the legal definition of a "main road" in discussing roads, the author stated that there were now 26,978 miles main roads in England and Wales, as compared with 18,070 in 1889, and that sixty county councils were responsible for the whether they maintained them directly, allowed district councils to do so, or had to leave them to the control of urban authorities entitled to keep the maintenance in their own hands. He also stated that forty of these county councils had adopted direct management, the advantages of which were enumerated. Discussing materials and pointing out the enormous growth in the sale of granite during recent years, the exclusion of other softer stones, he expressed the opinion that for country main roads a size not exceeding 1½-inch 2-inch gauge was the most desirable, and that too much reliance should not be placed upon tests made under artificial conditions not met with in the daily wear and tear of roads.

Giving the results of tests made in actual wear, he stated that on a country main road, granite surface, steam rolled, with an ascertained traffic of 100,000 collars per annum, the actual wear averaged 1 inch in five years, that 1½ inch wear took place along the 7 feet in centre, and rather more than ½ inch along each of the 6 feet 6-inch sides.

After discussing steam rolling, scarifying, cleansing and watering, he defended road labourers against unmerited attacks, and expressed his conviction that, as a class, they were far in advance of their predecessors and equal to the labour employed in any other industry.

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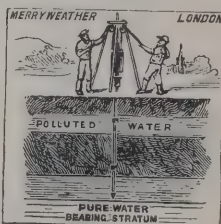
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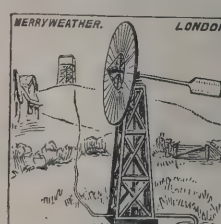
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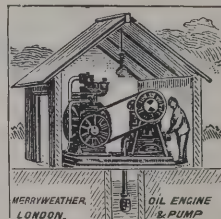
Boring for Water.



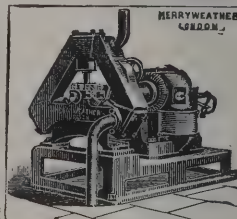
Wind Power Pump.



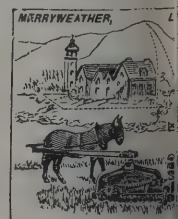
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66 GOLD MEDALS AND FIRST AWARDS.

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The system in force in Buckinghamshire until recently, whereby the County Council contributed towards all other roads, as described, also the improvements effected in the roads.

Referring to metropolitan and town streets, and to the exaggerated statements made relative to the streets of foreign towns being so much better than those in London, the author stated towns in Russia which had been held up as patterns, though they were anything but satisfactory. He laid stress on the unique size of the Metropolis, its variations of climate and temperature, the phenomenal traffic and particularly the power which companies had been given by Parliament to cut up and block streets, and which was exercised to such an extent that the rights and access of the public to their own thoroughfares were already small and fleeting, and the cost of restoration of surfaces enormous, all which might be obviated if subways were constructed and the companies compelled to bury their pipes and cables into them. He expressed the opinion that slow traffic should be better regulated, that vehicles could be kept close to the near side of the street, that omnibuses should stop at fixed points and that the loading or unloading of railway and other goods vans should be prohibited on busy thoroughfares.

Admitting the necessity for tramways in large towns, and for help in solving the housing question, the author strongly advocated that country roads should be widened to 40 feet, and a double line of tramways was laid, in order to provide a least 12 feet of metalled roadway at each side. He suggested that traction-engine traffic would be far less objectionable to travelling public if drivers were licensed and could be dealt with for inconsiderate and obstructive conduct.

Dealing with motor-cars, he said that from his experience that form of locomotion the greatest need was the reduction of dust and mud on granite roads, but that the question of additional expense incurred in doing so was one which had to be considered.

As to hill-lowering schemes, he expressed the view that this meant more difficulties and expense than appeared at first sight, and that, as residents in hilly localities should not be asked to pay more than their share for such work, the scheme should be a national one.

New road construction for motor and other fast traffic he did not consider feasible, but suggested that the cost of widening existing roads in rural districts sufficiently to provide a hard track might be borne by the State, a tax at per cent per car being levied sufficient for its up-keep, and which

tax would necessarily diminish as the number of motors increased. Having referred to numerous alterations and amendments which were desirable in highway law, he pointed out how difficult, if not impossible, it would be to make every county or district pay an equal share of the country's road bill, unless the nationalisation of every highway was effected. Failing that, a contribution of one-half the cost would be a partial remedy, or the creation of one highway authority in each county would equalise matters so far as each county was concerned.

Stating that agriculture, with its 196,700,000*l.* of invested capital, was entitled to every consideration when the motor-car industry, with its 4,000,000*l.*, obtained so much attention, he expressed the opinion that the introduction of cheap, reliable motors for agricultural work would make powerful allies where sympathy was now at a discount.

ELECTRIC-POWER DISTRIBUTION.

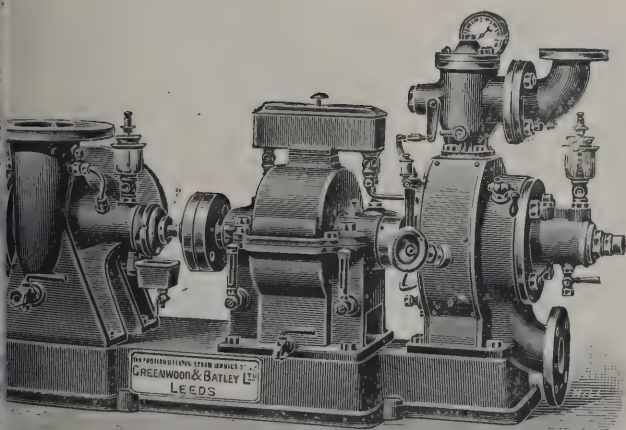
THE way in which the country is now being mapped out into districts for electric-power distribution, writes a correspondent of the *Times*, indicates a change in industrial conditions which will probably prove to be second only to that which occurred during the early part of the last century, when the steam-engine superseded water-mills and other still more primitive sources of energy. This change is proceeding apace, although it appears to attract comparatively little public attention. Already fourteen schemes have been put forward, covering almost the whole of the most important manufacturing area of the country, including the Clyde Valley, the North-East Coast district, Lancashire, the chief industrial part of Yorkshire, the busiest part of the Midlands, a large part of the metropolitan area, and the South Wales iron and steel-making centres, besides other districts.

It is for the smaller users of power that this new development has the greatest importance. Some years ago, when a scheme for power distribution by compressed air was being proposed, Sir Frederick Bramwell made an exhaustive inquiry into the cost of power to small consumers owning their own steam-engines in the Birmingham district. It was then found that for steam-engines of from four to twenty-five horse-power the consumption of fuel ranged from 36 lbs. to 8½ lbs. of coal per indicated horse-power per hour. When it is remembered

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that with steam-engines of large size one-horse power can be generated for one hour by burning about $1\frac{1}{2}$ to 2 lbs. of coal, it will be seen how large a margin there is here to work upon. The saving in fuel, however, is but one advantage, and that by no means the greatest, offered to a small-power user. To look after an engine and boiler a skilled man is needed, and space is occupied; the chances of breakdown and stoppage of work at critical times are incomparably greater with small engines, generally not too well looked after; the nuisance of having coal brought into works, summonses for smoke nuisance, besides several other matters of a like nature, often make the engine and boiler more trouble than any other feature. The difference between this and simply switching on current will be apparent.

One of the most important of the new electricity supply undertakings is that which has obtained Parliamentary powers for the rich Yorkshire district, to which reference has already been made. The Yorkshire Electric Power Company have commissioned Mr. H. F. Parshall, M.Inst.C.E., to inquire into the question of electric-power supply on their behalf, and his report gives some figures which may be taken as typical, and will be of interest in connection with this subject. The district which the company is authorised to supply has an area of approximately 1,800 square miles, in which are the five county boroughs of Bradford, Halifax, Huddersfield, Leeds and Sheffield, besides urban, rural and local authorities, the total population being over $2\frac{1}{2}$ millions. The company has not entirely a free hand over the whole of the district, but in certain cases must make terms with the corporation authorities. These matters, however, are not of interest in connection with our present subject. It may, however, be stated that in this case, as in others, the scheme is welcomed by the large-power users of the district, many of whom gave evidence in support of the Bill when it came forward; indeed, those who have expressed themselves favourably to the undertaking in this way, or by taking shares in the company, represent the employment of 161,614 hands and 118,031 horse-power. Nothing could be of better augury for the success of the various electrical distribution schemes than the way in which they have been supported by power-users.

It has been roughly estimated that 2,000,000 horse-power is used in this district. This may be an excessive estimate, but 1,000,000 horse-power is said to have been accounted for. It is intended to erect at first a station between Huddersfield and Dewsbury which will contain a plant capable of generating

10,000 kilowatts, half the installation of machinery being provided for at first. One kilowatt is equal to $1\cdot341$ horse-power. The present arrangement is to establish four generating stations in various parts of the district. The cost of the station, sub-stations, transmission plant, &c., for a 10,000-kilowatt plant would be about 448,000*l*. Of this sum about 330,000*l*. would go for the steam-engines and boilers and other generating or transmission plant. The cost of operating such a plant, including rents, rates, taxes, depreciation and management is estimated at 44,855*l*. per annum. Taking these figures as a basis and adding other charges incidental to the formation and working of the undertaking, Mr. Parshall finds that electricity can be generated by a 10,000-kilowatt plant at a cost of 0·652*d*. per Board of Trade unit for a 25 per cent. load factor; or if for a 5,000-kilowatt plant, at 0·729*d*. These figures do not include interest on capital and sinking fund.

The effect of load factor—that is, the proportion of the quantity of current demanded to the maximum demand—is remarkable, and some interesting diagrams are given by Mr. Parshall in his report. For instance, with a load factor of only 4·57 per cent., which would represent the maximum demand for 100 hours per quarter, the cost of current would be 2·9*d*. per unit; whilst if the load factor were 73 per cent. or 1,600 hours per quarter, the cost would go down to 0·35*d*. per unit, or somewhat over a farthing (0·26075*d*.) per horse-power per hour. A Board of Trade unit equals 1,000 watt-hours, and a thousand watts are equal to $1\cdot341$ -horse-power. Therefore, one-horse power exerted for an hour would equal 0·746 Board of Trade unit. Perhaps from 500 to 700 hours would be the usual demand made by factories, and that would give a selling price approximately about 1·1*d*. per unit as an average, or eight-tenths of a penny per horse-power per hour. In working out his figures Mr. Parshall brings forward a fact perhaps not fully recognised. The cost of production is reduced by increasing the size of plant and the volume of output. This, of course, is a well-known fact with most industrial processes; but in this case of electrical generation when a production of 100,000 horse-power is reached the increase in profits becomes negligible, and the undertaking may be considered in full swing when the capacity reaches 60,000 kilowatts. A plant of that size would need a capital of about two and three-quarter millions sterling, and on the figures as to cost and selling price given would pay interest at $9\frac{1}{4}$ per cent.; whilst the smaller 10,000 kilowatt plant would show a profit of only 5·83 per cent. on a capital of something over half a million sterling.



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The Architect.

THE WEEK.

THE competition for the proposed town hall in Durban attracted twenty-eight designs, and if it were not for the uncertainty surrounding all things African the number would no doubt be much larger. One-half came from England. The authorities have acted in a rather autocratic manner. As the building is likely to cost a quarter of a million sterling the people of Durban should have been granted an opportunity of seeing suggestions of the different kinds of municipal offices obtainable for that outlay, but a view of the drawings was denied the public. Out of the twenty-eight designs six have been selected as entitling the authors to take part in the second competition. Mr. ROBERTS, of Natal, was assessor. They are by the following architects:—Mr. STREET WILSON (Durban), Messrs. WOOLFACOTT & HUDSON (Bulawayo), Mr. H. L. ALDWICKLE (Johannesburg), Messrs. MITCHELL & RAYNE (London), Mr. W. S. PAYNE (London), and Messrs. EWAN HARPERS & BROS. (Birmingham).

ACCORDING to FERGUSSON, the archæology of India has been neglected because the country prior to the thirteenth century could not be said to possess a history. This is the more remarkable since the literature of India is represented by some thousands of works. But it never occurred to an Indian to record the incidents of his own life or the events of the state or province in which he lived. They believed it was a law of destiny to be forgotten. It is, however, impossible to avoid having records in some form. The stratified rocks, including the earliest formations, reveal to us the history of organic life, and in the same way countless objects are to be found below the earth's surface which, rightly interpreted, become a history of humanity. There were cities in India which have vanished, but there is no reason why exploration of their sites might not be as successful as similar operations elsewhere. Great Britain should be considered as under an obligation to reveal all that is feasible, but the neglect of Indian buildings which was so long a characteristic of British rule does not inspire confidence among foreigners that our archæological researches would be pursued with the proper spirit. It was partly on that account an International Indian Exploration Society was founded at a congress in Paris in 1897. The remoteness of the country is an excuse for delay, but last year at the Hamburg Congress it was resolved to make an attempt. The Germans, who have already exhibited much earnestness in archæology, have formed special committees in their principal cities in order to obtain aid towards meeting the cost of sending out explorers. The annual subscription for members is fixed at 20 marks. It is believed the Indian Government will offer facilities for the work, for it is not to be supposed the representatives of the Society could have other motives than the removal of the darkness which envelops the history of India during a long era, and through which the styles of architecture became only "a chaos, without purpose or meaning."

IN the efforts to civilise the Soudan the erection of buildings is one of the most important factors. According to Sir REGINALD WINGATE, the Governor-General, the progress in the rebuilding of Khartoum and other towns in the Soudan, notably Wad Medani on the Blue Nile, is most marked, and when the heavy cost of transport of building material is taken into consideration, there is evidence of no little enterprise on the part of merchants and others, who apparently anticipate considerable commercial development in the not distant future. The construction of the British barracks and the Gordon College is nearing completion. The majority of the working population are engaged in building, quarrying and brick-making. Quarrying at Khartoum has superseded brick-making, and the latest houses are of stone with a course of bricks every 4 to 6 feet to bind the walls. One advantage of the use of stone is that less fuel will be required. Attempts have been made to clear the ruins at Soba, the remnants of a once great Christian kingdom, of sand and earth. It is hoped that the discovery of these ancient

relics in the heart of the Soudan will induce lovers of antiquities to pay them and Khartoum a visit. The antiquities of the Soudan are both numerous and valuable, and when funds have been obtained for exploring and clearing them further interesting discoveries will no doubt be made. In Dongola the houses are now better built. In Bahr-el-Ghazal, a region which was subject to continual raids, the Dinkas are settling down without fear, and are erecting houses near the British posts. All this is satisfactory evidence of confidence in the new rule.

THE usual annual excursions in connection with the German Archæological Institute of Athens have commenced. The route selected for the first trip allows of visits to Corinth, Tiryns, Argos, Mycenæ, Epidauros, Nauplia, Calamata and Olympia. Afterwards Leukas, Ithaca and Delphi will be seen. Another tour will comprise the Ægean Sea, Ægina, Calauria, Eretria, Delos, &c. Before the return there will be visits to Knossos, Gurnia and Phaestos. There will also be an excursion to the site of Troy, where Dr. DÖRPFELD will explain the ruins and deliver an address. Many of those who take part in these excursions are Germans who leave home in order to see places in which their countrymen have been successful in reviving the interest in Greek history and art. Greece is now looked upon as a region which owes a debt to Germany, for it is supposed that without SCHLIEMANN, DÖRPFELD and CURTIUS the country would have been no better known than it was in the days of STUART and DODWELL.

THE case relating to arbitrators' fees, which a Master of the Court considered to be excessive, was, we suppose, affected by the withholding of particulars of the charges. Another case heard before Mr. Justice GRANTHAM on Tuesday suggests that in claims for fees it is wise to state the length of time occupied by the work. Messrs. ARDRON & DAWSON, of Westminster, sought to recover damages from Mr. EDWARDS, a financier, for breach of contract. Alternatively they claimed remuneration for the preparation of plans. The defendant was connected with land near the Broadway, Westminster, having an area of about 35,000 square feet, on which he proposed to erect a six-storey block to be arranged as offices, flats and shops. Mr. ARDRON was invited to prepare plans and report to show how the site could be most profitably utilised. Plans for buildings which were estimated to cost £24,000 were sent in. The charge made was 2½ per cent. The defendant denied liability. With a case of the kind there is always a possibility of the judge declaring there was speculation on the part of plaintiffs as well as defendant. Mr. ARDRON was able to show that the preparation of the plans occupied no less than 1,300 working hours, and the alternative claim for reasonable remuneration was, therefore, well founded. This was recognised by counsel, and a consultation took place with Mr. Justice GRANTHAM, when it was decided to accept the offer of 500£ by defendant for the work done and the costs of the action.

ONE of the by-laws in force in Bexhill has given rise to much discussion within as well as without the town hall. The town has of late years expanded, and it is sometimes found necessary to enlarge premises used for business as well as to convert private houses into shops and offices. The by-law in question deals with alterations in a manner which, to say the least, is not always uniform. Old buildings can be extended as far as the sites will admit, or, in other words, a yard at the rear can be built over. But premises erected more recently have to remain in their original state. In that way one class of property is favoured, and it is often difficult to decide whether premises are to be taken as old or new. There is much agitation in the town for such alteration of the by-law as would allow the rearward extension of buildings provided sufficient space were allowed for sanitation. But a majority of the Council are opposed to any change. The case is only another example of the inconvenience which arises from the want of a definite plan which would provide for the growth of a town, and which should be followed. Most seaside towns appear to have come into existence by chance, and the building regulations correspond with temporary needs.



TYPES OF COSTUME: ENGLISH, FOURTEENTH AND FIFTEENTH CENTURY.

ENGRAVING IN ENGLAND.

THE kindly letter from Sir WALTER GILBEY which we published last week revives an old grievance. The engraver's art, and more especially the line engraver's, has of late years fallen out of favour with the public, and the change of position is suggested by the absence of its representatives from the list of Royal Academicians and Associates. Nor is there any instruction in engraving given in the Academy schools. There is, of course, some excuse for an indifference on the part of the Academicians which may be more apparent than real. It is no disrespect to the Academy to compare the members to a theatrical troupe. Every playgoer is aware that certain classes of entertainment which were at one time admired are no longer pleasing. The financial success of a theatre absolutely depends on the extent to which the public is gratified. The Royal Academy, in the same way, is as expensive an establishment as any ordinary theatre, and it has to rely entirely on an annual performance or exhibition for the funds required to meet the expenses. It must be obvious to all observers that neither the architectural drawings nor the engravings give any pleasure to the crowd. The architectural room is useful only as a refuge or a semi-solitude which serves for confidential conversations. The room containing engravings, etchings, drawings in black and white and miscellaneous designs is so neglected there is no necessity to place a seat within it for visitors. Painting is now the pet of the public, and we need not wonder if painters demand a monopoly of the power in the Academy, which they alone can make prosperous. It is by their works the money is earned, and with some right they can claim the control of the spending of it.

It cannot be affirmed that this treatment of engravers is a modern innovation. Sir WALTER GILBEY quoted a few sentences from WILLIAM ROSCOE, the historian, who said:—"The principal excellence of an original print is equally estimable with that of a painting. We have every condition of design, composition and drawing, and the outline of an engraving or etching is frequently marked with a precision which excels that of the painting." Sir WALTER does not realise that those words are sufficient to excite an animosity among painters towards engraving. If it could be understood that engravings were to be kept locked up in portfolios there would be no rivalry between the two arts. But when both are recognised as having a common object, which is the decoration of walls, it is not to be expected that the representatives of one art would gladly give way to their rivals. When, for instance, we look back on the majority of the painters who aspired to be the first Academicians, there is no doubt their works, if judged by a modern standard, would be considered less pleasing than engravings by STRANGE, WOOLLETT or GREEN. Some of STRANGE's translations of the Italian masterpieces have never been surpassed, and when fresh from the copperplate printer they must have been remarkably brilliant objects. There was consequently a jealousy of STRANGE as a rival. Besides, in the conflicts preceding the foundation of the Academy, he, as became a man who took part in the Scottish rebellion and

fought at Culloden, was on the losing side of the artists. He tells us himself how the dominant party in preparing the scheme for the Academy, "the more effectually to prevent every chance I might have of partaking the honours they were sharing, proposed that nothing less than a total exclusion of engravers should take place." Then, when it was found that such extraordinary narrow-mindedness was absurd in an academy of the arts, which was supposed to be a royal creation, STRANGE was passed over, but BARTOLOZZI, an Italian, was selected. This gave dissatisfaction, and the academical wire-pullers, trusting in the public ignorance, declared they had imitated the precedent of the French Academy of Arts, from which engravers were excluded. STRANGE happened to be a member of that body. Then it was said there was a mistake, and it was the practice of St. Luke's Academy in Rome which had been followed. But the Roman Academicians had, in a full assembly, likewise elected STRANGE to be one of their members. After this double discomfiture, in order to demonstrate there was no difference to engraving as an art, THOMAS MAJOR, the King's seal-engraver, was elected an Associate. CANOT and REVENET, two foreigners, were then brought in as figure-heads, or, shall we say, as substitutes, for able artists like WOOLLETT and SHARPE.

It may be imagined by people unacquainted with the history of English art that no other course was open to the Academicians. Was not the art then and for a long time before in the hands of foreigners? While an admission of the kind may be allowed to some extent, there is no doubt that for a very extensive period there were English engravers as well as English architects. VERTUE collected lists of English engravers which went back to the middle of the sixteenth century. According to him, CUNNINGHAM, a physician, engraved a view of Norwich in 1559. AGGAS, the surveyor, produced views of London in 1578. Several English engravers appear to have been engaged by Archbishop PARKER for the illustration of his Bible. ADAMS made engravings of numerous actions off the British coast between English ships and the Spanish Armada. NORDEN produced a view of the Lord Mayor's Show in 1603. MARSHALL about 1634 was employed to engrave heads of poets. GAYWOOD imitated HOLLAR. FRANCIS PLACE was offered 500*l.* a year to produce prints of the Navy, but declined it because, as he said, he could not endure confinement or dependence. SAVAGE's preference was for portraits of politicians who died on the scaffold. WILLIAM LODGE engraved portraits of the most eminent Italian painters. The two FAITHORNES were also distinguished for portraits. WREN is supposed by some to have invented the mezzotint process. JOHN EVELYN not only wrote about engraving, but produced plates. Of ROBERT WHITE it is recorded that no man exceeded him in the multiplicity of English heads. HAMLET WINSTANLEY, the son of the designer of the first Eddystone Lighthouse, was the author of many etchings, one being a view of the cupola of St. Paul's, showing THORNHILL's paintings. STURT's Book of Common Prayer contains nearly two hundred engravings by his own hand. EDWARD KIRKALL

invented a method for printing in colours. JOHN PINE, who was a friend of HOGARTH, engraved plates of the tapestries in the House of Lords. Many other names could be mentioned.

It has been said, however, that in 1733 there were only two printshops in London, and their business was limited in extent. The daring experiment of HOGARTH with his *Hurlo's Progress* caused a revolution. He obtained twelve hundred subscribers, but as no copyright law then existed an immense number of copies were made and circulated throughout the country as well as abroad. HOGARTH lost no time in agitating for an Act which would secure his rights, and was successful. By means of it artists gained confidence, and the trade in prints was extended. Illustrated books were also brought out. The prices paid were often modest. HAYMAN, who was afterwards an Academician, was glad to accept two guineas for a design to be engraved, WALE, who also was to be an Academician, thought he was well paid in receiving nine guineas for eight designs. Among the early works depending for success on the plates was STUART's folio on Athens, which appeared in 1762. A series of prints illustrative of English history should also be mentioned. The designs were prepared by FRANCIS HAYMAN and BLAKEY. The influence of HOGARTH's enterprise is traceable in many directions.

It might be assumed that engraving possessed sufficient interest to induce the Academicians to foster it as far as lay in their power. But the peculiar grudging of the foundation members inspired their successors. In 1809, and again in 1812, it was resolved that engravers should not pass out of the class of Associates. The grounds assigned for the decision were the original law of the Academy, which was sanctioned by the king; the inferiority of engraving as an art consisting, as it was said, in copying, or, at the most, translation, and having no claim to invention like the other arts. Finally, there was a prior claim for artists who were the support of the institution by their talents. It was, of course, hard, if not cruel, to exclude engravers from the positions obtainable by other artists, but it was still more tyrannic to prohibit them from exhibiting. One of the Academy regulations was as follows:—"Each Associate engraver shall have the liberty of exhibiting two prints, either compositions of his own or engravings from other masters, which have not been published, and these shall be the only prints admitted in the Royal Exhibition." We may give the Academy credit for sometimes departing from the rule, but care was exercised that there should be no excessive competition with paintings to adorn the walls. It might be supposed that the only use of engraving was to illustrate books.

If we allow engraving to be no more than a species of translation, the painters should be the last to complain of its character. The majority of engravings were taken from pictures. Sculpture and architecture were rarely employed. Many painters have not merely been popularised by means of engravings, but they have derived large sums through granting permission for plates to be derived from their works. Sir THOMAS LAWRENCE was paid 3,000*l.* a year by one firm. WILKIE received as much out of the print from his *Chelsea Pensioners* as the Duke of WELLINGTON paid for the picture, viz. 1,200*l.* In later times still greater sums have been obtained. It would be interesting to discover how much was received by Sir J. E. MILLAIS for the privilege of allowing engravings to be published, but it must have equalled a small fortune. The Academician engravers who translated his pictures were not less anxious to do him justice because they belonged to the same institution as himself.

As to the mechanical execution of engraving the charge mainly applies to those in line. Works of that class have to be produced by countless repetitions of a few lines. Some may be straight, but in figures and drapery they must be compound curves, and in all great works they have to be of a beautiful form. If it is remembered that a figure would be marred by the introduction of one line that was irregular, the anxiety attending the process will be more apparent. A true artist will employ a different variety of lines for each of his figures, and in that way, without the aid of colour or an excess of contrast, a variety is produced which is sometimes marvellous. Engravers have not hesitated to undertake the translation of paintings

of every kind. As ROGERS says, "the faithful graver dares to trace A MICHAEL's grandeur and a RAPHAEL's grace," and although restricted to black and white, they have suggested some of the characteristics, at least, of the originals. The objection about mechanical execution might be made with no less force to architecture, because buildings are constructed of elements which are identical in form—courses of squared stones or rectangular bricks. There is, in fact, a correspondence between the two classes of work, and nowhere are examples of Italian, French, or English engravers more apposite than on the walls of an architect's sanctum.

Our day is not favourable to the production of effects by so slow a process as was devised by the Italian and French engravers. If we place an etching by M. WALTNER beside an engraving by RICHOMME, HENRIQUEL-DUFONT or BERVIC, the great admirer of English work, we seem to have the spirit of a leisurely age opposed to one in which there is a continual rush and excitement. There is more vigour in our time, but that repose which is essential in a line engraving is absent. We do not know of one case in which a man succeeded equally in painting and engraving. But from the age of REMBRANDT to the present day the painter's art appears to qualify men to be successful in etching. It may be on that account there is so little desire to admit artists who are only etchers within the Academy. Whatever may be the cause, it is not an advantage to suggest that engraving in any form is a lost art. Engravers have rendered faithful service to other artists, and have done much to spread the knowledge of pictures, statues and buildings. A creative and enterprising artist like HOGARTH preferred to be independent of his contemporaries or of the Old Masters. But although there have been men such as CALLOT, REMBRANDT or DÜRER, who resembled him to some extent, they were wanting in his business spirit and daring. The history of the art shows that the engraver was always satisfied to respectfully follow the painter, and so much service deserves a different sort of recognition from that which is to be obtained from the Royal Academy.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER IX. (continued).

OF at least equal importance with the outline of a window is the filling-in treatment. Where plenty of light is obtainable for a building, and where some specific window is not destined to be the medium of outlook, full play can be given to design, whether in the nature of tracery, diamond panes or coloured glass; but these should all be subordinated where light and outlook are of importance. In churches, outlook not being an object, it is only the questions of light and expense that will modify the treatment. The mediæval and early Renaissance windows, though picturesque in many instances, are not well adapted to modern ideas of comfort. The Queen Anne style is also open to a similar objection; but all these styles possess one economic point in common which may recommend them, namely, that there is less expense in renewing any one pane of glass than is the case with a modern window; this recommendation is, however, worth very little if plate-glass or a good quality of sheet-glass be used in the first place for our twentieth-century windows.

What fenestration is in regard to the lighting area, *portalage* is for entry purposes, and the æsthetic effects obtainable are evidenced by numerous buildings. The treatment may take one of several methods—a mere door opening, a door case, recessed porch, projecting porch, a *porte-cochère*, a hooded porch, a tower, &c., or two or more of these may be combined. Most of the forms illustrated elsewhere for windows are equally adapted for door cases and door openings, and some of these are very elaborately treated, more especially in mediæval Gothic buildings. The "recessed-order" varieties of western porch in Norman and French Gothic ecclesiastical structures are magnificent examples, and advantage was taken of their employment to run riot in sculptured figures and grotesques. These porches were often great media for the



Portals & Porches (with names of Architects, where known)

display of symbolic sculpture. Some remarks will be found later on respecting the use of symbolism in architectural design.

There is everything in favour of some form of protection being introduced in connection with an entrance, as the propriety of some degree of shelter from the rough or trying elements whilst waiting admission cannot be exaggerated. Whether this form should be of the nature of a hood, a recessed or projecting porch or a *porte-cochère* depends on circumstances. Where a maximum of light is desired or necessary, a recessed porch would be the least, and a mere "hood" the most suitable. Where the first object is to obtain protection from rain or snow before entry is obtained, a recessed porch is quite satisfactory, but in cases where there is a desire to correct the bad effects of unfavourable "aspect," a projecting porch is best, as by this means the side of entry to same can be suitably arranged. A *porte-cochère* is admirable where the size or importance of the building justifies it. By this means carriages are brought to a stand under shelter before the entrance, thus obviating the nuisance of opening and carrying umbrellas in order to protect evening-dress finery from the inclemency of the weather. The above few notes treat the selection from the point of view of appropriateness, which should be the first consideration, and this being determined, it will then be necessary to adapt the design to the general treatment of the façade; the external appearance of many old cottages is to an extent redeemed from insipidity by the quaintness or picturesqueness of a door hood, these qualities being altogether independent of the age of the building.

If the aspect and climate be sufficiently genial a pleasurea provided in conjunction with the porch is a "feature" worthy of commendation, but one that is, of course, applicable only when there is a certain degree of privacy obtainable in relation to the general public. This can be well understood when the reserve natural to the English character is remembered.

If a porch is introduced into a design it should not look like an excrescence, but form an integral component of the building; otherwise it is, from the æsthetic standpoint, best omitted. The iron porches so frequently to be noted cannot but look like exotics in most cases, and even if forming part of the original scheme will yet seem to be an afterthought. An architect should think his scheme of design throughout on some definite and homogeneous basis, and avoid everything of the nature of scrappiness.

A porch may often be carried up to form a storeyed tower with happy effect and with practical benefit; that it is a mistake to use the storey immediately over the entrance as a bath-room or sanitary annexe can be readily conceived, but with the definite use made of it there need not be any further concern here.

Sometimes the portal to a house is very largely developed beyond the cases previously noted, the entrance being approached through a conservatory. This may result in very pleasing effects if well managed, but extra care would be necessitated to prevent the access of damp to the house.

In a recent instance that came under the writer's treatment, this arrangement of entrance was observed, and it certainly deserves appreciation, as it evinced a determination to make the best of what was otherwise very uncouth—the house small, old, rat-haunted and unworthy of the property, but the entrance made passable in appearance by the introduction of the glass-enclosed flower walk. As regards the glazed corridor entrances so often seen leading to the front doors of large houses, they may be (indeed, they are) useful, but are as a rule not at all ornamental or artistic.

Fig. 72 gives some sketches in connection with portalage.

CHAPTER X.

UTILITARIAN FEATURES.

IT is a matter of concern how to adapt certain utilitarian features to the façades of a design, so that there shall not be any undue prominence given to these uninteresting requisites; reference is more particularly intended to the various pipes and chimney-stacks, and in a lesser degree to ventilating gratings. It is not that *primâ facie* there is anything anathema in any of these; on the contrary, their

absence would be deplorable. As, however, the highest art evinces a sense of due proportion in its compositions, from the largest to the smallest details, it is desirable that the spectator of a building should not be greeted with shouts of "See me! I'm carrying off waste-water," or, "Look here! I'm a foul-air extractor," &c., before there has been sufficient time allowed to grasp the general idea of the design.

This is fully recognised by a large proportion of the fraternity when submitting designs in competition, showing the buildings *in posse*, disregarding (though not unmindful) of the same as they would be *in esse*, and to an extent that can scarcely be justified; but as the writer does not desire to compound for sins, by acting on the principle noted in "Hudibras," this point will not be elaborated. From a sanitary standpoint, there is nothing to be urged in favour of placing pipes for waste-water or for "soil" inside instead of outside a building. The earlier that all pipes liable to the passage of contaminated air or water are taken outside a building, the better sanitary result obtains. The objection to the conspicuousness of external pipes is frequently met by chasing them in flush with the outer face of the wall, but this method cannot be recommended for water-courses, as in the event of any length of duct becoming cracked or broken, some of the water may percolate into the wall, and this is to be deprecated, even if the water be unadulterated. As regards the merely ventilating portion of a pipe, there cannot be any serious sanitary objection to urge against chasing-in, and indeed it might be cased in if the design would be improved. This might be remembered with advantage in dealing with those portions of ventilation shafts that are carried above the level of the top of any wall, as an ornamental casing in keeping with the general scheme of design would be very desirable. But in introducing such casing, there should not be any attempt made to treat it *en masquerade*, as this would be a false conception of architectural ethics.

Pipes may be so dealt with as to support the artistic effect of a façade to a slight extent, if suitable cast-lead heads and effective lead tacks are used; many old, and some modern, buildings bear witness to this. Where sanitary by-laws intervene the following note is unnecessary, but it is well to point out that it is inadmissible to reduce the height of ventilating pipes below the sanitary minimum of level for the sake of avoiding unpleasant breaks on the sky-line. Nor is this minimum an arbitrary quantity: it bears a direct relation to surrounding obstructions, the principle being to render down-draughts along the pipes impossible.

It may be borne in mind that in scheming a building where some apartment may be disposed indifferently in one of two possible positions, and where unsightly pipes are a necessary accompaniment, it may be possible by careful adjustment to choose the less prominent position for the purpose.

Observation will attest the advisability of considering as far as possible the influence of utilitarian features upon the appearance of a façade. If the average urban terrace-house of 45% to 70% rental be in question, the planning may easily result in a satisfactory disposition of the pipes. The example shown in fig. 73, of an existing terrace-house in a London thoroughfare, will serve to show the unobtrusiveness that may be obtained; it will be observed that only two rainwater-pipes and a short length of air-shaft are in evidence, nor are these conspicuous; all other conduits are in the rear of the building, and in spite of RUSKIN and his school, it will be generally conceded that the street elevation of a terrace-house is of greater artistic importance than any other.

Another feature which is apt to have an unpleasing effect is the ventilating grating, and the best method of treatment is of a twofold nature:—(1) To have the grating of the same material and colour as the wall surface in its immediate neighbourhood, and, (2) if the grating is not rendered artistic in itself, it is well to introduce near by some *objet d'œil* to draw the glance from dwelling on the utilitarian feature, which, in fact, should be rendered both positively and negatively unobtrusive.

Chimney-stacks are apt to assert their presence with undue emphasis, and the sky-line may be quite spoilt as a result. One point should be always borne in mind, and that is that, other matters being equal, a concentration of flues is very desirable, both from a practical and from an æsthetic

standpoint. Practically, such concentration tends to improve the up-draught in flues, due to the more efficient heating of the stacks; and, æsthetically, the diminution in the number of chimney-stacks is advantageous.

In a small-sized house it may be possible to gather all the flues into a central stack, and this produces a very happy result at times. The writer calls to mind a house so dealt with in a town near the metropolis, the effect being very picturesque. Putting aside for the moment the question of strict economy, endeavour should be made to impart as much artistic appearance to chimney-stacks as possible; as a rule, they are very badly treated, or where attempts are made to cover their nakedness, the result is seldom satisfactory.



Elevation shewing
Economy with Effect.

FIG. 73.

Hampton Court Palace possesses some charming examples of ornamental brick stacks, and they are the more pleasing in that they are not all of one pattern.

Sir WILLIAM CHAMBERS was responsible on one occasion for a chimney-stack design that would be considered by some purists as a grave dereliction from the ethics of the profession. In getting out the drawings for Lord CHARLEMONT's casino at Marino, near Dublin, CHAMBERS introduced vases over the attic, one forming a chimney-stack in disguise; and, moreover, he gave the following written instructions:—"These vases will do best in lead or some sort of metal painted and sanded to look like the stone." Whilst being averse from urging over-conscientiousness or undue realism, this treatment is certainly somewhat cross-grained. Sir JOHN VANBRUGH used similar disguises. The use of chimney-pots and cowls serves but to accentuate, as a rule, the ugliness inherent in the average chimney-stack.

When auto-smoke-consumption is brought to perfection and when it is generally introduced, the prominence given to chimneys may be modified, if not altogether avoided. *Sit nobis gloria!* Meanwhile, the market is stocked with patent stoves, constant only in the rapid change from one to another.

Engineers, when patenting their improved ventilators have paid some attention to ventilating turrets; and though many of the latter are inartistic beyond possibility of redemption, at times some that are passable are placed on the market; however, an architect can always prepare designs for individual cases, provided stringent economy is not the keynote. But these turrets should always be in harmony with the design, and not, as is so frequently to be noted, mere exotics. If properly treated, though ventilating turrets are distinctly a utilitarian feature, they may be employed with happy effect.

The concealed roof ventilators that have been introduced of late years obviate, of course, the use of turrets but this is not altogether advantageous.

Lightning-conductors are too unobtrusive in appearance to need critical mention here.

Fire escape staircases, where introduced, must be tolerated for the sake of their practical value and utility, but it is difficult to make them harmonise with a design, and they should be tucked out of view from the street to the utmost extent that the scheme, from the point of view of safety, will justify.

(To be continued.)

THE BEDE MEMORIAL.

THE work of designing the Bede Memorial has been entrusted to Mr. Charles Hodges, of Hexham, whose knowledge of Anglo-Saxon stones, and whose works—notably the Caedmon Cross, the Acca Cross and the Rothbury Cross—are a guarantee that the monument will be in keeping with the best traditions of Northumbrian feeling and craftsmanship.

The cross is to be erected within hail of Monkwearmouth, on Roker Point, where it will be seen by the vast holiday population of Wear and Tyne. It was felt that, whatever were the natural claims of Jarrow and Durham, the church at one place and the tomb at the other were lasting monuments of the great Northumbrian who is worthy of honour, and that it was unwise either at Jarrow or Monkwearmouth to entrust such fine sculpture as is intended to the grime or the fume of the open air. To place the cross under cover within a building at either place was impossible. The committee therefore determined to erect it, by leave of the Town Council of Sunderland, in clear and clean air on a headland which must have been familiar to Bede, and which is actually "in territorio monasterii," given by Egfrid the king to Benedict Biscop for the founding of the sister monasteries of Monkwearmouth and Jarrow.

The cross, 25 feet high, will be Anglian in form, as being germane to the district and contemporary with Bede's time. The shaft of the cross on the west side will be ornamented with scroll patterns from the Lindisfarne Gospel and from the stones at Jarrow, and will contain, within a twisted loop of the duck-billed serpent seen on the Monkwearmouth doorway, pictorial subjects from the life of Bede. On the east side will be Roman lettering, giving two extracts from Bede's work—one from the "Ecclesiastical History," one from his "Life of St. Cuthbert"—both extracts speaking of the accuracy and care with which he worked. On the south side, within a vine scroll, will be carved in alto and bas-relief the heads and busts of the friends and associates of Bede. On the north side a scroll introducing birds and animals springing from a harp, emblematic of his poetic gifts, will show Bede's love of nature.

Beneath these four sculptured sides will run in a band the little verse written by Bede on his death-bed, beginning, "Fore there nedfarae," in Latin, in rune, in minuscule and in English. And on the block out of which the cross rises will be carved a short inscription—"To the glory of God and in memory of His servant Bede."

GLASGOW ARCHITECTURAL ASSOCIATION.

ON Saturday afternoon the Glasgow Architectural Association visited Edinburgh, and, in company of representatives of the sister organisation in the city, had a passing look at many of the more interesting public and private buildings both in the Old and New Town, while an hour was profitably spent at both George Heriot's Hospital and Craigmillar Castle. Arriving at Princes Street station shortly after two o'clock, the visitors were received by the office-bearers and other leading members of the local body, Mr. A. Hunter Crawford, the president, conducting the visitation, and giving notes regarding

the principal buildings on the long route traversed, the party, numbering some sixty in all, being accommodated in a couple of four-in-hands. After driving round Charlotte Square the company proceeded by Maitland Street, Palmerston Place, to George Heriot's Hospital, where Mr. Hippolyte J. Blanc, R.S.A., gave a description of that institution. The drive was continued by Lauriston Street to Craigmillar Castle. Here again Mr. Blanc acted as leader. At each place he was cordially thanked for his service. The return journey was by Duddingston, Queen's Drive, Abbey Mount, Regent Road, Waterloo Place and Princes Street to Ferguson & Forrester's, where dinner was served at seven o'clock, at the close of what had proved an altogether enjoyable outing. Mr. Crawford presided, and the croupier was Mr. W. J. Blane, Glasgow. Several toasts were honoured. That of "The Glasgow Architectural Association" was proposed by Mr. William M. Page, secretary of the Edinburgh Association, who spoke of the value and usefulness of these joint visits, which not only offered opportunities for gaining professional knowledge, but for fostering such a kindly feeling as was desirable should exist between West and East. Mr. Charles E. Whitelaw, president of the Glasgow Association, replied, and heartily endorsed Mr. Page's remarks as to the good purposes served by such excursions, than which nothing more tended to the broadening of their ideas and the strengthening of their ties of friendship. He looked forward to the time when all the architectural societies in Scotland would be united in some form in order to the protection of their common interests. Mr. Blane gave "The Edinburgh Architectural Association," and the Chairman responded. The visitors returned home by the 9.50 train.

TESSERÆ.

Nature and Art.

TO study nature is worth little practically unless right conclusions are drawn from it. In the natural sciences, and in the arts and manufactures founded on them, this is comparatively easy, as any ideas we may have can be tested to any extent by experiment. In architecture, for instance, if we erect an edifice and neglect the laws of gravitation, ventilation or acoustics the error is made manifest, and nature informs us what is right with as much certainty as if the truths of physics were proclaimed with trumpet tongue. But the case is different in questions of taste or art. Here, as in graver things, to all inquiries of what ought to be observed we are met by the awful silence of nature. In painting, which, as it might be supposed to consist in a representation of nature, ought to present little difficulty, there are, as many different theories how far nature is to be followed as there are schools. In industrial design the question becomes still more involved, as here we have not merely to represent but to select. We may support heavy entablatures on delicate leaves, form jugs in the likenesses of illustrious individuals, represent lions and tigers on our carpets, and there is no manifestation of nature to indicate that we have offended against any of its laws, and, in spite of inherent ideas of taste, many worthy people would be found who would give substantial proof that they considered such things useful, beautiful and agreeable. The question, we know, is attempted to be solved by establishing the principle that in representations for such purposes natural forms must be "conventionalised," but to what extent still must be determined by the artist. He may adopt one or more of the theories on the subject, and by its aid adapt natural forms to his purpose, but to do this successfully supposes previous knowledge.

Originality in Art.

The important question often arises in what originality consists, whether belonging to invention or imagination; and, above all, in what cases the use of elements or ideas belonging to another deprives the artist of the merit of originality, or where he may claim to be still original. If he may avail himself of the inventions of others, or merely convert to his own use what he already finds prepared for him by nature, there appears but little occasion for resorting to originality. On the other hand, if availing himself of the ideas used by others, or of those which nature yields, deprives anyone's ideas of originality, hardly any can lay claim to it, as these materials constitute, as it were, the raw commodity out of which the imaginative intellectual wares of all are formed. The true test and criterion to determine whether originality exists or not, whether ideas be dishonestly stolen or lawfully appropriated, appears, therefore, in reality to depend not on the borrowing, but on the application of them. If the ideas in question are simply taken and transposed by the artist from the work of another, or from nature herself, without acknowledgment of the proprietorship, or without making any alteration or modification, the mere purloining of the ideas of another is all that is effected, and the person so using them is a pilferer and a copyist. But if, before applying them to his own use, he entirely remodels their form, or alters their position, or recon-

structs their disposition, he is entitled to be considered an original composer, however much he may be indebted to the source from which he derived them. He is, in reality, in such a case under obligations not for his workmanship, but for his materials only. His was the machine which effected the work, while the quarry merely supplied the stone. Some men, although they imitate others by obtaining ideas from them, recreate them anew and convert them to their own property by the original combinations which they effect. By the fire of their own genius the old materials are melted down, and reappear in a new composition. We may fairly and honestly obtain the bricks from others, if the building we raise is of our design. It is no derogation to the genius of Wren that he did not create the stones out of which St. Paul's is built, as well as erect that stupendous edifice.

Painting in Tempera.

The word "tempera" is used in more than one signification; sometimes it signifies no more than the liquid vehicle by means of which the colour was applied; occasionally it means a glutinous, in opposition to an unctuous medium, and in its most restricted sense it is properly applicable to a vehicle in which yolk of egg is the principal ingredient, sometimes mixed with the white and sometimes, as in the practice of the Italian painters, beat up with the milky juice of the young fig-tree. Eastlake thus speaks of tempera, properly so called:—"On walls and in coarse work warm size was occasionally used, but the egg vehicle, undiluted, was preferred for altar pictures on wood. Thus used, and drying quickly, it was difficult to effect a union of tints in the more delicately modelled parts of a work—for instance, in the flesh—without covering the surface with lines (*tratteggiare*, Anglicé, hatching) in the manner of a drawing. Vasari, indeed, assumes that tempera pictures could not be executed otherwise. Examples of works painted with the egg vehicle being rounded and duly finished without this laborious process are certainly not common in Italy. The pictures of Gentile de Fabriano and Sandro Botticelli are among the rare exceptions. An early specimen of Perugino in the National Gallery exhibits the dryer method." He goes on to say that the old Rhenish pictures, such as the glorious altar-piece in the cathedral of Cologne, have scarcely any appearance of this hatching. Various methods were in use for making the tempera dry more slowly. When the picture was on cloth the back was kept wet with a sponge, and in Germany and England honey was used; a material which has recently been again introduced into the manufacture of water-colours.

The Garden of Epicurus.

None of the rural retreats of the Greeks became so celebrated in the history of philosophy as the garden of Epicurus. This school of his sect was consecrated like a temple, and the administration of it confided to those who successively taught the opinions of their master, and perpetuated the spirit of his famous system like a sacred and eternal flame. They could not, however, alienate this extensive domain which, planted with olive trees and cultivated with economy, sufficed to maintain all the professors of their doctrine. An inscription, says Seneca, on the front of their sanctuary, announced that the sovereign good was only to be found on the bosom of pleasure, and invited those who were weary of wavering between opinions to repair thither and cultivate the repose of the mind. But he confesses that those who were attracted by such magnificent promises and flattering hopes must have been not a little astonished to find simple and honest mortals practising the most sober regimen, and united by the ties of indissoluble friendship, which they considered as the purest virtue and most sublime enjoyment. Mutual failings met with an indulgence there unknown to the rest of mankind; and they supported without murmuring the caprices of their chiefs, who in reality were neither wanting in wisdom nor moderation. Apollodorus alone, from his imperious character, received the epithet of *Cepotyranos*, or the tyrant of the garden; but his pretended despotism never occasioned the effusion of blood, nor even the sacrifice of a tear. These Epicureans were not ignorant that in their paths through life they must meet with thorns as well as flowers, for they spring up, says Lucretius, around the very altars which are consecrated to the graces. It appears by the letters of Cicero that in his time a Roman named Memmius, who was of great consideration in the republic, conceived the unaccountable design of usurping the domains bequeathed by Epicurus to his successors in the vicinity of Athens. Their friends, however, were powerful and zealous enough to protect them against all the efforts of Memmius; and they preserved their possessions until Greece fell under the yoke of the Christians, who desolated that country from one extremity to the other. Whole troops of priests and monks, armed with axes and torches, were seen by Libanius over-running the districts, burning the temples and demolishing the statues, so that nothing remained on their passage but scattered fragments and piles of smoking ruins.

NOTES AND COMMENTS.

A COMPETITION to which exceptional interest was attached was that for the church of St. Andrew in Patras, Greece. It was not difficult to obtain a design from one of the French or German architects in Greece, but no doubt it was considered better to avoid complications and allow all the world to compete. Thirty-two designs were received. They were examined by a jury in Athens, and it was decided that the authors of eight of the designs were to be allowed an opportunity to work them out more definitely. The architects who gained this measure of success are:—(1) M. BINET, Paris; (2) M. ROBERT, Paris; (3) M. DUCK, Vienna; (4) "Sophia," England; (5) M. PANICONI, Rome; (6) M. TSILLER, Dresden; (7) M. DEMADÈS, Athens; (8) M. KARATHANASOPOULOS, Athens.

MYCENÆ was known to every reader of HOMER as a royal city, and there was therefore no surprise when SCHLIEMANN was able to reveal some evidence of its former greatness. Further explorations have shown that its influence was not confined to Greece, for it was an agent in the civilisation of other parts of Europe. It would be strange if Argos, which was only a few miles distant from Mycenæ, did not also exhibit evidence of greatness. Although the city had suffered before his visit, PAUSANIAS found in Argos no less than thirty temples, a gymnasium, a stadium, many monuments and statues and other signs of prosperity. If England cared to increase the knowledge of ancient Greece, no better site could be found for spade-work. But the tardy aid afforded to Mr. EVANS in Crete indicates how limited are our aspirations. We have in the case of Argos succumbed to the Dutch, the last people who might be expected to become enthusiastic about a remote antiquity. M. GOEKOOP, who aided Professor DÖRPFELD in his researches in Athens and elsewhere, has undertaken excavations in Argos, and has entrusted the direction to his countryman, Dr. VOLGRAFF. Already remains of an age preceding the Mycenaean period have been found. On one of the hills a little sanctuary was found enclosed by a double line of walls, the outer being of much stronger masonry. Five graves cut in the rock were opened, and corresponded with those of Tiryns, Mycenæ, &c. The remains of a Temple of Apollo were revealed on the northern slope of the Aspis hill. It was identified by means of some broken inscriptions. Countless fragments of sculpture are to be found in the earth, for Argos produced many sculptors, including AGELADAS, POLYCLETUS, ANTI-PHANES, &c. The work has been suspended, but will be resumed when the favourable time arrives in the course of the year.

ILLUSTRATIONS.

EVELYN HOUSE, 101 FINSBURY PAVEMENT, E.C.

THESE premises, which occupy a prominent position at the corner of Finsbury Pavement and Ropemaker Street, immediately opposite the Moorgate terminus of the North Metropolitan Tramways Company, consist of shops on the ground floor and suites of offices on the upper floors. They occupy the site of the old offices of the Tramway Company.

The elevation is of stone, and the construction throughout is of fire resisting material. The building is provided with an hydraulic passenger lift, and fitted with all modern requirements for office purposes.

The general contractors were Messrs. E. LAWRENCE & SONS, of Wharf Road, City Road, and the premises were erected from the designs and under the superintendence of Messrs. DAVIS & EMANUEL, architects, 2 Finsbury Circus, E.C.

LONDON AND PROVINCIAL BANK, CAMBERLEY.

THIS was built by Messrs. MARTIN WELLS & Co., of Aldershot, from designs by Mr. ROBERT KEIRLE, F.R.I.B.A., the materials being Lawrence's red facing bricks with Bath stone dressings. The upper portion, it will be noticed, is used as a dwelling-house for the bank manager.

SOLDIERS' HOMES, KILBRIDE MUSKETRY CAMP, AND BALLYKINLAR CAMP, COUNTY DOWN.

THE buildings illustrated comprise two of a series of soldiers' homes now being carried out at the large military summer camps in Ireland. These have been erected by Miss SANDES, who has collected and subscribed for a large number of homes in connection with them. Both have been opened by His Royal Highness the Duke of CONNAUGHT. Owing to necessities of site and camp arrangements, the buildings have been designed in a bungalow type, of timber construction, and provide recreation and refreshment-rooms for the men in the camps. The building of the Musketry Camp at Kilbride, co. Wicklow, comprises coffee-room, 40 feet by 20 feet; reading-room, 40 feet by 20 feet; social-room, 30 feet by 20 feet, with private rooms, kitchen, store, bedrooms for staff and all necessary offices. That for the Musketry Camp at Ballykinlar, co. Down, contains similar accommodation, and also in addition suites of rooms for the ladies who will be carrying on the work of the home. These suites include sitting-rooms, parlours and bedrooms. Full sanitary and lavatory fittings have been put into the buildings.

The contractors were Messrs. McLAUGHLIN & HARVEY, of Belfast and Dublin, and the sanitary and plumbing work was executed by Messrs. J. DOWLING & SONS, Belfast. The architect for both buildings was Mr. W. J. W. ROOME, M.S.A., Kingscourt, Belfast.

BROADWAY THEATRE, DEPTFORD.

CROWN THEATRE, PECKHAM.

CHICKSANDS PRIORY, SHEFFORD, BEDS: TOP OF STAIRCASE.

THE illustration we publish this week is more suggestive of the monastic style of Chicksands than the plate given in our last number. The old priory of the Gilbertians has at the present time obtained a little additional interest. As our readers are no doubt aware, there is a controversy in progress relating to an alleged breach of copyright in respect of a new edition of the love-letters by DOROTHY OSBORNE. Most of those letters were written from Chicksands. At the dissolution of the monastery the buildings were obtained by a layman called SNOW, and from him after an interval passed into the possession of the OSBORNE family. When the Civil War broke out Sir PETER OSBORNE, a Royalist, was governor of Guernsey. His son and daughter met WILLIAM TEMPLE, the son of the Irish Master of the Rolls, who was about to make the grand tour. In an inn at which they stopped in the Isle of Wight, OSBORNE scratched on the windows opinions adverse to the Parliamentary authority, and in consequence the three travellers were arrested. DOROTHY OSBORNE, however, assumed the whole responsibility for the offence, and as she could hardly be punished they were all set at liberty. The incident was not without its effect on young TEMPLE, and although DOROTHY'S family were Cavaliers, while TEMPLE'S were Puritans, they became attached. The courtship lasted seven years, and during that time there was correspondence between the lovers. TEMPLE'S letters are lost, but many of DOROTHY OSBORNE'S have been preserved, and are now in the British Museum. They afford us information about the domestic life of the period, and there are allusions to Chicksands and neighbourhood in the pages. TEMPLE'S life as a diplomatist and statesman is part of English history. When he retired from public affairs he lived at Moor Park and Sheen, and it was there WILLIAM III. used to visit him. He had for his secretary JONATHAN SWIFT, who was supposed to have laid the foundation for his brain disease by surfeiting himself with Sheen pippins. It was there also resided HETTY JOHNSON, the daughter of the housekeeper. TEMPLE could have explained the true cause of the mystery which surrounded the lives of his two dependents. But as he was silent it can only be surmised. When TEMPLE was ill in 1693 SWIFT wrote a poem in which he referred to Lady DOROTHY TEMPLE as "Mild DOROTHEA, peaceful, wise and great, Trembling, beheld the doubtful hand of fate." After her marriage little was heard of Lady TEMPLE. She died in 1694.

TERRA-COTTA, CONSTRUCTIONAL FAIENCE AND KERAMIC MURAL DECORATION.*

PERHAPS the history of modern terra-cotta should begin with the works of Coad, Blanchard and Blashfield. Excellent material was made by all of these makers, and here are one or two fragments of pieces made at Lambeth more than 100 years ago.

The figure of Britannia on the dome of the Liverpool Exchange is also an example of Lambeth manufacture of about that date, and though exposed to very severe ordeal from the acid fumes of the district and the full force of sea air, I believe that figure is in a perfect state of preservation. The dressing above ground-floor to the Sun office at Charing Cross may be mentioned as a little known example of Blashfield's work, and the entrance gateway to Sion House, Isleworth, is another example of work done over 100 years ago.

The one idea of all the makers of that period was to produce a clever and exact imitation of stone—truly an unworthy motive; but as to their success, I think my reference to the Sun office will suffice, as I think it probable most of those present will have accepted that as Portland stone.

The early part of the past century was a time when all kinds of imitations and frauds were not only tolerated but were still fashionable; and surely it is one of the most hopeful and wholesome signs of our times that these deceptions have lost their charm and no longer obtain any hold on the educated public. I think we may say that the true modern use of terra-cotta began with the building of the Natural History Museum at South Kensington, and I think it is a remarkable achievement for an architect to have demonstrated so true a use of the material at his first essay on any such large scale. Perhaps someone will say the colour is raw and somewhat aggressive. It is true also that mistakes were made and manufacturers practically ruined by supposing that because the material could be made cheaper than stone that it could be made ridiculously cheaper than stone; but every good cause has had its martyrs, and I think it should be recognised that such a fine building, so suitable for its purpose and of such an enduring nature, was indeed a triumph for something like a first attempt to use a practically new material. I have heard it remarked that the Natural History Museum looks almost as clean to-day as when first built—surely a valuable quality in our dirty atmosphere.

Much has been learnt since the day that was built, and many different kinds of material have been tried in the manufacture of terra-cotta; delicate shades of colour have been obtained by combining clays from widely separated localities and generally the manufacture may be said to have reached a high state of efficiency. Still I venture to call your special attention to the enlarged photographs I show of this early building of Mr. Waterhouse, because of its suitability of design to the material, and after about twenty-five years one has to say that a large number of the designs produced recently for this material are not nearly so well adapted to its characteristics as this early example.

Typical Buildings.

I propose now to call your attention to a few typical buildings gathered at random, which will serve to show a large variety of style and purpose, pointing out those characteristics which indicate special suitability of design to the material.

I suppose all here will agree that it is a true principle that the method of manufacture should be a motive in the design—that the architect should study his material and that the most characteristic use of the material is its truest use.

Let us now look at the Victoria Law Courts at Birmingham, of which Mr. Aston Webb is the architect. The exterior is in red terra-cotta with pleasing accidental variety of colour, but all red, whilst the interior is of a warm buff colour. The design is exceedingly intricate, and both exterior and interior produce a very rich effect; but note what care has been bestowed on obtaining repetition of forms and features, while at the same time a different disposition of the features avoids monotony. The smallest details of this building repay the most careful study; everywhere it is evident that the material has been studied and that a true use of clay has been constantly kept in view. Note the tracery in the great windows, how far it is removed in design from ordinary stone-like tracery.

The French Protestant Church, Soho Square, London, also by Mr. Aston Webb, is specially interesting in much of the internal work.

Now let us look at two of Mr. Collicutt's designs. Bechstein's, in Wigmore Street, and the Palace Theatre, in Cambridge Circus—note in both these designs how he gets

shadow, not by the projection of impossible cornices but by the arched method of producing deep recesses; note also the beautiful free modelled work. I am sorry to say the principal feature of the ground floor, the spandrels to entrance, are almost entirely hidden by the hideous iron shelter. Now, in contrast to these examples of Mr. Collicutt's and Mr. Aston Webb's use of the material, suppose we look at a more Classic type of building—Tootal's warehouse, in Oxford Street, Manchester, the late J. Gibbons Sankey, M.A., architect. We see at once that its great projecting cornices and its row of great columns and other similar features marks it as nothing like so suitable a design for the material as those examples previously noticed, though of course it can be done.

The Higher Grade Schools at Aston, near Birmingham, Messrs. Crouch & Butler, architects, have many features which are specially well designed for terra-cotta, but some that one cannot regard otherwise than forcing the material out of its proper field, as, for instance, the enormous projecting cornice about 3 feet over the wall face, with a modelled trophy in the pediment, something like a foot further projecting. This, of course, is hung up by copper rods and cramps.

A good example of an entire terra-cotta front for a city property is Mr. Chas. H. Worley's building, New Cavendish Street, and for theatres, Mr. Ernest Runtz's designs, Middlesbrough, Peckham and Hastings, all recently built and showing a successful use of the material either alone or in conjunction with brickwork. The General Hospital, Birmingham, of which Mr. Henman is the architect, possesses many interesting and some unique features; notice the ceiling to corridor in which two colours are used, red ribs and with buff panels. These are about 2 feet square and about 4 inches thick, the usual hollow back being made the means of attachment to the iron girders which are buried in concrete, and the concrete then holds up the ceiling panels without any special preparations whatever.

One of the most striking features of modern Birmingham is its ramification of covered arcades. Here is one of the five entrances of the City Arcades (Messrs. Newton & Cheate, architects). The interior of these arcades is faience of a special kind called malachite, to which we will refer when dealing with faience materials.

A building which has attracted a good deal of attention is the recently completed one for the Ocean Accident Guarantee Corporation, Ltd., in Temple Row, Birmingham. This is in a special kind of grey terra-cotta finished with a dragged surface. Messrs. Mansell & Mansell, of Birmingham, are the architects, and they were very anxious to avoid meaningless ornament. I have therefore had a photograph made of each feature and attached these to the margin of the $\frac{1}{2}$ -inch scale elevations now shown.

By the kindness of Mr. A. H. Kersey, the architect, I am able to show you this exceedingly fine photographic enlargement of the front of Messrs. Redfern's premises, Conduit Street. The multiplicity of fine vertical lines in this building, where the pilasters are not only fluted and reeded, but in addition, have a V in each fillet and other special characters about the work, rendered it desirable to carry out nearly the whole of the work by what are called direct methods, *i.e.* without the assistance of plaster moulds. Those who know this building well will doubtless be aware that the porch or main entrance is somewhat different from photograph.

The photograph truly represents the building as designed by the architect and as originally carried out, but the pair of fine architectural grotesques supporting the hood over entrance were considered by his clients to be "indecent," greatly to the disgust of the architect, who had taken very special pains over them, and to meet the objection these were removed and trusses of a totally different kind were introduced after the building was completed. I thought it might be interesting to architects to see the banished grotesques, and have therefore had the photograph enlarged. Here also is an enlargement of the entrance generally, showing to advantage the beautiful bas-reliefs which were modelled by Messrs. Elmes & Son, of Kensington.

The special construction of the hood over this entrance is interesting, and is therefore shown by cartoon. Note that it is formed of interlocking blocks which neutralise the outward thrust and make the hood into practically an elliptic lintel, and at the same time ducts are provided in the thickness of the material for the passage of electric wires for the lamps in the coffered soffit.

Our list of terra-cotta buildings would, however, be incomplete without examples of some of the great modern hotels, so here we have the Hôtel Great Central, of which Colonel Robert Edis is the architect, and the Hôtel Russell, by Mr. Chas. Fitzroy Doll, both being good examples of modern use.

The great hotel is surely the most telling example of active life; it will therefore be an entire contrast to look at two resting-places of those who have passed from its busy scenes—Sir Henry Doulton's Mausoleum at Norwood Cemetery, and the Stearne Mausoleum at Nunhead. With these examples we pass from the consideration of general design to details of manu-

* A paper by Mr. J. Miller Carr (of Doulton's) read before the Society of Architects, St. James's Hall, Piccadilly, on Thursday, April 23.

facture, and will next consider the range of colour available for use in terra-cotta.

Some time ago a lady was shown into my office with a small figure which she had modelled in clay and wished to have repeated in terra-cotta. I naturally asked her what colour she wished to have the copies produced in, to which she replied, "Why, in terra-cotta colour, of course." Assuming as much innocence of expression as I could, I inquired what colour that might be. The lady seemed surprised at this ignorance, which she evidently thought culpable in a person in my position. Had she not bought blouses and possibly tailor-made gowns also in terra-cotta, and even seen it advertised as a distinctive colour in a book of patterns of wall-papers? So, putting on that smile serene and high which ladies can so well assume when they are quite sure they know, she informed me that terra-cotta was a pale-red colour as seen in the statuettes and other similar wares manufactured by the Watcombe Company, at Torquay.

That material is, of course, a kind of terra-cotta, literally baked earth, but would be of little use for architectural purposes.

The Range of Colour.

An immense range of colour is possible in the material, from a pale milky white through all gradations of yellow and buff to burnt sienna and red and on through purple to the familiar blue brick, and all of these gradations can be obtained from different kinds of clay and their combinations and by different kinds of fire.

Here are four blocks, practically bricks made in four of our most usual colours of terra-cotta, viz. buff, cinnamon, grey and red. Each of these has been broken in two, and one-half has been fired in a terra-cotta kiln and the other half in a blue-brick kiln. Note the surprising difference in colour resulting from the different kind of fire to which the material has been exposed.

Almost all colour in terra-cotta is due to the oxidation of the varying quantities of iron contained in the different clays.

It is possible by use of an oxidising fire to develop all the colour of which a particular clay is capable, or by what is called a reducing fire to repress the colour, so that a block which might be almost red under certain conditions of fire would be nearly white under others.

Now as it is (fortunately, I think) practically impossible to exactly control the conditions within a large open-fired kiln, we have the natural result of variety of colour produced on the same material.

This characteristic quality of the material—its charm and the hall-mark so to say of its having been among the ardent tongues of the kiln flames—is much better appreciated to-day by architects than was the case some fifteen years ago, when the profession almost universally specified uniformity of colour, and, of course, the manufacturer had to try to obtain it to the great detriment of the material.

Mr Alfred Waterhouse did good service to the craft when he coined the phrase that he desired to have on his building the results of the "accidents of the kiln," referring to these varying evidences of the fiery trial through which the material has passed.

Beyond the range of colour to be obtained by differences of fire on natural clays and their combinations, there are other possibilities by the admixture at the time of grinding the clay of certain mineral oxides, and with these various kinds of greys and greens and even pale blues can be obtained. Such stained "bodies" are, of course, of the same colour all through, as seen in the vitreous floor tiles of self-colour. Any attempts at surface colouring other than by fired glazes is, of course, highly reprehensible and is not practised by firms of high standing.

The Question of Cost.

On the important question of cost it may be sufficient to state that this is, of course, controlled by suitability of design and the amount of repetition of the several forms employed. It may be taken as certain that where the design is fairly well suited to the material the cost will be below what it would be, say, in Portland stone, and where the design is specially suited and highly elaborated with many repeated forms, such as in the Birmingham Law Courts or the Natural History Museum, the cost will be very considerably below that of the same design in Portland stone with the carving included.

Terra-cotta and Iron Construction.

We must now pass on to the most modern type of building, I mean such as are either constructed entirely of glazed ware of various kinds or are composed partly of glazed ware and partly of terra-cotta, and as these almost invariably combine some kind of iron or steel construction in their design and execution, I propose to take them together as a special class. The Birkbeck Bank and the large block of buildings attached to it, with the new extensive front in Holborn, is I suppose by far the largest example of an entirely glazed building in this country. The whole of the exterior is

in Carrara ware, the colours used being fawn, sage-green and ivory. The method of manufacture of this material produces beautiful accidental gradations of colour, so that dead uniformity is never to be found on even a large surface of theoretically the same colour. The new building at the corner of Fleet Street and Fetter Lane, for the *Sheffield Daily Telegraph*, is another large example of this ware, and in this case it is nearly all ivory; but it is only needful to imagine the difference between the effect produced by the ivory Carrara with its soft and pleasing gradation and what it would have been in, say, white glazed bricks.

Referring again to the Birkbeck Bank, the whole of the interior of the banking-room, corridors, staircases and many of the principal rooms and offices are treated in various kinds of faience, the board-room being a specially fine example in purple, brown and cream colours. The panelled ceiling of this room and also all the galleries to the bank are covered with Doulton's patent safety back tiles on their special preparation blocks, and have now stood the test of about seven years with no sign of weakness of any kind.

Now, if you had told one of the grand old master masons of the thirteenth or fourteenth century that you wanted a dome nearly 80 feet diameter and a similar height, but could not allow of any room being taken up on the ground floor by abutments or buttresses, I think the good man would have either regarded you as a cheerful idiot, or at any rate would have been likely to say, "Ask me another!" or words to that effect. But here are these conditions carried into actual fact, the dome being constructed of sixteen great steel stanchions, tapering as they rise from the floor, and connected at their upper ends by a collar on which a gallery and lantern is carried, the stanchions themselves, as well as the spaces between them, being covered with faience, and the structures of the cores or carcase of the dome of hollow terra-cotta blocks, light and strong, bonded together with glazed panelled surface on the under-side. A full-sized section is here shown.

Work of this magnitude and importance naturally presents many interesting problems in which the architect, engineer and ceramic expert may all have their share.

Mr. T. E. Knightley, the architect, has certainly demonstrated the courage of his convictions on a large and important scale, and has shown in many points the true use of the materials chosen. For instance, in the great exterior columns to the upper parts of the Southampton Buildings front and to the great tower, no attempt at large blocks has been made, but the plain fantatised shaft between the enriched portions has been candidly built up of blue green Carrara ware blocks not more than 10 inches by 6 inches on face, and consequently the broken colour produced by the difference of tone from block to block is pleasant, and at the same time substantial columns have been built up which carry the superstructure without the assistance of iron cores, except only those under the great tower.

The advantages offered by steel construction in connection with modern buildings are such, in the way of lightness and strength, that they will doubtless demand increasing attention from architects and engineers, and I venture to say that there is no other material so suitable as terra-cotta and glazed wares for casing such constructions.

Hardly has the fringe of this subject been touched, and those who have devoted most attention to the matter have yet much to learn, and the paramount importance of association on the part of architect, engineer and keramist cannot be overstated. The usual practice is to let the engineer work out his structure in all its details, irrespective of the needful clothing which is to encase it, with the result that (his contract being already arranged) the engineer cannot make such adaptations as are desirable to give the keramist his fair opportunity of doing his best, and consequently the best is not done, but some kind of compromise is.

In many parts of our country, if not in the streets of London, it will be found increasingly desirable to erect steel structures and put the roof on before perhaps all the details of various floors are arranged as to elevation, and certainly new countries like many parts of South Africa need such structures in which the walls can be formed of rough local materials, and while the internal parts are being completed, materials to encase the steel structure can be obtained from England.

These conditions are so novel that I think, if truly considered and architecturally treated, there should result a new style of architecture the absolute growth of the conditions.

In this connection I may call your attention to a steel structure now in process of clothing with Carrara ware and terra-cotta in High Street, Leicester, the property of the architect, Mr. Arthur Wakerley, F.R.I.B.A., president of the Leicester Architectural Society. Here is a photograph taken of the building with all its steel structure erected and the floors in and the roof on, but with no part of the casing applied. And here is a second photograph taken about a fortnight ago, with the structure about three-quarters covered, and here we

have a perspective drawing of the completed building as it will shortly appear.

The ground-floor piers are encased with blue-green Carrara ware for about 6 feet up, and then the general material of the clothing is grey terra-cotta relieved with light enrichments in cream colour. This bi-coloured effect is quite a new departure obtained by the use of two kinds of clay wedded as to shrinkage and worked together into the same block. We have here one of the ground-floor pier caps, which, while it produces a novel effect in the two colours, is yet surely a legitimate use of the possibilities of the material. The central bay is spanned by an elliptic arch of light section with the steelwork inside, and the spandrels are filled with light open work, modelled work, not suggesting that they carry the superstructure.

It may also be noticed that there is no pretence of arch jointing in the long beams over the shop fronts, but the material is simply treated as a casing of the steel girders.

Mr. Wakerley calls his building the Coronation Building, to commemorate in a measure the recent coronation of King Edward VII., and has introduced the Union Jack as a spot of colour in the centre of each shield of the bays, these being suspended theoretically by a chain of State and carrying emblems of the six great colonies above the shields, while the centre part is further enriched by two decorative marine subjects painted in Parian colours on tiles and a fine group of sculpture in cream colour in a hollow domical recess. The great arch has a modelled dolphin at each springing, and a figure of Britannia seated on a sort of throne with her attendant lion at her feet. This group is about 7 feet high; a colour band is also introduced over the group of sculpture below. I have thought this building sufficiently novel in treatment and material to justify my showing you the full-sized details of the various parts and photographs of the various enrichments.

Here are also other details of ceilings constructed of iron with terra-cotta and faience, and an example of casing stanchions now being carried out in the new building at Birmingham for Messrs. Bird & Sons, of custard-powder fame.

Every example I have put before you has stood the test of actual execution, and can be examined as to its fitness.

Keramic Mural Decoration.

I must now ask your attention to the most interesting part of my subject, viz. ceramic mural decoration, and I only wish it had been possible to devote the whole evening to its consideration, as I fear with the time now at our disposal we can do little more than glance at a few examples without studying any of them very closely.

Let me call your attention then to what I think to be one of the most courageous attempts yet made to get colour and interest into our street architecture. This building, erected about five years ago for Mr. Edward Everard, at Bristol, is a high-class printer's establishment, and was designed by Mr. W. J. Neatby, who at that time was one of Messrs. Doulton's principal artists. The whole front is in Carrara ware, with the figure subjects and other decorative features treated in slab mosaic. You will notice the excellent decoration formed of the name "Edward Everard," and the spandrels of the arches over first floor are occupied, on the left by a figure of Gutenberg, the first printer, pulling his proof, with his alphabet decorating the wall behind him, while on the right is William Morris, the nineteenth-century printer, pulling his proof and with his alphabet decorating his part of the wall. The great winged figure in the centre represents the spirit of Literature presiding over Ancient and Modern Printing, whilst above all in the great lunette in the gable you have the spirit of Light and Truth with her emblems of the Mirror and the Lamp.

The purely decorative details are all of them interesting and the printer's mark is used for a decoration in the hall.

Now Bristol is a very dull sort of city and not easily aroused, but when the scaffolding was removed from this front the police had to regulate the traffic in Broad Street for some two or three days.

Now I know very well how much easier it is to criticise than to do, and I know also that anyone who ventures to strike out a new line in architectural treatment will probably meet first of all with execration, later on he may get admiration, and finally imitation, but that is the order.

What I have to say about this front is that it is a genuine attempt to produce a building that can be read like an open book, just as the interesting fronts of the thirteenth and fourteenth centuries could be read by every passer-by. It is also essentially English, and not copied from any existing building at home or abroad. I know that the cry can easily be raised that it does not harmonise with its surroundings, but pull down the public-house on the one side and the bank on the other, and give us a chance, and we will bring them into harmony.

I should like to point out to you the suitability of salt-glazed stoneware for exterior work, but must leave the few samples here to speak for themselves, or we shall have no time to look at interiors.

The Tilework of the Moors.

A profitable evening might be spent on tilework alone, beginning from early examples, and considering the work of the Moors at Granada, and so on to the more modern use, much of which I think fails of that mural character which all wall-decoration should have. If we would only learn from the ancient Egyptians and the Persians and Moors, we should not see that prevalence of worrying a wall with projecting mouldings, panellings and the like, but should return to broader decorative treatments, in which the wall is allowed to retain its wall-like surface, and the decorative effect is obtained by a suitable use of colour and patternwork. Here are a number of examples of different materials and methods, all interesting, and each possessing special qualities of its own which render it suitable for certain uses. Here are examples of Doulton ware tilework in its low tones of colour; strong rich blues and ever-varying effects, vitreous enamels suitable for strong effects either out of doors or for interiors, imparts painting with its dull surface so restful to the eye. Then here are varieties of the majolica glazes with deep translucent effects of colour, malachite and fluxor, paintedwork, Carrara and Parian. An important example of painted Parian work on a large scale is afforded by the new fish and game market at Harrod's Stores, Kensington, where twenty great roundels, of which we have three cartoons present, represent various kinds of sport, such as the hawking party, a stag-hunt, boar-hunt, &c.

The value of the gold outline used in this work may well be noted. One of our latest new departures is that called Parian vitograph, in which a stained body tile is used for a large part of the decorative treatment and a little Parian painting is added to give full effect. The negress and the alchemist are good examples of this method.

Will you in conclusion allow me to depart from practicalities for a few moments and take a short excursion into the realms of fancy?

I hope you will forgive me if I "magnify my office," as St. Paul says, by calling your attention to an important consideration in relation to the various arts and crafts which combine to produce the various materials to which I have called attention to-night, and that consideration is the large number of persons and interests employed in those various trades, as compared with the very small number of persons and the very limited number of trades which would be employed if the buildings I have put before you had been done in stone.

Without asking you to pin your faith to any socialistic scheme, I think I may claim that those crafts are most useful to the nation which employ most of the people, and the more varied in station, education and craftsmanship the better. I suppose it is one of the strongest objections to the brewing industry that it employs so very few people compared to the value of the product.

Now, if we compare a glazed-ware building like the Birkbeck Bank with the same building carried out in say granite and Portland stone, we have first of all much more drawing and clerical work to be done; we have next the employment of artists, that host ever being augmented by the schools of art—surely we should care a little about employing them; then we have the plaster-making industry at, say, Uttoxeter, producing the large amount of plaster used in models and moulds, the model and mould-makers, the clay worker as well as the clay miner, and other various means of transit; the factory and all its attendant urban responsibilities, such as rents, rates, taxes, gas and water; the labour handling and the whole of the kilnwork, besides the cement labour in filling and fitting, and then all the industries connected with the making of materials for glazes, with the shipping employed to bring many of the materials from abroad; and so we might go on and should find that these crafts benefit the nation at large to a much greater extent than if the money were spent on stonework, which would only employ a tithe of the people.

Surely it is according to the fitness of things that we should be doing exactly what we are doing in this country to an increasing extent.

We take the mineral treasures laid up by kind nature for us in our own land, layer on layer.

On the surface flows the water, that useful means for the conveyance of heavy materials from place to place by canals.

In the Midlands it is not very clean water, but sufficiently liquid for manufacturing purposes. Then just below we have the coal shales and a little deeper the coal and iron.

You take the marl or shale from the coal measures and call in the merry demon, fire, resident in the coal, to aid you in subduing the iron to your purposes, and having got your engine and mill out of the iron you set it to work to crush your marl; then the water is made use of to give plasticity, and in that state the combined elements of earth and water wait your commands, responsive to your lightest touch of fancy; and as soon as your wish has taken actual shape, the water, being no longer required, modestly and silently retires, escapes from its clod of earth and purified

goes up higher again to bless the human family by descending in the gentle dew or rain. You now bring your product into closer touch with the element of fire again and commit it in the kiln to that merry demon who, with many quips and cranks of his own fancy not only makes you rock again out of clay, but puts what I have called his own hall-mark upon it. And while all this is going on, in another part of the Black Country the colour maker is busy with his china clay, chemicals and colour mills, and then the snorting iron horse gets hold and brings both products to London and there the artist is called in to add his touch to the whole, and so in time your erstwhile clod of earth becomes brother to the precious stones, enriched with colour and sheen and fit to take the place for which it has been designed by the architect.

You have paid me the compliment of allowing me to bring these subjects before you to-night. Will you let me plead with you as to the importance of present-day architects leaving their mark upon their time, by not copying continental or other examples, however interesting they may be, but out of the conditions of life now present evolving an architecture as true and good to our day as was the Early English to its day, guided in its evolution at least as much by the Seven Lamps as by the Five Orders of Architecture; and when you want a lunette panel for the hall of your Society let me suggest as a suitable subject "A Frolicsome Figure of Fancy" seated blowing bubbles and watching as they rise, with a stern "Figure of Restraint," her hand on "Fancy's" shoulder and pointing her back to a great winged figure in the background whose right hand rests on a pile of ponderous tomes, the history of the past, and who belongs to the past, the present and the future, the Genius of Architecture.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. Aston Webb, A.R.A., president, in the chair.

The SECRETARY announced the decease of the following members:—Messrs E. Birchall, associate 1863, fellow 1871; F. Edwards, associate 1857, fellow 1861; Young Bolton, associate 1882; R. Phillip Day, associate 1882; Colonel John Davis, elected hon. associate 1887.

Messrs. John Woolfall, of Liverpool, and John Swarbrick, of Manchester, were elected as members.

Mr. EDWIN T. HALL read a paper entitled

Four Modern Hospitals.

He did not deal with hospitals in general, but with concrete examples on which he had personally laboured. These were representative of four types, viz. (1) Hospitals for scarlet fever, diphtheria and enteric diseases, which are generally grouped under one staff; (2) those for smallpox; (3) sanatoria for tuberculosis or consumption; (4) general hospitals. The examples the lecturer brought forward illustrated one of each kind, viz. (1) the City of Leeds Fever Hospital, at Seacroft; (2) the City of Leeds Smallpox Hospital, at Killingbeck; (3) the Sanatorium at Frimley, in Surrey, for the Brompton Consumption Hospital; (4) the Camberwell Infirmary.

Before dealing with his examples, some general observations were made on each type of hospital, discussing questions of site, plan, location, medical treatment, numbers to be accommodated, &c. Consumptive sanatoria the lecturer considered justified, if only as schools of domestic and personal hygiene. Patients may or may not be healed entirely of their disease, but they are taught the value of cleanliness, of exercise, of fresh air, of regular habits, of order and self-respecting discipline, and they go back as missionaries to their families and friends. As regards site, all kinds of infectious hospitals should be away from a densely built neighbourhood. For a general hospital in town, the site should be as open as possible, and preferably surrounded by roads which form wind channels to change the air. Low-lying land with a shallow gravel subsoil should be avoided. Public smallpox hospitals are required to have a quarter-mile zone around them—that is to say, the land forming the hospital estate must be 130 to 160 acres in extent, and in the heart of this, shut in by a ring fence, must be the portion reserved for patients. For mixed fever hospitals a zone is required to protect not only the public, but also those suffering from different diseases. But where the site is large enough the isolation of the pavilions or ward units should be considerable for the comfort and pleasure of the sick. Prospect, sunlight, trees and gardens are all aids to recovery. No hospital on a rural site should be more than two storeys in height. In all the best modern examples of hospitals, the main wards are placed with their axes north and south, when this is practicable, with windows on both sides and at the ends. Thus every bed and every wall gets all the sunlight there is during some part of the day. Double wards—that is, wards

with a central wall and rows of beds on each side of it—should always be avoided. For consumptive sanatoria, as distinct from hospitals, large wards are not adopted; the ideal is a single room for each patient, with a southerly aspect, in a building not more than two storeys in height. On a city site, where relatively high buildings are a necessity, three or more storeys are suitable, and lifts and thoroughly aerated staircases for access and for fire escape must be provided.

Referring to the ordinary layman's idea that a hospital is but a single building, the lecturer said that a fever hospital is almost a village, with thirty to fifty separate buildings, and with a staff of three hundred or more persons. In one of his hospitals there were within the curtilage six miles of drains, twenty-nine miles of water and steam pipes and forty-two miles of electric wire. At Seacroft there were eight to nine miles of drains.

The City of Leeds Fever Hospital, at Seacroft, is about three miles from the centre of the city. The site was formerly a beautiful park, and the trees have been kept wherever possible. The area is 41 acres, and from one end of the building to the other is about a quarter of a mile. The hospital consists of forty-two separate buildings. It is presided over by a medical superintendent with three medical assistants, a lady superintendent or matron with her assistants, and a staff of 102 nurses and seventy-two female servants. The male officers and servants number about thirty-eight. Accommodation is normally provided for 452 patients, but in cases of emergency a much larger number can be received. Attached to the hospital is a quarantine station of many cottages, to which infected families are removed until danger is past. The administrative buildings consist of:—(1) The offices, with residence for the matron, for the assistant medical officers and for resident porters and others; (2) the nurses' home, containing 121 rooms; (3) the female servants' home, with eighty-four rooms; (4) dining-rooms for nurses and servants between the homes and the kitchen; (5) the hospital kitchen, steward's stores, dispensary, staff consultation-room, sewing-room, &c. A complete laboratory, with students' rooms, forms another building. To the east and west of this group, on the main covered way, are patients' admission rooms to the different parts of the hospital. Every part of the hospital is connected by glass-covered open ways, with subways beneath for steam, hot and cold water, and gaspipes, electric mains, &c. The hospital pavilions are grouped in pairs, with fuel store and nurses' lavatories common to both on the cross corridor. Beneath these staff offices is the heating chamber. Each pavilion is axially north and south, with windows on both sides and at the ends. It has an entrance hall, with the duty-room opening from it. To right and left are large wards, each containing fourteen beds, and opening from these are single-bed wards, all overlooked from the duty-room or ward kitchen. Each large ward has a wide balcony at the extreme end, flanked and sheltered by the towers, containing bath-rooms, lavatories and water-closets, and near these is an external flight of steps leading to the grounds. Beneath every pavilion is a paved open basement, about 5 feet or 6 feet high, forming an aerial disconnection of the wards from the earth. In this all pipes and cables are placed, so that repairs can be done without coming inside the building. The smoke flues are also swept from beneath. The ward floors are of polished teak laid direct on the concrete. The walls are of cement, painted and varnished to match the faience chimneypieces. The heating is by passing fresh air over hot-water radiators at a calculated low velocity, so as always to be changing the atmosphere of the room, and this is done completely three times an hour. The extraction is by fire and aspirating flues. Heating should never be done by pipes laid in channels with gratings over. These become receptacles for dust and filth of all kinds. The ventilation of the hospital was secured by natural, as opposed to artificial, means, such as that usually called the Plenum system. In the lecturer's judgment the latter was a mistake in any hospital. The windows, consisting of a pair of sashes and a fanlight with glass spandrel cheeks, extend to the ceiling. Describing the sanitary fittings the lecturer showed a drawing of a bedpan sink designed by himself for hospital use. Its advantages are that it uses about half the water of any other; no water stands in any pipe when out of use; one flush not only feeds the rim but spreads a palm-like wave which, entering the bedpan handle, thoroughly cleans everything. The isolation pavilions, of which there are four, consist of wards of one, two and four beds each, with nurses' rooms and special sanitary accessories for treating different diseases. In each of the diphtheria pavilions there is an operating-room with side and top light. The block for severe operations contains an anaesthetic lobby, a theatre and a sterilising-room. The staff quarters have everything necessary for comfort. There is a large recreation-room, a writing-room, a library, a third sitting-room for probationers, a suite for the home sister, ample offices and a separate bedroom for each nurse. The whole hospital is of fire-resisting construction. The hospital kitchen is a room 50 feet long, with a large

cully attached. Close by is a large bakery, and there is a group of larders facing north and arranged with through currents of air. The steward's store is 60 feet 6 inches by 5 feet 7 inches, with a gallery round. From this centre enclosed trolleys convey food and stores to all parts of the hospital. There are separate laundries for patients and staff. Near the entrance to both is the disinfecting house and the destructor. All unconsumed food and pieces are burnt. The engine-house will contain three large direct coupled dynamos to light both this hospital and the Killingbeck Hospital. The heating of both will be done from this centre. The exhaust steam from the various engines is collected and used for heating. In like manner is collected all the condensed water, all the cooling water from electric engines, &c., and this is filtered and pumped at 180 degs into the economiser. In this way, when the engines are running, all the heating and hot-water supplies will be done for nothing, thus saving some hundreds of pounds a year. Describing the drainage and treatment of sewage, attention was drawn to the sewage irrigation outfall, from which it is necessary to exclude typhoid germs. He showed drawings of an apparatus devised by himself for dealing with these germs. It consists of receiving tanks and boilers for alternate use. The typhoid sewage is received and boiled by steam, after which it passes to cooling beds, and thence to the outfall sewer.

Killingbeck Smallpox Hospital is situated on the top of a hill, with undulating country all around. The grounds proper are 12 acres in extent, but the total attached area is 140 acres. The hospital buildings proper are grouped together on the summit of the site, the offices and medical quarters being in the centre, the laundry and mortuary to the west, the discharge block to the east, all outside the hospital road. Entering in the centre, the nurses' and female servants' homes, respectively, are to the west; the kitchen and stores, dispensary and serving-room to the south; the male servants' home to the east. Beyond, to the north, lie three large pavilions and two isolation blocks, while the admission block to these is at the junction of the covered way. The mortuary here has no visiting-room for friends to view their dead, but it has, under a peristyle, a plate-glass sarcophagus, into which the body, suitably dressed, is placed from the mortuary on a rolling bed. The visitor, standing in the open air can thus see the dead, but cannot come into actual contact with the body. To enable the heating to be done from Seacroft, as above mentioned, the highway had to be tunnelled, and a covered trench carried right up the hill. The hillside down which the drain had to come was very steep, and reasonable gradients were got by a series of weirs in the pipes.

The Frimley Sanatorium for the Brompton Consumption Hospital was next described. Here he had tried to get away from the hospital, to suggest breeziness and health and the pleasant atmosphere of a large home. The institution consists of sixteen buildings. The patients' block is cross-shaped, with accommodation for eighty-eight patients in four two-storeyed radial pavilions, and for twelve in the centre where special cases may be under closer surveillance. Every patient's room faces S., S.S.E. or S.S.W. His first design was for putting the eighty-eight patients in single rooms, but this was overruled. For the King's Sanatorium, however, his original plan was shown to His Majesty and to Sir Ernest Cassell, and the committee came to the same conclusion as that he originally contemplated. As regards concentration, which in Germany was carried to an extreme, the lecturer said he had tried to find a mean. At Frimley they had 100 patients all within a radius of 195 feet from the doctor's consulting-room and matron's sitting-room, and yet every room has an open outlook; all are away from noise and bustle, all have the greatest amount of sun, and all are sheltered. Another advantage of the plan was that ample classification could be got. They could have units of twenty-five males or females, with their separate group of closets, bathrooms and lavatories, or they could arrange convalescents by themselves or make other divisions of patients in units of eleven. There was but one dayroom on each floor. The great aim is to get the patients out into the open air for their recreation, not to encourage them to remain within. Provision is made by which beds can be wheeled out on to the terrace, and at each extremity of the pavilions there is a sun-room formed in the turret for patients in the end ward, in addition to a balcony. As regards roofs to terraces and balconies, the lecturer's idea of rolling canvas shop-blinds had been adopted. These could be lowered or rolled up at will.

Camberwell Infirmary, Brunswick Square, although technically a parish infirmary, is, owing to its position, really a general hospital, dealing with accident and acute cases of all kinds. The original building in Havil Street he was altering and modernising to form part of the larger institution. It consists of twenty-one buildings, standing on a site of 4½ acres, practically surrounded by roads, and all buildings are connected by glass-covered ways and subways. It accommodates 800 patients, has a resident staff of five doctors, while the other officials, nurses and servants, number about 160. The block

plan is as follows:—In the centre of the west front is the administration block, with a pavilion north and south of it. To the east of the administration is a quadrangle, having on the east side the female staff house, and north and south two other pavilions; to the north-east lies the old pavilion, now divided into three parts. To the east is a circular pavilion, its conical roof, surmounted by a turret, forming a feature of interest in the general composition. To the south-east are the kitchen buildings, the stores and men-servants' quarters. Further south the laundry, engine and boiler-houses, the mortuary and ambulance station. All buildings may be reached by the private road on the outside and by covered ways on the inside. The principal buildings are of red brick and Portland stone, the main front forming a flat crescent. The new pavilions are axially north and south. The pavilion to the north—which may be taken as typical of all, although they differ in detail—consists of three main storeys and a fourth one over part of the area. It has at the home end a wide staircase, with walls of glazed brick from bottom to top. At the other end it has a secondary or escape staircase, extending from the flat roof to the road, in what is practically a separate tower. There are three exits from the building. On each floor there is a ward of twenty-four beds, with windows on three sides, and other wards of six, four and two beds respectively, affording opportunity for great classification. There is a ward kitchen. This and the corridors have also all their walls of glazed brick.

The twenty-four two and four-bed wards are open to supervision from the ward kitchen and from each other. All are well lighted, and every window opens. There is only one fireplace in each ward, for cheerfulness, the heating proper being by hot water. The large ward on the top floor has been specially designed for consumptive patients, and is a unique provision for a general hospital. Practically the whole of the enclosures on three sides consist of opening windows for open-air treatment, and above is a flat roof on which patients may spend all the day with something of interest to see in the panorama stretching across London. Three of the pavilions are so designed. One of the greatest modern improvements in hospitals is the superior accommodation now given to the staff. The female staff home at Camberwell Infirmary is situated in the central quadrangle, with a pleasant garden attached. It has several large rooms for dining, recreation, writing, &c., for nurses and servants. Each of the staff has a separate bedroom, warmed by hot water, with an inlet and outlet ventilator. There are 140 rooms in the building. Details were given of the children's pavilion, the kitchen block, the engine and heating-rooms, smithy, shops, boiler house and laundries—the most costly block of the whole; also of the heating and ventilation. The laundries are arranged so that linen received soiled at one end passes through and out clean at the other. Electric fans remove all steam and polluted air. The drying is by hot blast.

In concluding, the lecturer said he trusted he had been able to show that in hospital work there is much to interest the architect. In addition to the general design and detailing of not one, but dozens of buildings of diverse purpose to their grouping and co-ordination, so that each may take its proper place among the whole, one has to give special consideration to the medical requirements and hygienic conditions; to aeration and ventilation, to the design and organisation of the services for heating and artificial lighting; for telephonic and other means of intercommunication; for fire extinguishing; for transport and commissariat. Unremitting attention is necessary to deal with so much of detail, often not alluring in itself, but with enthusiasm the driest bones may be made to live, and to the strenuous man difficulties and new problems are but a spur to greater effort, an added zest to all enterprise.

Mr. HUGH STANNUS, who proposed a vote of thanks for the paper, said it was clear to him that the present was essentially an age of hospitals. The manner in which Mr. Hall had classified the hospitals had enabled him to deal with the subject in a masterly way. He (the speaker) had heard very able papers on the specialised work that architects had to do with in practice. They had had papers on barracks, school buildings, private school buildings and on libraries, and they had just heard a paper on hospitals. These papers would form an exceedingly valuable corpus to students.

Mr. T. BLASHILL seconded the vote. The adoption in modern work of hospital pavilions was, he said, a tribute to the original authors of the idea in so far as it had undergone little modification. The improvement in hospital construction was achieved by an intense study of details.

Messrs. W. G. WILSON, R. J. ANGEL, E. A. HAWKINS, W. HILTON NASH and J. OSBORNE SMITH supported the motion.

Mr. HALL, in returning thanks, answered the questions which had been put to him. Referring to the cost of erecting a hospital, he said he would prefer not to give figures. Hospitals were the most expensive buildings in the whole world if attention was given to details—from 400*l.* to 650*l.* a bed would be about the average cost in an infectious hospital.

The area of such a hospital would be about three times the cubic space per bed of a general hospital. The aspect would be governed by the disease to be treated. In cases of infection free currents of air were needed so that the foul air was driven away immediately. In a sanatorium not one person in sixty was confined to bed, and the German authorities agreed that the best aspects for consumptives were south, south-south-east or south-south-west. Deal floors were not to be advocated; the most suitable material was teak, wax polished. The question of soil was of importance, though very often a hospital had to be built on the one site available. Low-lying gravel was bad, clay was cold, green-sand formation was the best, but so long as the buildings were well drained it mattered little whether the soil was gravel or clay.

THE ROMAN FORUM.

A CORRESPONDENT of the *Scotsman*, when describing the Historical Congress at Rome, says:—Naturally the recent excavations in and about the Forum have proved highly attractive; and Commendatore Boni has been indefatigable in displaying the results of his work to small parties and great, while he has explained it to the Congress at large by the aid of lantern projections. The lantern demonstrations in the large hall of the Collegio Romano, the seat of the Congress, have indeed been one of the features of the week, and the display of slides relating to the Italian excavations at Phaestos, in Crete, by Signor Pernier, was of special interest to British members as showing that Mr. Arthur Evans's Knossos is only one of many sites in the island that are contributing to restore to us the outlines of a long-lost civilisation.

The importance of these recent discoveries in the Forum Romanum is threefold. In the first place there has been a complete removal of the Mediæval and modern buildings, notably the church of S. Maria Liberatrice, which intervened between the Forum and the corner of the Palatine Hill overlooking it. The road till recently in public use that ran under the Arch of Titus is now closed, and the whole area about the Arch and beyond it nearly to the Colosseum has been given up to "scair" which are extending from this side up the slope of the Palatine. Only the church and convent of S. Francesca Romana are allowed to survive, and the old cloister of the latter is being now fitted up as a Forum museum. Palatine and Forum form now a single field for exploration, and in consequence the difficult topographical questions which concern the means of access at different periods from the one to the other have at last some chance of being settled. In the second place, the extensive clearances that have been made on the north side of the Forum proper beyond the Arch of Septimius Severus and eastwards to the Temple of Antoninus and Faustina have rendered easier the comparison of levels, with the result that some structures formerly ascribed to the regal period have been proved by their levels to be much later in date. Notably is this the case with our old friend the Cloaca Maxima, which is now relegated to the Imperial epoch. The original conduit of the time of the kings must have run at a much lower level.

The third and most important result is the establishment of a new principle in the excavations of ancient Rome. Hitherto it has been the custom to clear away the accumulations of modern and Mediæval times to such a depth as admitted of the complete display of the first stratum of antique masonry that was laid bare. This stratum might often consist of structures of the later empire that had taken the place of earlier and more interesting fabrics of Hadrianic, Augustan or republican times. The new principle, on which the more recent excavations have been carried out, establishes it as the duty of future explorers to examine all these underlying strata till the virgin soil is reached, so that the earliest Roman, or perhaps pre-Roman, remains on each site will be made as clear as the more extensive relics on higher levels to which alone attention has hitherto been paid. In this way is created a situation which corresponds in some degree to that existing in England at the epoch of church restoration in the last century. Early work in most of our old churches had been overlaid in the course of time by later, and to restore the old a good deal of what was more recent was sacrificed. This more recent work, however, though Late-Mediæval or perhaps Jacobean, was part of the history of the church, and its summary obliteration gave rise to not a few well-supported protests. In the case of Rome it will no doubt be difficult to preserve the upper strata while investigation proceeds at the lower levels, but Signor Boni is fully alive to the danger here hinted at, and is sparing no pains to avoid any injury to works of secondary interest in the course of the more searching explorations of lower strata now demanded. The means adopted may be seen in the case of the so-called "Lapis Niger," or black marble slabs let into the pavement of the Comitium and supposed by the Romans of the later empire to mark the place of burial of the

founder of Rome. These black marble slabs, discovered a few years ago, have been supported below by concrete and iron, and are sustained exactly *in situ*, while excavation carried out beneath them have disclosed to view an interesting and apparently very archaic group of monuments connected with this supposed Heroon of Romulus. These relics, which include the broken stele with the early inscription, have not yet been officially described and illustrated, but they certainly bring us into contact through a chain of tradition with the associations of the Rome of the kings. A more definite connection has, however, been established between the Forum as we know it and the earliest Rome by the discovery, close to the Temple of Faustina, of a group of primitive burial-places of a kind already known from excavations in other localities, some of which almost certainly go back to the epoch of the tradition founding of the city. In one of the graves, opened at the view of the Congress, there is still lying a skeleton that most probably belonged to a member of one of the small separate communities out of which afterwards grew the city of Rome. This discovery carries back the history of the Forum and its neighbourhood further than it has yet been traced, and much attention is naturally being paid to it.

The extreme interest of these Forum excavations, and the prospect opened of new and fruitful work in the revelation of an older Rome that is still underground when we have reached the ordinary late Imperial levels, show that the recent opening of the British school at Rome has come just at the psychological moment, and establish in its favour a claim for practical support on all interested in historical studies. The school, located in a portion of the Palazzo Odescalchi, gave a reception which has been one of the pleasantest social events of the week. The official functions have included a dinner at the Quirinal to a selected number of delegates, and receptions by the Minister of Public Instruction on Sunday afternoon in the Palatine, and by the Syndic of Rome, Prince Colonna, in the Museum of the Capitol. The last two functions were necessarily crowded and miscellaneous.

ARCHITECTURE AT THE ROYAL GLASGOW INSTITUTE.

OUR Glasgow Exhibition of Architecture as represented by drawings, says the *Glasgow Herald*, is smaller this year than ever. In location it has been most cavalierly treated. There is, perhaps, little to allege against the stairhead itself; it is better lit than the Edinburgh octagon, it is not very inconvenient, and it quite suffices in extent for the contribution. All the same, the indifference shown, not to hostility, is well calculated to reduce still further the drawing sent in. Soon, we take it, there will be none at all to poster hanging committee. Possibly, however, visitors will regret the exclusion this year of artistic jewellery and the like that in the past few exhibitions have lent interest at surely the smallest possible cost of space. One must hope that with new premises the Institute will better realise its obligations to others than painters and sculptors.

The collection is a small one, and yet it cannot be said that the selection committee have been over-exacting. Photographs again principally illustrate executed works; there are few coloured drawings; pen-and-ink is the favourite medium and perspective the favourite method, and of geometric elevation there is but one solitary specimen. It is remarkable that churches are so few and unimportant; all, as regards style, are versions of Gothic. St. Michael's, Canby, is a small mission chapel apparently. Mr. Clifford has done something like that before, and shown very well how interest can be given without expensive treatment. There is a low, squat tower, whose apex seems to be thrown into the church, a side aisle and a projecting porch. The type and its treatment are essentially English but none the less welcome because of that. In a Wesleyan church at Girvan, by Messrs Watson & Salmond, also small but with no tower, the most is made of a gable with a tracery window, low side aisle, and a porch, partly of timber. There is apparently no gallery in the church; the style is Perpendicular, freshly treated. St. Columba's, Blackhall, Edinburgh, by Mr. P. Macgregor Chalmers, is of an earlier period; the detail is Norman, but something of the altitude of Gothic is given in the general composition. There is a fairly tall tower or steeple, with a corner turret. No plans accompany any of these views, and this is unfortunate. The interior of Kilbarchnie Church, Mr. W. H. Howie, is shown by photograph to possess a side aisle that contains a gallery; the arcade is of stone, and there is a hexagonal apse and open-timber roof.

Of domestic examples the most important come from England. Hintow House, Northamptonshire, illustrated by two frames of photographs—one hopelessly skewed—is a charming country house with all the thoroughness of design one expects from Mr. Morris. It has few features and little ornament. Level lines prevail; in the interior ceilings are of heavy timber and in some apartments the stone is exposed in rather

sophisticated if not rude fashion. Mr. Fred. Rowntree, of Glasgow, shows two houses for York, of brick principally, early eighteenth-century period; as to style a Classic treatment—that is, of cornices and pavilion roofs rather than gables; one has timber oriels and the upper part of the walls rough-cast. The house at Wimbledon, by Messrs. Niven & Wigglesworth, has also level cornice and pavilion roof and walls wholly rough-cast or harled—no doubt effective enough sheltered among trees, but a little more of design would not be amiss. Nearer at hand, a House at Pollokshields, Mr. John Nesbit, has more pretension, with tower-like roof, gables and oriels, but, in contrast, a very quiet entrance. The lower storey is of stone, the upper rough-cast—a favourite recipe that insures variety of colour; a plan is given. Craigend, Troon, by Mr. Clifford, is principally one-storeyed, with dormer windows and carved stone gable tops, a composition quaint and out of the common; the semicircular porch is just a little droll. Taymouth, Skelmorlie, by Mr. P. Macgregor Chalmers, is an addition in substantial stonework, but with half-timber gable; some of the detailing is a little commonplace. Photographs of country work, by Mr. Campbell, in rustic style, but of that fortunate variety that has a good deal of money expended on it. Mr. Austin Laird's three residences at Kilmalcolm are very nicely drawn and of varied character, all good; one at Giffnock is in half-timber style. The interiors of Mr. Burrell's house, Great Western Terrace, Mr. R. S. Lorimer, are particularly interesting and quite the most important exhibit of the collection. The photographs show rich and beautiful work, and original, at least in the sense of happy combinations of known elements. Some pieces of old work are skilfully incorporated with the modern settings, and whole walls are hung with old tapestries, so there is excuse for the archaistic treatment of the carvedwork—the stair newel-posts for example. Of the interiors, by Mr. A. N. Paterson, the chief interest lies in the plaster ceilings, that may be described as flat vaults, left ever so plain excepting for a largely modelled band of fruit forming a panel, a treatment that as a change from strapwork and plaster enrichments generally is welcome, but it just verges on the extreme of protest. The central hall of Hamilton Middle Ward Offices, by Mr. Alex. Cullen, is surrounded by an upper-storey colonnaded gallery in Exchange fashion, and lit from rooflights in the segmental arched ceiling; all is finished in plaster, and there is some well-modelled work. The staircase is of stone, and a good deal of fresh character is given to the phase of Classic adopted. A portion of the lofty office block erecting at the corner of West George and Hope streets, Mr. John A. Campbell, architect, one of the important additions to street architecture of the year, is notable for the rather aggressive plainness of three storeys; they, at any rate, act as foil to the richer top storeys. There is a suggestion of a tower, not actually on the corner, and it, with long projecting oriels, gives verticality; the horizontal element results from the tiers of square windows without much assistance from strings or cornice. The somewhat robustus carving is allowable on so large a façade, and it is employed sparingly and with discrimination. The Sailors' Home, Niven & Wigglesworth, is of a type hardly known among us, the brick Georgian treatment seems peculiar to England; here well managed and shown in a good pen drawing. Mr. D. Andrew's School at Kilbowie is straightforward and appropriate, and the Street Buildings, Kirkcaldy, J. D. Swanston, shown in colour, are piquant and must give life to the thoroughfare. Wolverhampton Exhibition is recorded in Messrs. Walker & Ramsay, architects, constructed of plaster, and for purposes of temporary scenic display architectural canons were not seriously taken, and the humorous vagaries of "new art" had ample warrant. One of the rejected in a district library competition, by Messrs. Watson & Salmond, is a good and suggestive design in its largeness of parts, undoubtedly the right treatment for a low building that must be dominated by high tenements, and the quality conspicuously absent from the trio most recently chosen.

Tea-rooms are in Glasgow a favourite field for architectural effort, and those in West Campbell Street are as noteworthy as any. Mr. Rowan has successfully manipulated many styles in larger and more serious work, and this essay proves that the latest architectural fashion is neither beneath nor beyond him. A reconstruction has been skilfully effected, and throughout the detail is playful, but never eccentric. Mr. Salmon's offices, St. Vincent Street, are unmistakably "new art," and at least the technical execution may be praised in stone carving and wrought metal; marble panelling is beautiful in itself. All the same, the architectural quality is poor; stone is treated as if a plastic material, and, generally, the forms are capricious for all materials. This disregard of convention in architecture is just as inartistic as a natural treatment of ornament without conventionalism is. The doorway, Mr. D. Whittet, has apparently play on the stone of a kind usually found only in cabinetwork, and whether the novelty is worth the expense may be questioned. By the same is a good pencil sketch of a hall in the

farm-kitchen manner. A colour scheme for a hall, Mr. John Ednie, is nicely touched in, and this design is not too aggressively original, as this kind of decoration usually is.

The collection, it will be gathered, has little of first importance; many of our architects are unrepresented, and this is hard to explain, for there are throughout the city not a few building projects that might well be submitted to public view and criticism. Of course, this cannot be done by photographs; drawings there must be, and architectural draughtsmanship as a minor art should therefore receive encouragement from the Institute.

Among the paintings are representations of buildings only moderately successful. Sometimes the architecture is only incidental, and so a slight indication suffices. Still, Mr. Lauder's Swiss tower might have had its upper part centred with the lower, and neither Mr. Coventry's street scene nor Mr. Newbery's church interior would suffer by a little more definition. Mr. Cameron's presentment of a Venetian palace is admirably detailed, but the Glasgow Exhibition buildings—may not one fairly argue from unsympathetic delineation of architecture that painters hardly find in the mother art that attractiveness she ought to have for all who claim to be artists?

THE CROSSES AND HOLY WELLS OF LANCASHIRE.

AT the meeting of the Lancashire and Cheshire Antiquarian Society, held at Chetham's College, Manchester, on the 17th inst., Mr. Henry Taylor, F.S.A., of Birklands, Birkdale, read the sixth paper of a projected series of seven on the Ancient Crosses and Holy Wells of Lancashire. The subject that night related to the Hundred of Lonsdale, which consists of two oval-shaped pieces of land divided by Morecambe Bay, each measuring roughly about thirty miles from north to south, and fifteen from east to west. The paper was copiously illustrated by maps of the district, and by plans of the most important towns and market-places, and by photographs and engravings of the numerous pre-Norman and other ancient crosses which are scattered up and down over this portion of the country.

Lonsdale, north of the sands, is in the diocese of Carlisle, and Lonsdale, south of the sands, in that of Manchester. Lonsdale, north of the sands, is divided into two portions, called High and Low Furness, the latter consisting of comparatively flat land, and the former, which forms the northernmost portion of the county, of lofty fells and mountains. Ancient crosses are not numerous in High Furness. It has never indeed been a district, like the mountainous parts of East Lancashire, where crosses were placed as guides to travellers from one abbey or castle to another, or for the use of merchants, but has been the abode of shepherds who have never had occasion to go far from their own hillsides, every mile of which has been intimately known to them. In Low Furness the circumstances were different. In pre-Norman times there were the Norse settlements, the invaders erecting monuments of a distinctly Scandinavian type, and subsequently, in this rich and beautiful undulating country, the monks made their homes at Furness, Conishead and Cartmel, and small towns grew up at Ulverston, Dalton-in-Furness, Cartmel and Broughton-in-Furness, where churchyard, market and other crosses were erected.

Mountainous districts all the world over have been the home of poets and mystics, and have fostered superstitions. This is eminently the case in the Lake country, where the fells have had given to them in the far-away past the most imaginative and romantic names, such as "Queen of the Fairies' Chair" and "Raven Tor," maintaining the tradition of the sacred bird of all the Teutonic and Scandinavian races; and, furthermore, it is not surprising that holy wells abound. Sometimes the wells are dedicated to scriptural saints, St. Mary, St. John and the Archangel Michael. In other cases the spring is known merely as the holy well. In certain districts the wells appear to have been named in an arbitrary and capricious fashion, as Sheriff Well, near Ulverston; Mary Bank Well, near Dalton-in-Furness; Bean Well, near Aldingham. In Lancaster we find St. Mary's Well, the Friarage Well, Wolf's Well and St. Patrick's Well. Near Warton the well is dedicated to St. Oswald, and at Glasson the Hob and Dob fairy superstitions are perpetuated in Dob's Well. Several of these wells have been for centuries frequented for their supposed medicinal and healing properties, the word "holy" meaning "healing." The Holy Well, Humphrey Head, has been so used from the time of the Romans by the lead miners.

Market crosses were erected (and in many cases still survive) at Broughton-in-Furness, Ulverston, Dalton-in-Furness, Cartmel, Hornby, Over-Kellet and elsewhere. In Lancaster there was the historic high cross in the market-place—where many kings and some pretenders to the throne of England have been proclaimed—the Covel Cross, the White Cross and the Red Cross, and, more important than all, the celebrated

pre-Norman cross (on which is carved an inscription in Runic letters) now in a glass case in the British Museum.

The bases of many ancient crosses, put up in Mediæval times to mark the boundaries of lands given to Cockersand Abbey and other religious houses, are scattered up and down throughout this district.

A pre-Norman cross to which extraordinary interest attaches is to be found in Halton churchyard, two and a half miles north-east from Lancaster, and many have been the speculations as to the meaning of the extraordinary sculptures with which it is covered. On the west face are scenes from the Gospel narrative, the Resurrection and the Ascension of Christ. On the other three sides are sculptured scenes from the "Volsunga Saga," the classical legend—a most bloody story—known and recited in the great halls of Scandinavia for years before the Norman conquest of England. It is a great story, whose influence has been compared to that of the tale of Troy upon the Greeks.

In Du Chaillu's "Viking Age" illustrations are given of precisely similar carvings from stones and church doors in Norway and Sweden. In both cases we find Sigurd piercing with his sword the body of the snake, and near him is Grani, the riderless horse. The heart of Fafnir is being roasted, and the head of the smith Regin is seen separated from his body. In these sculptures, which have been called the "Pagan-Christian Overlap," we have evidence of the religious struggles, so eloquently described by Green in his "History of England," which took place during the two or three centuries preceding the Norman Conquest. Portions of other ancient crosses, some of pre-Norman date, are to be seen in the porch of this church.

St Wilfred's Holy Well is in a field close to the church. It was always considered a necessary part of the baptismal service for water to be brought to the font from this old well. The water is very pure, and has the reputation of being efficacious in the cure of inflamed eyes.

The lower portion of what must have been at one time an extremely beautiful cross of pre-Norman date is in the churchyard at Heysham. Scriptural subjects are carved on it amidst luxuriant floral ornaments. The Saintry Well is near Heysham Church.

Some interesting pre-Norman work is to be found along the valley of the Lune. In Hornby churchyard is to be seen the lower portion of a massive and lofty cross, carved and erected before the Norman Conquest. This stone is about 6 inches in height and about 2 feet 6 inches square on plan; the sides are enriched with Romanesque arcading. The celebrated Ruthwell Cross in Dumfriesshire is so built up, with tapering stones. An excellent illustration of it is given in Stephen's runic crosses. Another notable instance is to be found in the market-place at Sandbach. In the churchyard attached to Cartmel Priory the remains of what must have been at one time a most beautiful cross in the Late Decorated or Early Perpendicular style of architecture is still to be seen.

A cross at Thurnham, erected with much formality in the year 1340, cannot now be found. It is thus referred to in the Chartulary of Cockersand Abbey:—"Therefore on the bank thereof, as for a boundary mark to endure for ever, William, son of Sir William de Furness, Lord of Thurnham, has caused a certain cross to be erected for a boundary between Thurnham and Cockerham, whereby all uncertainties of this kind respecting the bounds and limits of the said moss may be for ever removed."

We understand that when this series of papers is finished it will be reprinted in one volume, with copious illustrations, the title probably being "The Ancient Crosses and Holy Wells of Lancashire, with Notes on the pre-Reformation Churches, Monastic Institutions and Superstitions of the County Palatine."

GENERAL.

The International Society of Sculptors, Painters and Gravers has leased the New Gallery, Regent Street, for the seasons of 1904, 1905 and 1906, and the Society's first exhibition in these galleries will be opened in January next. The president of the International is Mr. Whistler, and among the members of the committee are Messrs. Guthrie, Lavery, Thaulow, Sauter, Sullivan and Pennell.

Mr. J. McNeill Whistler has received the honorary degree of LL.D. from the University of Glasgow, a distinction which is well deserved.

At a Meeting of the executive committee of the National Trust, held on Monday, Sir Robert Hunter presiding, it was reported that the President of the Royal Institute of British Architects had nominated Mr. G. F. Bodley, R.A., to represent the Royal Institute on the Council of the Trust, in the place of the late Mr. Penrose, and that Mr. Bodley had consented to act.

Mr. Henry James Castle, retired surveyor, of Westminster, who died at Hampstead on February 8, aged fifty-seven, has left property of the total value of 2,915*l.* The net personal estate has been returned at nil.

The Metropolitan Asylums Board have approved plans prepared by Messrs. A. & C. Harston for the provision of additional accommodation, &c., at the Joyce Green hospital at an estimated cost of 7,650*l.*

M. Louis Schutzenberger, the Alsatian painter, has died in his native town Strasburg, in his seventy-eighth year. He was the pupil of Paul Delaroche and Gleyre. He obtained his first medal at the Paris Salon in 1850, and received the Cross of the Legion of Honour in 1869.

The Guildhall Exhibition of works by early and modern painters of the Dutch school will be opened to the public on Monday next.

The Southampton Harbour Board have resolved to carry out the work of dredging the Itchen Spit at a cost of 12,000*l.* The improvement is to enable ocean-going vessels to reach the Test Quay.

Artists who have painted fire scenes or studies of fire-brigade life are requested to communicate with the hon. secretary of the loan section of the impending International Fire Exhibition, Earl's Court, S.W. There will be a special group for British art in this section, as also a black-and-white group. Owners of pictures depicting acts of heroism at fires, either on land or at sea, are also requested to communicate with the hon. secretary with the view of exhibiting on this occasion.

The President and Council of the Royal Institute of the Architects of Ireland have issued invitations for a conversazione to be held in the rooms of the Royal Hibernian Academy on Thursday evening, April 30.

The Tower of Shrewsbury Abbey Church is to be restored at a cost of 2,000*l.*

Colonel Sir Herbert Jekyll has been nominated to represent the Board of Trade on the committee appointed, at the request of that Department, by the Institution of Civil Engineers in regard to the Government grant of 3,000*l.* in aid of the funds of the Engineering Standards committee.

Mr. Robert Aspland Marillier, of Scarborough, civil engineer, formerly engineer to the Hull Docks Company and to the North-Eastern Railway Company for docks, who died on February 12 last, aged seventy-eight years, left estate of the gross value of 98,248*l.* 4*s.* 10*d.*, including personalty of the net value of 78,508*l.* 15*s.* 9*d.*

The Bavarian Excavations in Orchomenos, in Boeotia, have been successful in discovering the foundations of a palace which evidently was adorned with paintings in the Mycenaean style.

The Brighton Town Council has accepted the offer made by Mr. Henry Willett of his collection of sixty-six works, mostly by great masters and their pupils, which has been on exhibition since February last.

The Fund for the renovation of Sherborne Abbey has reached 600*l.*, which is about 100*l.* short of the sum required. According to the report of Mr. Batchelor, the architect, the work on the roof will absorb 430*l.* Other work is necessary, including overhauling the bells, recasting the seventh bell (119*l.*), restoration of the south transept in order to bring it into character with the rest of the building, and taking up and relaying the nave.

The Yates Lectures on "Archæology" at University College will be given this year by Dr. Arthur J. Evans, the subject being "The Minoan Civilisation of Crete and its Place in the Ancient World."

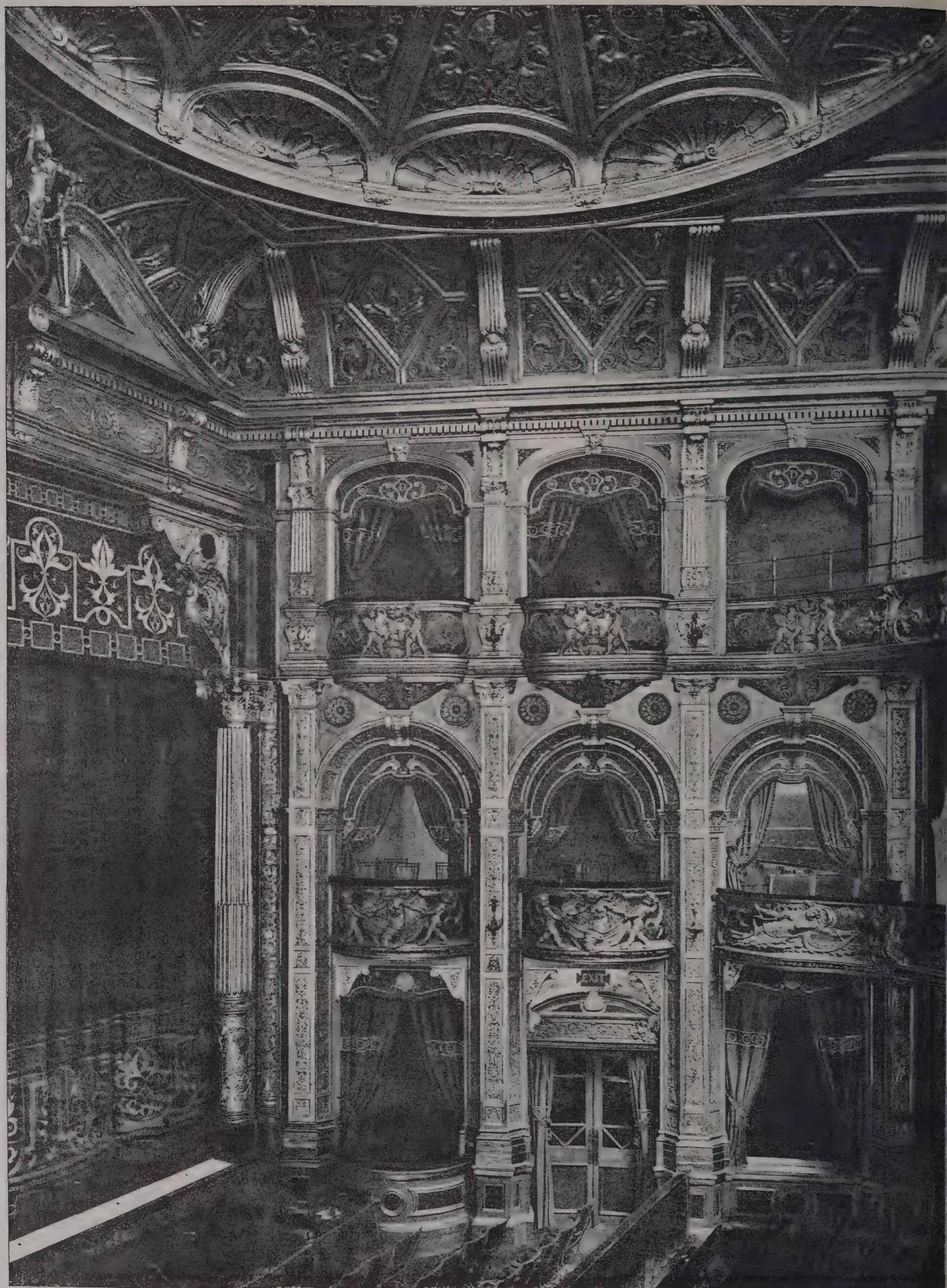
The Newcastle-on-Tyne Associated Masters on Monday decided to withdraw their demands for certain alterations in the masons' working rules and for the extension of the stonemasons' working day by one hour. The 400 masons who came out on strike last Thursday against these demands therefore returned to work on Tuesday.

Lieutenant-Colonel John Temple Temple West has left personal estate of the net value of 261,588*l.* 10*s.* 1*d.*, and the gross value of whose estate is 433,518*l.* 11*s.* 10*d.* Colonel West left the residue of his property in trust—as to two-fifths to the Trustees or Governors of the National Gallery, in trust for the use and benefit of that institution, to expend the income on works of art in such manner as the said authorities shall see fit.

The New municipal map of Paris, which is 25 yards long and nearly 20 yards wide, shows every detail of the city, and 88,500 houses are recognisable.

The Saturday Afternoon excursions of the London Geological Field Class conducted by Professor H. S. Seeley, F.R.S., will commence on April 25. Amongst the localities to be visited this season will be Walton-on-the-Hill, Aylesbury, Harefield, Sevenoaks, Leighton and Tunbridge Wells. Further particulars can be obtained from the hon. secretary, Mr. R. Herbert Bentley, 33 Church Crescent, Muswell Hill, N.

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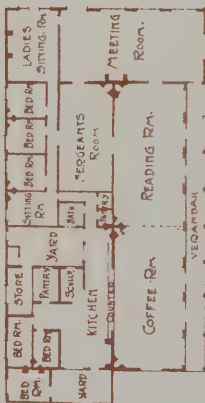
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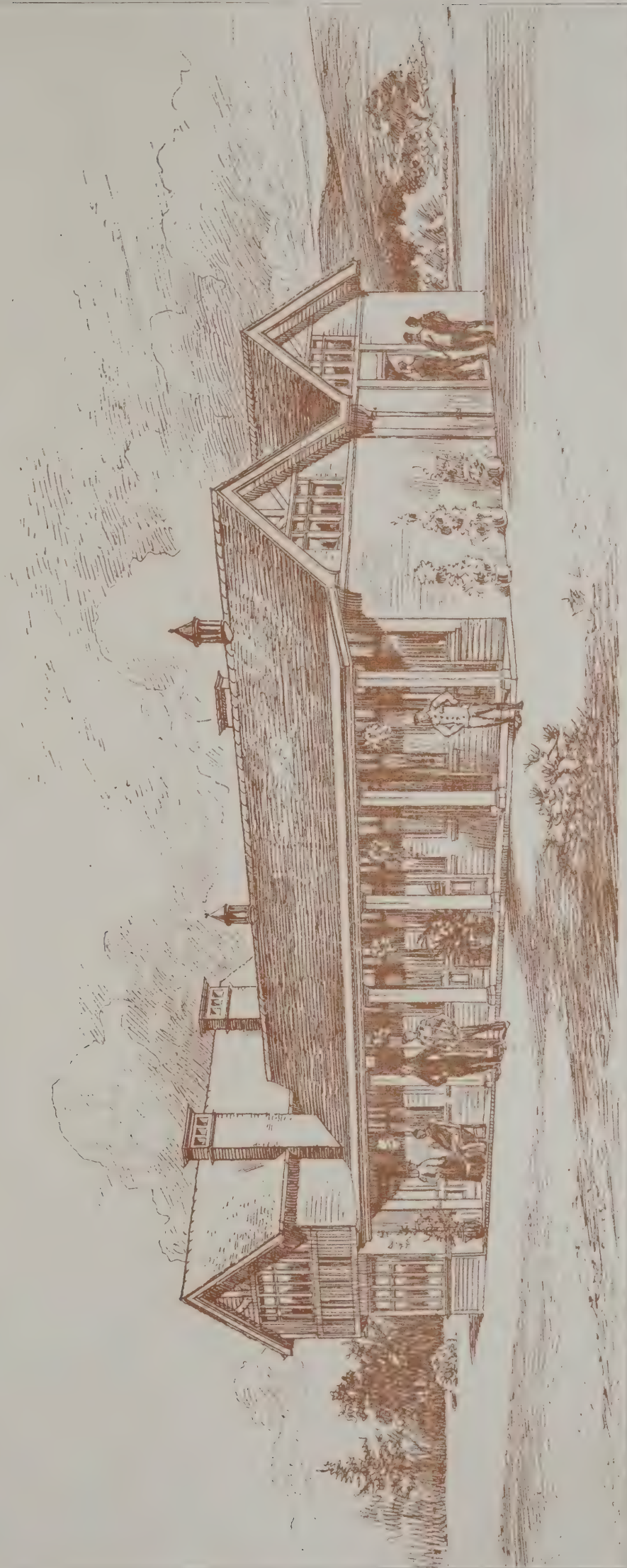
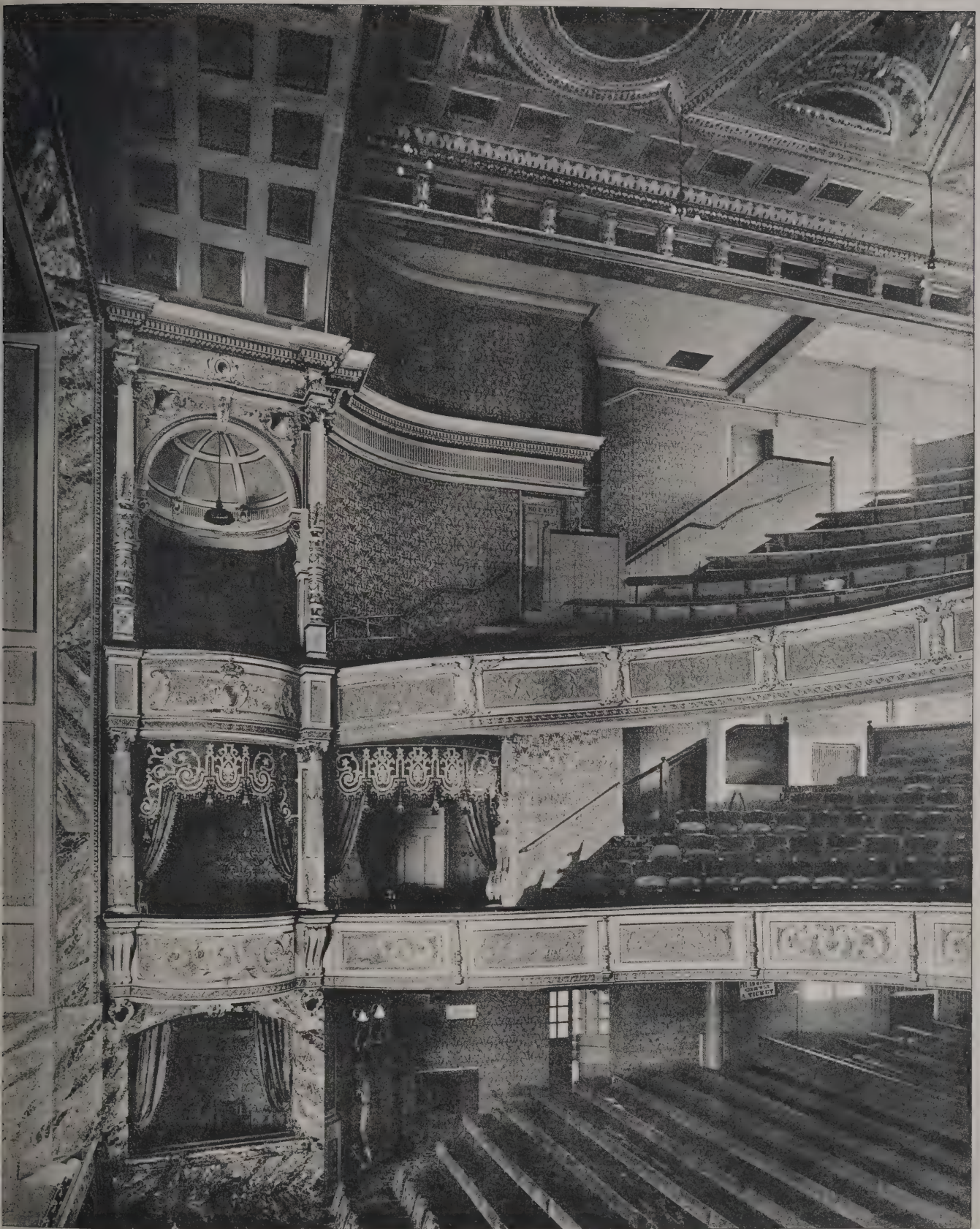


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Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BLACKPOOL.—June 30.—The Corporation of Blackpool offer premiums of £100, £50, £30 and £20 respectively for designs for new picture poster. Mr. C. Noden, Corporation advertising manager, Town Hall, Blackpool.

FENTON.—April 30.—Designs are invited for a public free library. Premiums of 60*l.* and 30*l.* are offered for the two selected designs. Mr. S. A. Goodall, surveyor, Town Hall, Fenton.

MANCHESTER.—April 30.—Architects within a radius of thirty miles of Manchester are invited to submit competitive designs for an hospital to be erected in Quay Street, Manchester, at a cost not to exceed 14,000*l.* Premiums of 75*l.*, 50*l.* and 25*l.* respectively will be awarded. Mr. James Fildes, hon. secretary, Quay Street, Manchester.

MANCHESTER.—May 1.—Plans are invited for a new Manchester Royal Infirmary, to contain about 500 beds. Mr. W. L. Saunder, general superintendent and secretary, Manchester Royal Infirmary.

NEW BROMPTON (KENT).—May 30.—Designs and plans are invited in competition for public swimming and slipper

baths to be erected in Windsor Road, New Brompton. Three premiums are offered, one of £20 to the author of the design which is considered to be the first in order of merit, one of £10 and one of £5 respectively for the second and third. Mr. F. C. Boucher, clerk, New Brompton, Kent.

SHEFFIELD.—Competitive designs and tenders are invited for the erection of about 122 artisans' dwellings on the High Wincobank estate. Premiums of 50*l.*, 30*l.* and 20*l.* are offered. Mr. C. F. Wike, city surveyor, Sheffield.

STOCKTON-ON-TEES.—May 13.—Designs are invited for a girls' high school, to be erected as a memorial of Her late Majesty Queen Victoria, at a cost not exceeding 5,000*l.* Premiums of 25*l.*, 15*l.* and 10*l.* respectively will be awarded. Mr. C. J. Archer, 77 High Street, Stockton-on-Tees.

SUNDERLAND.—April 30.—Designs are invited for proposed alterations and additions to Victoria Hall, Sunderland. Premiums of 100*l.*, 50*l.* and 25*l.* will be awarded for the first, second and third designs respectively. Mr. F. M. Bowey, Town Hall, Sunderland.

CONTRACTS OPEN.

ALLERTON.—For the erection of Hedge Nook Mills, Allerton, Yorks. Messrs Fairbank & Wall, architects, Craven Bank Chambers, Bradford.

ATCHAM.—May 1.—Separate tenders are invited (1) for the erection of nurses' home and (2) for alteration at the workhouse, including fire-escape bridges and staircases, bathrooms, &c. Mr. A. B. Deakin, architect, 12A Pride Hill, Shrewsbury.

BATLEY.—April 27.—For the erection of four houses, out-buildings, &c., in Knowles Street, Batley. Mr. John H. Brearley, architect, Branch Road, Batley.

BISHOP AUCKLAND.—May 7.—For the erection of fifteen cottages in Grey Street and five cottages in May Street, Bishop Auckland. Mr. F. H. Livesay, architect, Bishop Auckland.

BOWERHAM.—April 30.—For the erection of an hotel at Bowerham. Messrs. Harrison, Hall & Moore, architects, Church Street, Lancaster.

BRADFORD.—For the erection of three villas near Schole-moor cemetery. Mr. Frank Robinson, land agent, 78 Sunbridge Road, Bradford.

BRIDLINGTON.—May 9.—For the erection of engine-room boiler-house, boiler settings, chimney-shaft and offices. Mr. Ernest R. Matthews, borough surveyor, Town Hall, Bridlington.

BRIDPORT.—April 29.—For the erection of a 13-bed iron hospital at Bradpole, near Bridport (G.W.R.), Dorset, with commodious administration block, foundations, baths, earth-closets, grate, and furnished complete for occupation, water storage 150 gallons; and for the erection and fixing of an iron building with foundations at Bradpole, nearly adjoining the last-mentioned building, to contain ambulance, mortuary, laundry, coal and disinfecting chambers, with earth-closets, water storage 150 gallons. Mr. John J. Roper, Rural District Council clerk, 74 East Street, Bridport.

BRISTOL.—April 28.—For alterations and additions to a shed at Pylle Hill, Bristol, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

BURY.—May 4.—For the Blackford Bridge improvement works, comprising the taking-down of the present bridge and the construction of a new skew masonry bridge 50 feet between parapets, 66 feet span, with retaining-walls, road formation, &c., for the Joint Committee of the Lancashire County Council and the Corporation of Bury. Particulars may be obtained at the County Bridgemaster's Office, Preston.

CAMBERWELL.—May 12.—For the erection of public baths and washhouses in Old Kent Road. Mr. E. Harding Payne, architect, 28 John Street, Bedford Row, W.C.

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CATTAL.—May 8.—For the erection of an inebriates' home, with administrative wards, at Cattal, on the North-Eastern Railway system between Harrogate and York. Mr. J. Vickers Edwards, architect, County Hall, Wakefield.

CHESTER.—May 1.—For the erection of escape staircases, padded rooms, &c., at the workhouse. Messrs. John H. Davies & Sons, architects, 14 Newgate Street, Chester.

CLEATOR MOOR.—April 30.—For alterations and additions of a classroom for St. Patrick's schools, Cleator Moor. Mr. R. Robertson, architect, Public Offices, Cleator Moor.

COLCHESTER.—April 29.—For the erection of an additional storey over the Council's offices in Stanwell Street. Mr. Herbert Goodyear, borough engineer, Town Hall, Colchester.

CONSETT.—April 27.—For alterations of out-offices, &c., to cottages in Edith Street, Consett, Durham. Mr. Chas. E. Oliver, architect, Consett.

CROYDON.—April 27.—For extending the flues, boiler settings and foundation work at the Corporation electricity works, Factory Lane, Croydon. Mr. F. C. Lloyd, town clerk, Town Hall, Croydon.

DEWSBURY.—April 29.—For alteration to premises in Union Street. Mr. Frederick W. Ridgway, architect, &c., Borough Chambers, Bond Street, Dewsbury.

DODWORTH.—April 27.—For the erection of five houses at Dodworth, near Barnsley. Mr. Ernest W. Dyson, architect, 14 Market Hill, Barnsley.

EAST HARLING.—For the erection of a meeting-house at East Harling, Norfolk. Mr. H. S. Margrett, Fern House, near Harling Road station.

EXMINSTER.—May 1.—For erection of female observation ward, male infirmary, and No. 5 male ward, at the Devon county asylum, Exminster. Mr. E. H. Harbottle, County Chambers, Exeter.

FAIRFIELD.—For the erection of four cottages at Batham Gate, Fairfield, near Buxton. Messrs. Garlick & Flint, architects, Terrace Road, Buxton.

FOWEY.—April 29.—For the erection of a masonry light-house tower upon a site near St. Catherine's Point, at the entrance to the harbour of Fowey, in the county of Cornwall. Mr. W. J. Graham, clerk to the Fowey Harbour Commissioners, Harbour Office, Albert Quay, Fowey.

GATESHEAD-ON-TYNE.—April 29.—For erection of ten houses, Sunderland Road, Gateshead-on-Tyne, for the North-

Eastern Railway Company. Mr. William Bell, architect, Central Station, Newcastle-on-Tyne.

GRIMSBY.—May 4.—For erection of shelters, bandstand and conveniences at the Grant-Thorold Park. Mr. H. Gilbert Whyatt, borough surveyor, Town Hall Square, Grimsby.

HALIFAX.—May 4.—For alterations to Haugh Shaw school. Mr. W. H. Ostler, clerk to School Board, 22 Union Street, Halifax.

HARROGATE.—April 28.—For the reconstruction of large sliding doors at the market. Mr. F. Bagshaw, borough surveyor, Municipal Offices, Harrogate.

HOLBEACH.—April 29.—For additions to the infirmary at the workhouse. Mr. Burdett Ward, architect, Wisbech.

HUDDERSFIELD.—April 28.—For the erection of chancel and vestries at Christ Church, Moldgreen. Mr. E. W. Lockwood, architect, 37 Byram Arcade, Huddersfield.

HUDDERSFIELD.—April 30.—For the erection of a foundry, engineering shed and offices, &c., in Nile Street, Huddersfield. Mr. Ben Stocks, architect, St. Peter's Street, Huddersfield.

HUDDERSFIELD.—May 6.—For reseating the gallery of the Hinchcliffe Mill Wesleyan chapel. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HULL.—April 28.—For the erection of stables, &c., in West Hull. Mr. Ernest Whitlock, architect, 26 Seale Lane.

HULL.—May 1.—For the foundation work of the Beverley Road baths. Mr. A. E. White, city engineer, Town Hall, Hull.

HYDE.—For taking-down and rebuilding the Queen's hotel, Hyde. Messrs. John Eaton, Sons & Cantrell, architects, Stamford Street, Ashton-under-Lyne.

ILFORD.—April 28.—For the erection of buildings, &c., and chimney for the new boiler plant at Ilford, Essex. Particulars can be obtained from the Engineer, Engineer's Office, Gasworks, High Road, Ilford.

IRELAND.—April 29.—For the erection of a fever hospital in workhouse grounds, Clarendon. Mr. John Ritchie, architect, Ballinrobe.

IRELAND.—May 1.—For alterations and additions to premises of the Domestic Mission in Stanhope Street, Belfast. Messrs. Blackwood & Jury, architects, 41 Donegall Place, Belfast.

IRELAND.—May 6.—For alterations to premises in Scotch Street, Armagh. Mr. H. C. Parkinson, architect, Armagh.

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IRELAND.—May 8.—For the erection of the Carnegie free library, Cork. Mr. F. W. McCarthy, town clerk, Cork.

IRELAND.—May 8.—For alterations and improvements to Meelick Church, Limerick. Mr. Brian E. F. Sheehy, architect, 57 George Street, Limerick.

IRELAND.—May 9.—For the erection of cottages in various townlands of Londonderry. Mr. J. S. Barnhill, engineer to the Rural District Council, 1A Strand, Londonderry.

IRELAND.—May 13.—For the erection of a coastguard station and signal station at Fanad Head (about 18 miles from Milford), in the county of Donegal. Particulars on application at the Office of Public Works, Dublin.

KIRKBY-IN-FURNESS.—April 30.—For the restoration of St. Cuthbert's Church tower, Kirkby-in-Furness. Mr. J. Standen-Adkins, architect, 3 Maze Row, Kew.

KNARESBOROUGH.—For the erection of a Wesleyan chapel and schools at Scriven, Knaresborough. Messrs. Danby & Simpson, architects, 10 Park Row, Leeds.

LEEDS.—May 1.—For the erection of a dwarf stone boundary wall at the Lower Wortley recreation ground. Particulars may be obtained at the City Engineer's Office, Leeds.

LEEK.—May 2.—For the erection of an electric-lighting station in Station Street, Leek. Mr. John Taylor, architect, Leek.

LEICESTER.—April 30.—For the restoration of Wanlip Church, near Leicester. Mr. C. Hodgson Fowler, architect, The College, Durham.

LOWER CUMBERWORTH.—April 28.—For pulling down and rebuilding of the Foresters' Arms inn, Lower Cumberworth, Yorks. Messrs. J. B. Abbey & Son, architects, 34A New Street, Huddersfield.

LUON.—May 4.—For the renovation of Union chapel, Castle Street. Messrs. J. R. Brown & Son, architects, Luton.

LYNDHURST.—April 27.—For additions and redecoration of the Lyndhurst police station, Hants. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

MACCLESFIELD.—April 27.—For the erection of stable, and outbuildings at the county police station at Macclesfield. Mr. H. Beswick, county architect, Newgate Street, Chester.

MANCHESTER.—April 29.—For putting in the foundations of the proposed chief fire station and police station in London Road, Fairfield Street, Whitworth Street, and Commercial

Street. Mr. William Windsor, surveyor, 37 Brown Street, Manchester.

MANCHESTER.—May 4.—For the construction of a staircase &c., at Rusholme public hall. Particulars may be obtained at the office of the City Architect, Town Hall.

MAPPLEWELL.—April 29.—For the erection of two houses and outbuildings in Blacker Road, Mapplewell, near Barnsley. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnsley.

MARGATE.—April 29.—For the erection of a verandah at East Cliff House, Cliftonville, Margate, Kent. Messrs. C. & W. Henman, architects, 64 Cannon Street, E.C.

MILNSBRIDGE.—April 28.—For the erection of a semi-detached villa, Cowlersley Lane, Milnsbridge, Yorks. Mr. John E. Lunn, architect, Milnsbridge.

NEWCASTLE-UPON-TYNE.—May 18.—For the erection of blocks of dwellings for the labouring classes in Walker Road and Albion Row, Newcastle-upon-Tyne. Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley Street, Newcastle-upon-Tyne.

NORTH BERWICK.—April 30.—For the erection of new gasworks, for the North Berwick Town Council. Mr. A. D. Wallace, town clerk, North Berwick.

OLDHAM.—April 28.—For the erection of public baths in Chapman Street and Humphrey Street, Lowermoor. Messrs. Groome & Grant, architects, 2 St. Peter's Square, Manchester.

PORTSMOUTH.—May 5.—For the erection of a technical institute and free library in Park Road. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea.

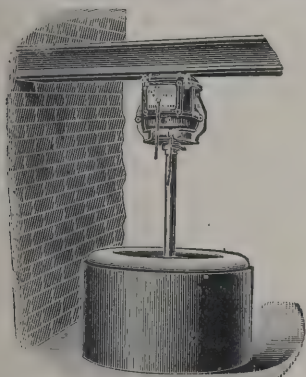
PRESTON (LANCS).—May 4.—For the construction of a new skew masonry and brick bridge, 24 feet between parapets and 10 feet span, with the approaches thereto and diversion of the stream. The Clerk of the County Council, Preston.

ST. MARY BOURNE.—May 1.—For the extension of the cloakrooms at the schools, St. Mary Bourne, Hants. Mr. Spencer Clarke, clerk, Whitchurch, Hants.

SCOTLAND.—April 27.—For the erection of sanitary conveniences at the docks. Mr. R. Gordon Nicol, harbour engineer, Aberdeen.

SCOTLAND.—April 27.—For the erection of a tenement of houses, offices, show and store rooms, workshops, &c., at Assembly Street, Leith. Mr. James M'G. Jack, clerk, 25 Waterloo Place, Edinburgh.

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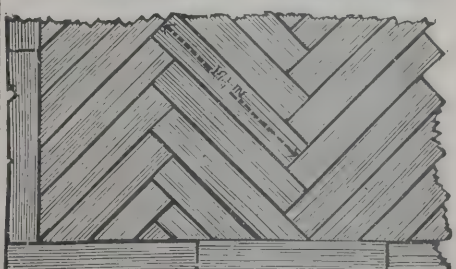
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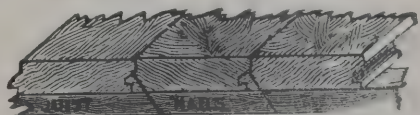
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FULL LIST, and dates when they appeared, of THE CATHEDRALS which have been published on Application to The Publisher.

SCOTLAND.—April 30.—For alterations and additions to the steadings at Posnet, Cairnie and Brownhills, Aberdeen. Messrs Alex. Stronach, jun., & Son, advocates, 20 Belmont Street, Aberdeen.

SCOTLAND.—April 30.—For the erection of a cottage at Lochboisdale, South Uist. Mr. Donald MacGregor, solicitor, Oban.

SCOTLAND.—May 2.—For the erection of (1) dwelling-house at Gordonsburn, Huntly; (2) dwelling-house at Bellhenny, Rhynie; (3) dwelling-house at Cults, Kennethmont; (4) stable, cart-sheds and men's rooms, &c., at Brawlandknowes, Gartly; (5) byres and turnip shed at Corrylair, Gartly; (6) stable, men's room and barn, &c., at Mosshead, Drumblade; (7) byres and men's room, &c., at Cairnwhelp, Cairnie; (8) byre and stable at Inschammack, Cairnie; (9) byre and turnip shed, &c., at Upper Tullochs, Cairnie; (10) reroofing barn at Templand, Rhynie; (11) repairs on offices at Adamston, Drumblade; (12) repairs on offices at Wetwards, Drumblade; and for the plasterwork of Nos. 1, 2 and 3. Particulars supplied on application to the Factor's Office, Huntly.

SCOTLAND.—May 5.—For the erection of offices, pump-house and accumulator tower at Regent Bridge, Aberdeen Harbour. Mr. R. Gordon Nicol, harbour engineer, Aberdeen.

SCOTLAND.—May 9.—For the erection of an infectious diseases hospital, laying-out grounds and incidental work at Melrose. Mr. George Monteath, architect, Post Office Buildings, Newton St. Boswells.

SOUTHAMPTON.—May 4.—For erecting the superstructure of the new electricity supply station on the Western Shore. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

SOUTHAMPTON.—May 7.—For the erection of an office at Otterbourne waterworks, near Shawford, Hants. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

SOUTHSEA.—May 6.—For the erection of business premises, Albert Road, Southsea. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea.

STOCKPORT.—April 27.—For the erection of an infirmary at Stepping Hill, near Stockport. Mr. Charles F. Johnson, clerk, Union Offices, Stockport.

STRATFORD-ON-AVON.—April 27.—For painting, cleansing and repairs at 26 Wood Street. Particulars on application to the Chairman of the Land and Buildings Committee.

SUNDERLAND.—May 1.—For the erection of a coastguard station, consisting of houses for an officer and seven men, and a Royal Naval Reserve establishment at Sunderland, in the county of Durham. Copies of the bill of quantities will be supplied on application to the Director of Works Department, Admiralty.

SUNDERLAND.—May 1.—For erection of Whickham Street, electrical sub-station and engine foundations, &c., at the Hylton Road electric-lighting station. Mr. John F. C. Snell-borough electrical engineer, Town Hall, Sunderland.

TORKSEY.—April 28.—For demolishing the existing chimney-shaft and boundary-wall at the Torksey engine-house, and the erection of new shaft, 90 feet high, with flues to connect same with boilers, new boundary-wall, timber bridge, &c. Messrs. Herbert Walker & Son, engineers, King Street, Nottingham.

WAKEFIELD.—May 6.—For the erection of schools and teacher's house at South Kirkby, near Wakefield. Mr. Walker E. Richardson, architect, Rothwell, near Leeds.

WALES.—For the erection of shop premises in Cowbridge Road, Canton, Cardiff. Messrs. Veall & Sant, architects, Cardiff.

WALES.—April 27.—For the erection of a school for boys and girls and a school for infants, to accommodate respectively 540 and 396 children, necessary out-offices, boundaries and playgrounds, Abertillery. Mr. R. L. Roberts, architect, Abercarn, Mon.

WALES.—April 27.—For alterations and additions to the Metropolitan Bank, Bangor Street, Carnarvon. Mr. Rowland Lloyd Jones, architect, 14 Market Street, Carnarvon.

WALES.—April 27.—For the erection of a house at Llangatwg, Crickhowell, for Mrs. Owen, Penypentre. Mr. B. J. Francis, architect, Abergavenny.

WALES.—April 27.—For the erection of thirty-seven houses at Aberaman. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—April 28.—For the erection of a house at Pontypool, Monmouthshire, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

WALES.—April 29.—For the erection of a mortuary at the workhouse, Pontypool. Mr. T. Watkins, clerk, Club Chambers, Pontypool.

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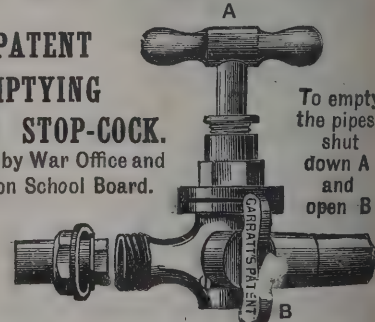
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down A
and
open B

GARRATT & CO.

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WALES.—April 30.—For erection of a pair of cottages Richmond Road, Abergavenny. Mr. B. J. Francis, architect. Abergavenny.

WALES.—April 30.—For the erection of a new C.M. chapel at Carno. Mr. Richard Swancott, Cae-du Cottage, Carno.

WALES.—April 30.—For rebuilding Noddfa Welsh Baptist chapel, Fochriw. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—May 2.—For renovating the Nebo C.M. chapel and building new schoolroom and caretaker's house, Penygroes, R.S.O. Mr. Owen Ellis Jones, Frondirion, Nebo, Penygroes, R.S.O.

WALES.—May 6.—For the erection of a residence at Maindy Crescent, Ton-Pentre, Rhondda Valley. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WALES.—May 7.—For erecting ten houses at Hengoed. Mr. P. Vivian Jones, architect, Hengoed.

WALES.—May 7.—For the erection of lavatories and other alterations at the Bethesda County school. Mr. D. Griffith Davies, clerk to the Governors, Bank Chambers, Bethesda.

WHEATLEY HILL.—May 7.—For erection of a Wesleyan chapel at Wheatley Hill, co. Durham. Rev. W. J. Pearce, Wesley Villas, Thornley.

WINSFORD.—May 5.—For structural alterations to the Meadow Bank school. Mr. J. H. Cooke, clerk, Russell Street, Winsford.

WINWICK.—May 4.—For decorating the recreation hall at the Lancashire county asylum, Winwick, Warrington. Mr. Henry Ellis, clerk and steward.

YORK.—May 9.—For the erection of engine and boiler-houses, offices, &c., at the electricity generating station. Mr. A. Creer, city engineer, Guildhall, York.

THE new cattle market at Market Harborough was opened for business on the 14th inst. The market, which with lairages comprises an area of nearly 12 acres, is situated on the southern bank of the Welland, and within five minutes of the station. The land and the market rights were purchased from Lord Barnard, lord of the manor. Accommodation is at present provided for 1,600 beasts, 2,200 sheep, 200 pigs, besides poultry, implements, &c. The total cost, including purchase price of land, market rights, &c., is upwards of 26,000*l*.

TENDERS.

AXBRIDGE.

For supplying about 550 tons of cast-iron socket water-pipes, 6 inches to 3 inches in diameter. Mr. A. POWELL, engineer, 3 Unity Street, Bristol.

G. N. Haden & Sons	£7,041	0	0
Birtley Iron Co.	3,990	12	3
J. E. MacEwen & Co.	3,715	0	0
Cochrane & Co.	3,609	1	8
Staveley Coal & Iron Co.	3,543	2	7
D. Parsons & Sons	3,500	17	6
C. JORDON & CO., Newport, Mon. (accepted)	3,452	5	6
T. Spittle & Co.	3,404	5	9
D. M. Stevenson & Co.	3,401	13	1
Isca Foundry Co.	3,369	4	6
A. G. Cloake	3,219	0	0

BARKING.

For the construction of bridge at Barking, Essex. W. MANDERS, Leyton (accepted).

BATLEY.

For erection of a car-shed at the Corporation yard in Mayman Lane.

Accepted tenders.

H. Crosslane, Healey Lane, Batley, bricklayer and mason	£160	0	0
C. Illingworth, White Lee, Batley, carpenter and joiner	125	6	6
Newsome, Askham & Co., Anchor Foundry, Dewsbury, ironfounder and steelwork	96	1	0
J. Thornton's Sons, Heckmondwike, slater	46	8	0
W. Walker, Staincliffe, Dewsbury, plumber and glazier	44	11	3

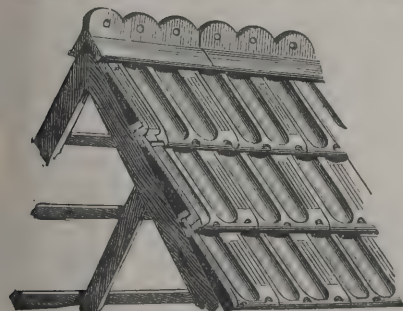
BIRKENHEAD.

For the rebuilding of the upper stages of the tower of the town hall in Hamilton Square, Birkenhead. W. THORNTON & SONS, 38 Wellington Road, Liverpool (accepted).

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IMPROVED KENTISH
RAG TAR PAVING,
Artificial Stone & Mosaic,
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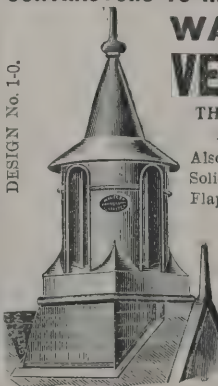
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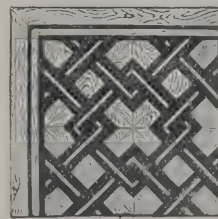


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BOURNEMOUTH.

For the erection of a cricket and football pavilion at King's Park.

E. S. Griffin	£2,411	0	0
W. Hoare	2,119	0	0
J. McWilliam & Son	1,998	0	0
JENKINS & SONS, LTD., Bournemouth (accepted)	1,953	0	0

BRIDGWATER.

For the erection of new sorting office at Bridgwater.

H. A. Forse & Sons	£3,064	0	0
C. Bryer, jun.	2,139	0	0
T. Stockham	2,079	0	0
H. W. POLLARD (accepted)	1,732	5	7
F. Scott	1,680	18	6
Westbury & Jarman	1,489	17	6

A. Credit old materials.

CANTERBURY.

For repairs at the girls' dormitory of the workhouse. Mr. G. SMITH, architect, 34 Station Road, Canterbury.

J. W. Edwards	£89	10	0
Harris Bros.	82	10	0
G. Browning	80	0	0
W. J. Adcock	80	0	0
H. J. Belsey	69	12	0
A. J. BREWSTER, St. Peter's Street (accepted)	69	0	0

CHURCH STRETTON.

For widening Sandford Avenue.

HARRIS (accepted)	£377	0	0
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CLENCHWARTON.

For the erection of vestry at Clenchwarton parish church. Mr. HERBERT TILSON, architect, Railway Road, Lynn.

W. H. Brown	£149	0	0
T. Langley & Co.	142	10	0
A. F. Foreman	138	0	0
Bardell Bros.	134	10	0
W. F. Smith	120	0	0
REEDER & BOON, King's Lynn (accepted)	119	18	0
Reeder & Boon	119	18	0
J. S. Johnson	112	5	0
J. Medwell	105	0	0

DORKING.

For alterations and repairs at the workhouse.

POTTER BROS., Horsham (accepted)	£3,098	0	0
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GUILDFORD.

For the supply and erection of new flood gates, and the erection of new buildings over same and over turbine forebay at the waterworks, Millmead. Mr. C. G. MASON, borough surveyor

W. Stevens & Sons	£507	0	0
TRIBE & ROBINSON, Guildford (accepted)	475	0	0

HEACHAM.

For the erection of a house and shop at Heacham, King's Lynn. Mr. W. A. LEACH, architect, Hunstanton.

F. Geddings	£375	0	0
J. J. Bone	369	0	0
J. Medwell	335	0	0
J. CHILVERS, Snettisham (accepted)	320	0	0

HEBBURN.

For the erection of shelter in the Hebburn Park. Mr. H. CURRY, surveyor.

A. Davidson	£88	0	0
J. HENDERSON, Park Road, Hebburn (accepted)	82	10	0

HERNE COMMON.

For the supply, delivery, laying, jointing, &c., at Herne Common, Kent, about 1½ miles from Herne Bay, of about 1,817 yards lineal of 3-inch cast-iron water mains, with the necessary sluice-valves, hydrants and other fittings. Mr. W. D. STATHAM, surveyor, Clifford Villa, Eddington, near Canterbury.

Wyver, Nicholls & Co.	£642	15	0
A. G. Osenton	555	0	0
C. W. Welby	490	0	0
H. Porter	440	0	0
J. G. RUTTER & SONS, Washington Station, co. Durham (accepted)	409	0	0

ILFORD.

For construction of bridge.

A. FASEY & SON, Leytonstone (accepted)			
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IRELAND.

For the erection of nine cottages, including out-offices, piers and gates, and for the fencing of ten plots at Kinsale.

B. CORRIGAN, Knocknamana, Minane, Carrigaline, erecting cottage at Kilbeg £160, fencing plot at Kilbeg 23s. per perch (*accepted*).

For the erection of cottages in various townlands of Inishowen
Accepted tenders.

C. Doherty, Main Street, Moville, cottages in Drumaweir £320 0 0
W. Doherty, Buncrana, cottages in Ardaravan 310 0 0
J. Kelly & S. Henderson, Carndonagh, cottages in Tulnaree 273 18 0

For sundry additions and alterations to Listoke House, Drogheda. Mr. FREDERICK SHAW, architect, Drogheda.

B. McDonnell £2,480 0 0
T. CREASER, The Mall, Drogheda (*accepted*) 2,455 0 0

For the erection of a kiln, bins and other works at Drogheda brewery. Mr. FREDERICK SHAW, architect, Drogheda.

T. Creaser £1,866 10 0
B. McDONNELL, Bull Ring, Drogheda (*accepted*) 1,827 0 0

JARROW.

For street works in Howard Street, Randolph Street, Percy Street, Back Monton Terrace, Back Dee Street North, Back St. Paul's Road; back streets between Salem Street and Harold Street, between Russell Street and Wilberforce Street, between Derby Street and Percy Street, between Percy Street and Raglan Street and Back Hope Street. Mr. J. PETREE, borough surveyor.

W. Kennedy £2,331 10 5
G. Wells 2,081 6 3
G. Thornton & Co. 1,868 13 7
T. CALLAGHAN, 40 Staple Road, Jarrow-on-Tyne (*accepted*) 1,624 18 6

LEAVESDEN.

For the erection of a home for female attendants at the Leavesden Asylum, for the Metropolitan Asylums Board. Messrs. NEWMAN & NEWMAN, architects, London.

HENRY MARTIN, Northampton (*accepted*) £6,467 0 0

LONDON.

For roads and footpaths at High Wood school.

S. Parmenter £4,997 0 0
Wilson, Border & Co. 4,560 0 0
Fry Bros. 4,195 0 0
T. Adams 3,849 0 0
J. Meston 3,847 0 0
J. Hale 3,811 16 4
J. Jackson 3,700 0 0
Lawrence & Thacker 3,250 0 0
D. T. Jackson 3,200 0 0
Practical Landscape Gardening and Estate Development Co., Ltd. 2,965 0 0
J. C. Trueman 2,869 0 0
McCORMICK & SONS, London (*accepted*) 2,789 0 0

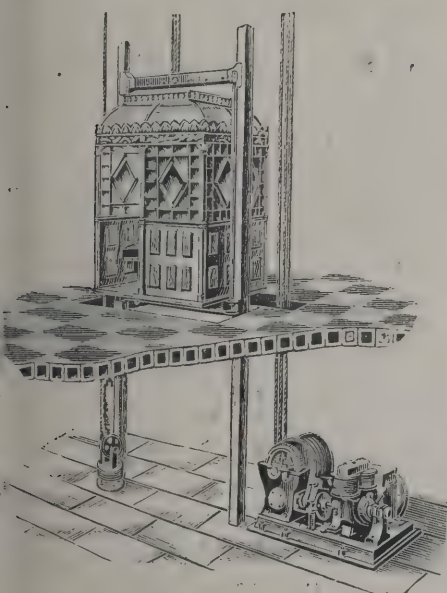
For the erection of shed at the Mead ambulance station, for the Metropolitan Asylums Board.

Field, Mallett & Co., Ltd. £292 0 0
Spiers & Sons 249 0 0
P. McCarthy 229 0 0
T. Pearce 220 0 0
G. Briggs 209 0 0
J. McManus 205 0 0
Humphreys, Ltd. 204 0 0
Richardson Bros. 198 0 0
T. J. Hawkins & Co. 189 0 0
E. Wall & Co. 187 0 0
E. H. Cripps 159 12 8
W. HARBROW, South Bermondsey Station, S.E. (*accepted*) 159 10 0

For supply and fixing of cold-water storage tanks in No 17 pavilion at the Northern hospital, for the Metropolitan Asylums Board.

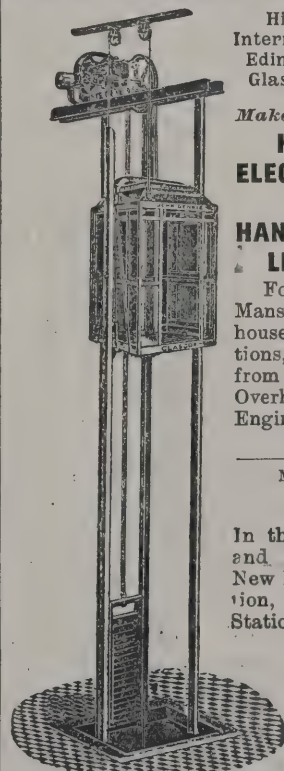
Mechan & Sons £428 0 0
Mather & Platt, Ltd. 400 0 0
E. H. Cripps 295 0 0
Grays Steel Construction Co., Ltd. 215 0 0
J. & F. May 203 10 0
R. Dempster & Sons, Ltd. 185 0 0
W. G. Wakefield & Co. 121 10 0
R. Harding & Son 121 0 0
T. COLE, 125 Offord Road, Barnsbury, N. (*accepted*) 87 10 0
W. Arnott & Co., Coatbridge (*informal*).

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LONDON—continued.

For the making and completing of roads, paths, &c., at the infirmary, Highgate Hill, Upper Holloway, N.

Ballard	£6,276	0	0
Goddard & Co.	4,912	5	4
Adams	4,336	17	9
Dunmore	4,263	0	0
Jackson	4,180	0	0
International Asphalte Company	4,047	0	0

For cleansing and painting a part of the workhouse, Poland Street, Oxford Street, W.

C. Pawner & Co.	£763	4	2
Warburton & Son	618	5	6
C. Dearing & Son	598	0	0
W. King & Son	540	0	0
M. Pearson	400	0	0
F. Briscoe	391	5	0
A. Papworth	350	0	0
R. Athey	350	0	0
JOHNSON & MANNERS, 23 Warwick Street, W. (accepted)	346	10	0

MIDDLESEX.

For street and sewerage works in the urban districts of Tottenham, Wood Green, Hornsey, Finchley, Willesden, Hendon, Kingsbury and in the rural district of Hendon. Mr. H. T. WAKELAM, county surveyor.

Contract No. 1a.

D. R. Paterson	£38,297	5	0
H. Morecroft	27,289	0	0
R. Ballard, Ltd.	25,152	0	0
J. A. Dunmore	23,762	5	1
W. Neave & Son	21,801	0	0
C. Wall	21,593	0	0
W. Griffiths & Co.	21,487	18	6
T. Adams	21,400	5	7
A. Kellett & Sons	21,245	17	8
Grounds & Newton	21,238	0	0
C. FORD, Harlesden (accepted)	20,514	0	0

MIDDLESEX—continued.

Contract No. 3a.

D. R. Paterson	£29,106	6	6
H. Morecroft	17,783	0	0
J. A. Dunmore	17,682	6	6
W. Neave & Son	15,945	0	0
T. Adams	13,769	1	11
C. Wall	13,752	0	0
W. Griffiths & Co.	13,596	12	3
R. Ballard, Ltd.	13,016	18	6
A. KELLETT & SONS (accepted)	12,778	5	2

Contract No. 5a.

D. R. Paterson	10,659	16	6
J. G. White & Co.	8,847	15	7
Wimpey & Co.	8,640	0	0
Nowell & Co.	8,504	0	0
W. Neave & Son	8,425	0	0
T. Adams	8,124	5	11
W. Griffiths & Co.	8,100	18	2
H. Morecroft	7,998	0	0
C. Wall	7,476	0	0
A. Kellett & Sons	7,155	13	6
C. Ford	7,110	0	0
R. BALLARD, LTD. (accepted)	6,716	0	0

MOIRA.

For sewerage works at Moira, Leicestershire. Messrs. HERBERT WALKER & SON, engineers, King Street, Nottingham.

Lock, Andrews & Price	£789	5	0
J. Holme	702	11	5
H. Ashley	685	0	0
J. H. Vickers, Ltd.	663	0	0
H. H. Barry	660	0	0
Johnson & Langley	640	0	0
Bower Bros.	595	0	0
COPE & RAYNOR, Lenton, Nottingham (accepted)	560	4	4
S. Richmond	540	13	11

POOLE.

For supplying 2,000 tons (about) of Guernsey granite at the borough wharf, Poole Harbour. Mr. J. ELFORD, borough surveyor.

J. MOWLEM & Co., Westminster (accepted) 11s. 4d. per ton.

Prevents Dry Rot,
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Solignum

and is a pleasing
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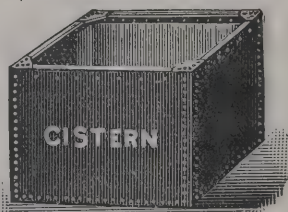
Wood Preservative.

Enquiries
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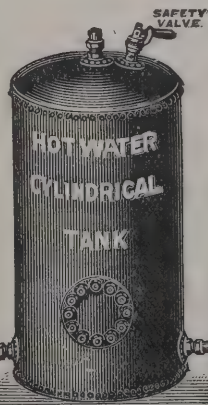
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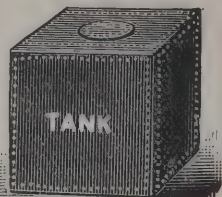
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GLAZED BRICKS.

For Index of Advertisers, see page x.

OXSHOTT.

For erection of detached cottage residence for Mrs. A. Martin-Cobbett. Mr. S. D. EDMUNDS, architect, 79 Victoria Street, St. Albans.

A. P. Mitchell	£1,115	0	0
H. Joyce	885	0	0
C. Horsell	820	0	0
Cropley & Sons	802	0	0
A. GOWER, Cobham (modified and accepted)	775	0	0
Vail & Williamson (withdrawn)	724	0	0

PRESTON.

For the supply and fixing about 439 lineal yards of unclimbable wrought-iron fencing, with gates, &c.

J. STARKIE & SONS, Preston (accepted)	£213	0	0
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ROCHDALE.

For painting, cleaning, &c., at the Rochdale infirmary.

J. F. & S. BUCKLEY, Bridge Street (accepted)	£55	0	0
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ST. ALBANS.

For erection of proposed engineering works, The Camp, for Messrs. J. W. Flower & Co. Mr. S. D. EDMUNDS, architect, 79 Victoria Street, St. Albans.

Goodchild & Jeffry	£2,512	0	0
Boff Bros.	2,475	0	0
Whibley & Jervis	2,420	0	0
Miskin & Sons	2,406	0	0
E. Dunham	2,357	10	0

For erection of a detached residence, Clarence Road. Mr. S. D. EDMUNDS, architect, 79 Victoria Street, St. Albans.

GOODCHILD & SONS, St. Albans (accepted)	£560	0	0
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ST. ANNES-ON-SEA.

For supply and fixing an iron sand shield on the South Promenade, St. Annes-on-Sea, for a distance of about 327 yards.

J. MONK, Preston (accepted)			
---------------------------------------	--	--	--

SCOTLAND.

For repairing Kilbryde Bridge, Perthshire.

J. ANGUS, Dunblane (accepted)	£115	0	0
---	------	---	---

For carrying-out works of drainage at Drummole, N.B.

W. HARLEY, New Galloway (accepted)	£730	0	0
--	------	---	---

SCOTLAND—continued.

For taking-down and removing buildings and erecting boundary walls, &c., as also for the formation and completion of the roadway between George Street and Causewayend, Aberdeen Mr. WILLIAM DYACK, burgh surveyor.

GALL & WALKER, Richmond Street (accepted)	£525	15	0
---	------	----	---

For supplying 400 square copper street lamps, Aberdeen

D. HENDERSON & SON, School Hill, £1 2s. 2d each (accepted)			
--	--	--	--

STEPNEY.

For lighting the new offices, lodge, stores and sheds at the Wentworth Street depôt by electricity. Mr. W. M. JAMESON, borough engineer, 15 Great Alie Street, Whitechapel, E.

Ward Bros.	£260	10	0
Tamplin & Makovski	234	13	6
Barlow Bros. & Co.	189	0	0
J. C. CHRISTIE, Mansell Street (accepted)	162	10	0

For the erection of two blocks of workmen's dwellings upon the King John's Court area, Limehouse, E. Mr. W. M. JAMESON, borough engineer, 15 Great Alie Street, Whitechapel, E.

Courtney & Fairbairn	£6,985	0	0
Harris & Wardrop	6,980	0	0
Patman & Fotheringham	6,973	0	0
L. F. Lamplough	6,937	0	0
A. Porter	6,804	0	0
H. Wall & Co.	6,797	0	0
Sabey & Son	6,750	0	0
R. & E. Evans	6,581	0	0
Martin, Wells & Co.	6,552	0	0
H. L. Holloway	6,539	0	0
J. Shelbourne & Co.	6,473	0	0
S. E. Moss	6,346	10	0
Thomas & Edge	6,326	0	0
A. E. SYMES, Stratford, E. (accepted)	6,298	0	0

STOCKPORT.

For the erection of club premises, Napier Street, Hazel Grove.

G. Oldham	£1,105	0	0
Vernon & Smith	1,098	10	0
W. B. Beattie	1,080	0	0
S. DANIELS, Buxton Road, Hazel Grove, near Stockport (accepted)	1,071	0	0

C. B. N. SNEWIN & SONS, LTD. MAHOGANY, WAINSCOT, AND TIMBER MERCHANTS, BACKHILL, HATTON GARDEN; & RAY ST., FARRINGTON ROAD, Telegrams, "Snewin, London." LONDON, E.C. Telephone, 274 Holborn.

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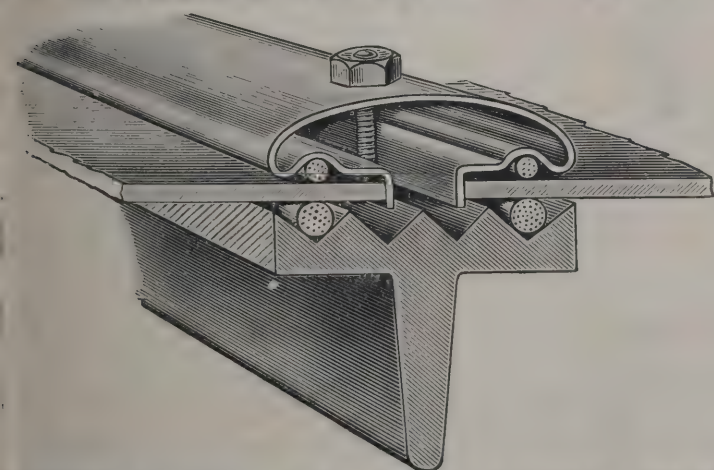
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For Index of Advertisers, see page x.



TORPOINT.

For sewerage works, &c., at Pole Terrace and Clarence Road, Torpoint, Cornwall.
J. BUDGE, 24 High Street, Stonehouse (accepted) £128 3 11

TORQUAY.

For rebuilding the Foresters' Arms public-house. Messrs. E. APPLETON & SON, architects, Torquay. Quantities by Mr. C. S. APPLETON.
Mitchell & Son £765 0 0
J. Smerdon 738 0 0
J. C & W. Watson 712 0 0
Rowland Bros. 650 0 0
S. Blatchford 645 0 0
E. P. Bovey & Son 635 0 0
R. F. YEO & SONS, Torquay (accepted) 596 0 0

WALES.

For the construction of a new road from Lanharry Common to Lanharra, Cowbridge, Glamorgan. Mr. G. E. MORRIS, surveyor, Llanbethian, Cowbridge.

Barnes, Chaplin & Co. £2,725 0 0
W. Cooksley 2,643 0 0
W. David 2,463 0 0
Jones & Son 2,284 0 0
W. Raikes 2,036 0 0
Osmond Bros. 2,036 0 0
T. Rees 1,975 0 0
E. H. Page 1,951 0 0
J. E. EVANS, Cardiff (accepted) 1,685 0 0

Fencing.

J. Hibbert & Sons 217 0 0
Bayliss, Jones & Bayliss 207 0 0
Rowell & Co. 198 0 0
Miller & Co. 180 0 0
J. PRIEST & SON, Bristol (accepted) 166 0 0

For the extension and alterations of stores, Union Street, Dowlais.

W. Watts £338 10 0
Davies & Hall 270 11 6
E. Evans 238 8 4
E. Jones 238 0 0
JONES & DAVIES, 20 Regent Street, Dowlais (accepted) 218 0 0

WALES—continued.

For the furnishing of offices at the telephone exchange, Pier Street, Swansea.

Domestic Supply Co., Ltd. £35 10 6
B. EVANS & CO., LTD., Swansea (accepted) 34 1 10
Eddershaw & Son 33 17 5

For the erection of twenty of more houses at Nelson. Mr. GEO. KENSHOLE, architect, Bargoed.

E. Edwards £191 10 0
J. Jones 189 0 0
Davies & Francis 188 0 0
J. THOMAS, The Werne, Nelson, Glamorgan (accepted) 187 10 0
J. Lloyd 178 0 0

For the erection of a church at Radyr, near Cardiff. Mr. G. E. HALLIDAY, architect, Cardiff.

Lattey & Co. £2,602 12 0
W. Cox 2,365 15 2
C. C. Dunn 2,132 0 0
Couzens & Co. 2,045 10 0
Williams & Hoare 1,979 0 0
Beames & Nephew 1,922 0 0
Knox & Wells 1,879 0 0
A. W. CADWALLADER, Fair Oak Road, Roath (accepted) 1,685 0 0

For widening road leading from Murton to Pyle, Bishopston, and improvements to a culvert near Murton, Swansea, and also to the road crossing over the bed of the stream near Bishopston school.

J. Williams £249 0 0
Bennett Bros. 163 6 3
T. G. THORNE, West Cross, R.S.O., Glamorgan (accepted) 109 6 9

For building police station at Ammanford, for the Carmarthenshire County Council. Mr. DAVID JENKINS, architect, Llandilo.

JONES BROTHERS, Tirydail, Ammanford (accepted) £2,200 0 0

For reconstructing Bethel Methodist chapel, Llansawel, Llandilo, for the building committee. Mr. DAVID JENKINS, architect, Llandilo.

D. DAVIES, Talley, Llandilo (accepted) £660 0 0

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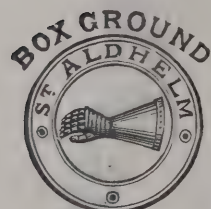
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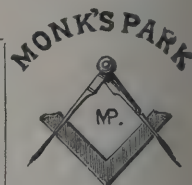
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CROWN THEATRE, PECKHAM.

CHICKSANDS PRIORY, SHEFFORD, BEDS: TOP OF STAIRCASE.

WALES—continued.

For building three shops at Quay Street, Ammanford, for Mr Jonathan Jones, Red Lion hotel, Llangadock. Mr. DAVID JENKINS, architect, Llandilo.
J. DAVIES, Penrhos Joinery Works, Llanelly
(accepted) £1,400 0 0

WALSALL.

For painting gasholders and framing at the Pleek gasworks and Wolverhampton Street gasworks.
ASBESTOS FIREPROOF PAINT CO., LTD., Clement Street Works, Birmingham (accepted) . . . £475 0 0

WATFORD.

For erection of detached residence, Whippendale Road, Watford, for Mr. F. R. John. Mr. S. D. EDMUNDS, architect, 79 Victoria Street, St. Albans.
HENRY BROWN, Watford (accepted) . . . £799 0 0

For sewerage works in the Watford Road, Northwood.
Free & Sons, Maidenhead £464 3 8
Porter, Clapton 419 0 0
H. Brown, Watford 350 0 0
Champanies, Wealdstone 331 19 0

WHITEHAVEN.

For pulling-down and rebuilding boundary walls, levelling site, draining and asphaltting playground, at National school, Whitehaven. Mr. J. S. MOFFAT, architect, 53 Church Street, Whitehaven.

E. MOORHOUSE, Whitehaven (accepted)

For rebuilding 42 Scotch Street, Whitehaven. Mr. J. S. MOFFAT, architect, 53 Church Street, Whitehaven.

Accepted tenders.

J. Young, mason and brickwork.
L. C. Harding, carpenter and joiner.
R. Gammon, slater and plasterer.
H. Burns & Sons, plumber and glazier.
E. McConn, painter.

WOOLSTON.

For street works in ten roads in the district about three miles in length. Mr. T. A. COLLINGWOOD, surveyor.

Mott & Sons	£9,524	0	10
J. C. Trueman	5,825	0	0
Streeters & Todhunter	5,657	0	0
F. Osman	5,187	0	0
F. W. PETTIT, Itchen (accepted)	5,122	6	0

For street works in part Avenue and part Manor Roads. Mr. T. A. COLLINGWOOD, surveyor.

Mott & Sons	£861	2	7
J. C. Trueman	480	0	0
Streeters & Todhunter	460	0	0
F. Osman	463	0	0
F. W. PETTIT, Itchen (accepted)	426	16	0

WORKINGTON.

For carpenter and joiner's work required at the workhouse, Pow Street, Workington. Mr. J. S. MOFFAT, architect, Whitehaven.

Accepted tenders.

B. Hyde, Workington, mason and brickwork.
J. Roper, Westfield, Workington, joiner.
J. Lythgoe & Sons, Workington, slater.
J. Ellwood, Embankment, Whitehaven, plumber and glazier.
E. McConn, Duke Street, Whitehaven, painter
Workington Engineering and Waggon Co, Workington, iron and steel.

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COLCHESTER.

For the erection of the new Grand Theatre, Colchester, for Mr. H. Slocombe, Forest Gate. Mr. J. W. START, architect, Colchester. Quantities by the architect.

E. Saunders	£24,475	0	0
Waring & Gillow	24,000	0	0
R. Beaumont Lexden	22,965	0	0
J. McKay	22,730	0	0
E. West	22,449	0	0
Dupont & Co.	21,997	0	0
Grimwood & Sons	21,880	0	0
Chessum & Sons	21,400	0	0
S. Kenney	21,000	0	0
Patman & Fotheringham	20,700	0	0
H. Lovatt	20,700	0	0
KIRK & KIRK, Westminster (provisionally accepted)	20,505	0	0
W. C. Theobald	19,640	0	0
Vickers & Son	19,090	0	0
W. Chambers	18,989	0	0

FOREST HILL.

For additions to works for the Oxychlorides, Ltd. Mr. JOHN JAS. DOWNES, architect, 199 Lewisham High Road, London, S.E.

Hall Bros., New Cross	£915	0	0
W. O. Collingwood, Brockley	900	0	0
S. R. Best, Brockley	885	0	0

NEW CATALOGUE.

THE April Stock Sheet just issued by Messrs. Hahn & Co., of 66 Mark Lane, timber merchants and importers of foreign hardwoods, shows that they hold a very large stock of the choicer hardwoods. Especially is this the case as regards the finer kinds of mahogany, of which they have a large variety. In addition to cabinet and ornamental woods, they carry a most extensive stock of seasoned hardwood specially selected for builders' requirements.

THE "PHALANX" REVOLVING VENTILATING BLIND.

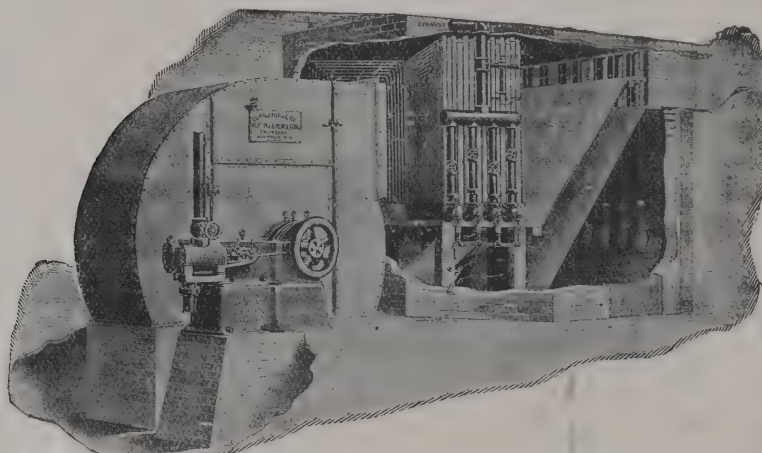
FEW, if any, who have been accustomed to the use of outside window blinds or shutters can have failed to be forcibly impressed from time to time by the serious shortcomings which seem inherent in most of those of the regulation types, being due as much to the system adopted as to the materials employed, and the effect of our much-discussed climate. And this season of the year being an appropriate time to call attention to the improved system introduced by the Phalanx Window Blind Company, whose showrooms we recently visited, a brief description will no doubt be read with interest.

Taking first the prismatic revolving ventilating blind, designed to take the place of venetian or spring-roller blinds for external use, the laths which are made one inch wide are so fixed that a space is left between each one sufficient to admit air and light, while affording perfect protection against the rays of the sun. They are attached to a wooden roller placed under the lintel, and which, to prevent warping, is strengthened by an iron rod through the centre. The blind descends into a grooved-iron frame which holds it rigid, and is raised or lowered by means of a band of webbing wound round one end of the roller. By means of an ingenious winding-box which is fixed inside the room, the band is wound up as it is drawn down to raise the blind, and also acts as an automatic holder, securely maintaining the blind at any desired height, immediately the hand releases the drawing band. The winding-box is well-finished and ornamental in appearance, but it can be preferred let into the wall, and the drawing band placed out of sight.

When the band is released from the holder the blind descends by its own weight, and while under complete control is checked from going too far by the top lath, made thicker than the others, which prevents it entering the iron frame, but does not take up extra space, as it fits into a groove in the roller when the blind is raised.

Fig. 1 shows front view of blind when lowered. In fig. 2 it will be noticed that the iron frame is hinged, allowing the blind to be swung out as an awning when desired, and also shows the usual manner of fixing. Fig. 3 illustrates an alternative method where there is not sufficient space below the lintel.

Another form of the ventilation roller-shutter enables it to be used as described above, or the light and air can be excluded from the lowest part to any desired height. This is

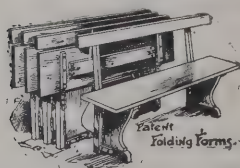


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Size of drawer inside, 15-in. x 11-in. x 4-in.

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ected by mortised laths connected together through the
ntre by movable steel strips, galvanised to prevent rust.
hen the blind is lowered it forms a solid closed surface, but
drawing the lifting band the laths move one by one half an



Fig. 1.

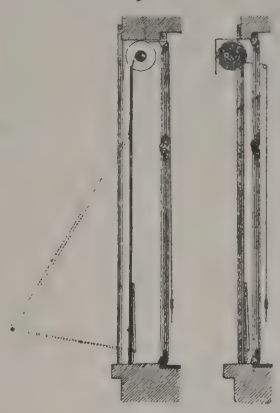


Fig. 2. Fig. 3.

ch away from each other, commencing from the top, until
e band is released. This shutter is also made with slots cut
the laths, affording more light and air, but preventing the
terior of the room being seen from the outside.

The company also manufacture venetian blinds for inside
outside use, but with improvements. The old method of
ords is discarded, and in place of them for inside use bands
e employed and fixed to a roller, the same as with the
utters, rendering it impossible for the blind to run unevenly.
hey are raised and lowered by the drawing band and winding-
x and holder, and are extremely easy to manipulate, and one
nd only is necessary to be used.

For outside use no webbings at all are used, only rust-proof
aterials. By use of the iron frame they can be swung out as
awning, and the laths closed or opened at will from inside
e room.

In all cases the outside blinds and shutters are protected
hen drawn up by canopies made in zinc of ornamental
signs to suit the character of the building, and can, if de-
red, be supplied painted in colours.

We have said sufficient to explain the various improvements

both in shutters and blinds adopted by the Phalanx Window
Blind Company, whose showrooms are at 50 Bishopsgate
Street Without, where further particulars can readily be ob-
tained, and the different patterns be seen in operation; but we
may mention that the manufacturers have during the past
twenty-five years supplied them to royal palaces, mansions,
hospitals, and sanatoria, municipal and government buildings
throughout the continent of Europe, and have met with the
approval of all those who have adopted them.

NEW "BALTIC" AND SHIPPING EXCHANGE.

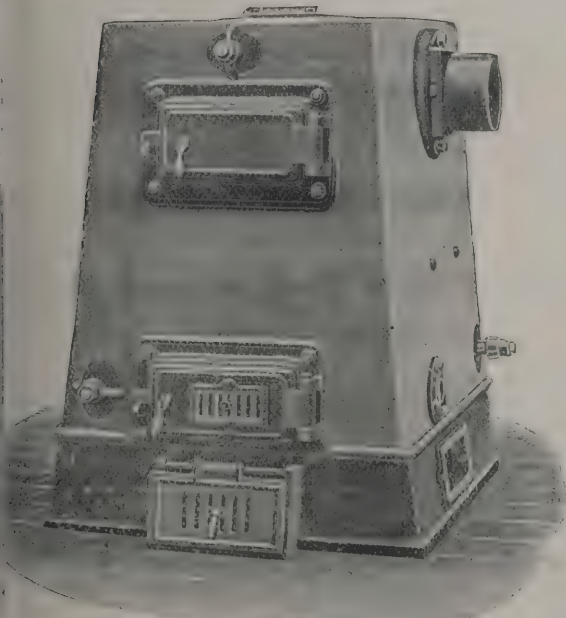
THE imposing palatial building which has risen on the site of
the world-renowned "Baltic" coffee-house was opened with
considerable ceremony by the Lord Mayor on Tuesday last.

The new building has a frontage in St. Mary Axe, of which,
being in free Renaissance style, it forms a very handsome
feature. A spacious vestibule, finished with grey and white
marble, with a range of detached marble columns on either
side, leads to the great hall, and the windows are filled with
painted glass representing the crests of the leading City
companies and the principal ports of the kingdom. At the end
of the hall is a postal and telegraph department, with offices
for the chief of the cable companies, and above is a reading-
room. A marble staircase leads from the hall to the basement,
where are located members' dining, luncheon and smoking-
rooms, and auction and arbitration rooms. In a sub-basement
is an electric-light installation and pumping machinery, for the
building provides its own light and its own water. Above the
Exchange are four floors of offices, privately approached.
Altogether the building represents an expenditure of about
half a million of money. The architect is Mr. T. H. Smith, with
whom the late Mr. W. Wimble was associated, and the con-
tractors are Messrs. G. Trollope & Co.

TRADE NOTES.

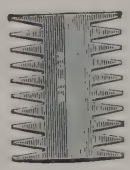
THE Wesleyan chapel, Port Dinorwic, is being fitted with
the latest improved hot-water heating apparatus by Messrs. John
King, Limited, engineers, Liverpool.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester,
inform us that they have just supplied some more of their
patent Manchester stoves with descending smoke flues to the
Corporation fever hospital, Bradford.



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THE Arrolithic Company (Mainzer's patent), of 18 Berners Street, W., have secured the contracts for paving with their marble Arrolithic the following buildings, *i.e.* the Warwick Union Infirmary (Mr. F. P. Trepass, architect), Northampton Infirmary (Mr. F. W. Dorman, architect), new central police station, Hull (Mr. J. H. Hirst, city architect), and the new electric sub-station and offices for Willesden District Council (Mr. O. Claude Robson, engineer to the Council).

BUILDING AND BUILDERS.

THE foundation and memorial-stones of a new Wesleyan chapel have been laid at Cayton.

THE foundation-stones of a new Roman Catholic church and school, to take the place of St. James's at Renfrew, were laid on the 18th inst.

THE Little Lever (Lancs) Wesleyans are proceeding with the erection of a new place of worship at a cost of nearly 5,000*l.* It is expected to be completed by November.

THE Hay Rural District Council, Talgarth, have received the sanction of the Local Government Board to the borrowing of 5,597*l.* for purposes of sewerage and sewage disposal. The engineer to the scheme is Mr. R. E. W. Berrington, M.Inst.C.E., of Wolverhampton and Westminster.

AT a mass meeting held in St. Cuthbert's Hall, Edinburgh, of the joiners of Edinburgh who were last week on strike, it was stated that the masters had signed the twelve months' agreement, which included the wages agreement and the non-alteration of the rules, which were the questions at issue. Thus ended the strike, which lasted scarcely half a day.

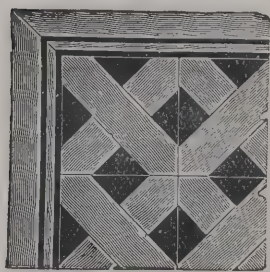
THE competitive designs for the proposed new municipal and library buildings in Hamilton, recently sent in, had to be set aside owing to the estimated cost exceeding that stipulated. The question of the payment to each of an honorarium was discussed at Hamilton Town Council last week, and by 12 to 3 it was decided that none should be paid.

THE first stone was laid on Easter Monday of the new mission church at Foulridge, near Colne. The village is in the large and straggling parish of Christ Church, Colne, but lies at a distance of two miles from the parish church, so that a mission church is greatly needed. A site has been given, and a certain proportion of the building fund has been obtained.

A MEETING of the district committee of the Ayrshire County Council was held in the county board-room, Ayr, on the 14th inst., Mr. Claude Hamilton, chairman of the committee, presiding. The hospital committee minutes dealt with the proposed new infectious diseases hospital at the old powder magazine, near Ayr. The committee recommended that the site and terms for the purchase of the site were satisfactory, that competitive plans be asked for, that the total cost of the hospital be not more than 7,000*l.*, and that the size of the hospital be for sixteen beds. The recommendations were agreed to, and it was remitted to the committee, with full powers, to proceed with the construction of the hospital.

THE baths committee of the Manchester Corporation have adopted the estimates for the year. They propose to expend 25,850*l.* in the erection of new baths in High Street, Chorlton-on-Medlock, 750*l.* in plans and other preparations for the erection of another set of baths in Bradford, and 3,750*l.* in meeting a long-felt need in Pryme Street, Hulme, where they propose to build a small bath and a set of public washhouses. The amount for the purpose will have to be specially borrowed. The receipts last year from bathers were 6,737*l.*, which was considerably less than the estimate of 7,208*l.*, and leaves an excess of 1,280*l.* to be raised this year from the rates. The original amount estimated as required was 22,847*l.*, which, with the 1,280*l.* already mentioned, brings the grand total up to 24,127*l.*

THE completion of considerable improvement and extension at High Street church, Shrewsbury, was celebrated by special services on the 7th inst. The alterations include the enlargement of the church on the south side to provide an organ-chamber and the removal of the organ from the gallery to the ground floor. Accommodation has also been provided on the ground floor for the choir, and the place they formerly occupied in the gallery has been utilised for the enlargement of the school-room, thereby making room for thirty additional scholars. New choir stalls, made in oak, greatly improve the appearance of the church, and another improvement which will be most acceptable to the worshippers is the substitution of comfortable seats for the old-fashioned high pews which have been a feature of the church for so many years. The walls, &c., have been tastefully re-decorated and the floor has been relaid, that of the aisle in mosaic by artists from Venice, and the body with parquet paving. The organ has also been thoroughly overhauled and repaired. The



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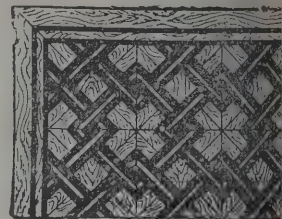
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erations, including the acquisition of two cottages, will cost out 1,000/. The contractors were Mr. Stanley (decorations), Mr. Pace (restoration) and Mr. Bickerton (reseating). It is interesting to note that this church is one of the oldest nonconformist places of worship in Shropshire. The present structure was built in 1691, the community being founded in 162.

At Lings's Row, North Wingfield, on Easter Monday, a number of foundation-stones were laid of the new chapel which is being erected there by the Primitive Methodist body. The cost of the new building, which has been rendered necessary by the need of increased accommodation to meet the rapidly increasing population of the district, which is now estimated at 2,000, adjoins the existing Salem chapel, which was erected in 1864 and which for a number of years back has had to serve both as a Sunday-school for the children and as a place of public worship. The new chapel, which is being constructed according to the designs of Mr. W. C. Jackson, F.S.A., architect, of Chesterfield, by Messrs. Cowley & Bell, of Hasland and North Wingfield, is designed in the Gothic style of architecture, in pressed bricks with stone dressings. The roofing and woodwork will be in redwood, and the windows glazed with leaded lights. The cost, inclusive of the site, is estimated at 1,275/.

VARIETIES.

Mr. E. W. MOUNTFORD is the architect for the new disinfecting station in Cowcross Street. The panels on the front are by Mr. W. Pomeroy.

The annual meeting of the Institution of Civil Engineers, when the report of the Council will be received, will be on Wednesday next.

The Local Government Board have approved of the scheme for the erection of houses for the working classes at Kingstown, Dublin, to the extent of 58,000/.

The Manchester City Council will insert in the Bill now before Parliament, a clause authorising the purchase of the Manchester Infirmary, and conferring powers to borrow the money required.

The dedication of the new All Saints Episcopal Church at Sackville, N.B., by the Lord Bishop of Glasgow and Galloway, took place on Saturday. The church, erected at a total cost of about 2,000/, is of Early English architecture.

THE contract for the new naval college buildings at Osborne, Isle of Wight, has now been placed. Nearly a quarter of a million feet of Uralite, the new fireproof material, will be used. Uralite is manufactured by the British Uralite Company, Ltd., at Higham in Kent. Head office, 50 Cannon Street, London, E.C.

THE new Primitive Methodist school in Lightbowne Road, Moston, was opened on the 8th inst. This extension has become necessary on account of the great increase in the number of scholars. The new structure is estimated to cost about 1,400/.

On the 18th inst. the Victoria Memorial Cottage Hospital, which has a pleasant southern exposure at Balmallock, Kilsyth, on a site granted free of charge by Sir Archibald Edmonstone, Bart, was formally opened. The cost of the building, of which Mr. R. Walker is the architect, is nearly 2,000/.

At a meeting of the Glasgow Archaeological Society in the rooms, 207 Bath Street, papers were read on Carsluith Castle and Browns of Sweetheart Abbey by Mr. J. S. Fleming, F.S.A.Scot., and on sculptured stones at Kilmodan by Mr. Robert Brydall, F.S.A.Scot. Both papers were illustrated by drawings.

THE election of the Architectural Association of Ireland has resulted as follows:—President, Charles H. Ashworth; vice-presidents, H. Allberry, James H. Webb; hon. treasurer, E. Bradberry; hon. librarian, T. Cullimore; hon. secretaries, A. G. C. Millar and F. Hayes; hon. auditors, P. F. O'Sullivan and G. R. Corringham.

MR. JAMES MAITLAND, who, since the death of his brother, the late Provost Maitland, has been sole partner in the firm of A. Maitland & Sons, architects, Tain, has taken into partnership his nephew, Mr. Andrew Gordon Maitland, son of the late Provost Maitland, and the business will be carried on as before, under the firm name of A. Maitland & Sons, architects.

THE Galston Gas Light Company have just inaugurated the completion of a new gasholder, with a holding capacity of 80,000 cubic feet. The tank and holder, which are of steel, were built by Messrs. Clayton, Son & Co., Leeds, and the foundations by Mr. Thomas Timothy, builder, Galston. The cost is about 2,500/.

THE amount of church extension which is going on in the large towns is shown by the following figures. The amounts are for a period of twenty-five years. Manchester 859,757/.

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THE new parish hall, erected adjacent to the Church of the Ascension, in Thorold Road, Bitterne, Hants, was dedicated and opened on Wednesday. The hall is 68 feet long by 28 feet, and is capable of accommodating 300. It is built in Queen Anne style. There are no elaborate adornments, but it is comfortably furnished. A commodious stage has been erected, with the usual appointments, and there are retiring-rooms, boiler-house and a kitchen.

THE new waterworks of the Prestatyn Urban Council were opened on the 16th inst. The old works were purchased from Lady McLaren and reconstructed by Messrs. Beloe & Priest, civil engineers, Liverpool, the contractor being Mr. Carder, Penkridge, Stafford. The water is obtained from a natural spring in the mountains nearly 400 feet above the sea-level, and gushes out at the rate of nearly 8,000,000 gallons a day. It is the second largest spring in the kingdom, Holywell being the largest. The total cost of the works will be about 18,000 $\frac{1}{2}$.

THE foundation-stones were laid recently of two new hospital pavilions and an annexe to the nurses' home at the workhouse of the Chorlton Union at Withington. The infirmary accommodation is at present inadequate, and the Board of Guardians have recently obtained permission to borrow 33,920 $\frac{1}{2}$ for purposes of extension. Mr. J. B. Broadbent, of Manchester, is the architect of the new buildings. The pavilions, when complete, will be practically a new infirmary, which, with the existing hospital, will accommodate some 1,600 patients. The pavilions will have thirty-two beds on each of three floors. The surgical wards will contain thirteen beds. Altogether the number of beds provided is 205. The nurses' home provides for the present and for the future requirements of the nursing staff of the workhouse infirmary, and it is to be built on the single-corridor plan. There will be accommodation for forty-nine nurses and ten servants, or for fifty-five nurses if the servants are housed elsewhere. The cost of the home is put down at 7,400 $\frac{1}{2}$, and that of the two pavilions at 25,300 $\frac{1}{2}$.

HIS Majesty the King has been graciously pleased to accept from Professor Corfield, M.D., of University College, consulting sanitary adviser to His Majesty's Office of Works, a copy of the Milroy Lectures on "The Etiology of Typhoid Fever," delivered by him before the Royal College of Physicians last year, by special request of the Council of the College, in

one of which lectures Dr. Corfield states his opinion that the attack of typhoid fever from which His Majesty suffered in 1871, when Prince of Wales, was not due to any sanitary defects in Londesborough Lodge, Scarborough, the house in which he was staying, and the sanitary condition of which was described by Dr. Corfield in a letter published in the *Times* of January 23, 1872, but was no doubt due to contaminated food or drink partaken of by His Royal Highness, the gentlemen of the party, and some of the men-servants, away from the house—perhaps at a shooting luncheon; as Her Royal Highness the Princess of Wales, the ladies of the party, and all the female servants escaped the infection. The disease, in fact, entirely spared those who were most in the house, and only attacked those who were most away from it, and some of whom did not even sleep there.

ELECTRIC NOTE.

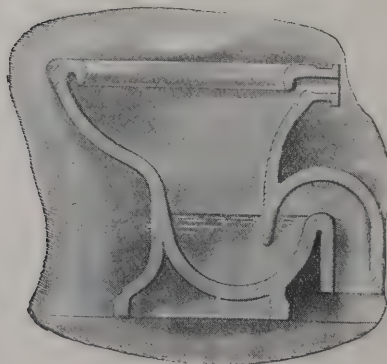
THE estimates for the electricity department of the Manchester City Corporation were submitted to a meeting of the electricity committee on Tuesday. On the revenue side it is estimated there will be an income of 233,000 $\frac{1}{2}$, as against an estimated expenditure of 242,450 $\frac{1}{2}$, leaving 9,450 $\frac{1}{2}$ to be provided out of the reserve fund. The principal items on the income side are 150,800 $\frac{1}{2}$ by sales of current and meter and motor rentals, 81,250 $\frac{1}{2}$ cost of current for the tramways departments, and 330 $\frac{1}{2}$ for street lighting from the City Fund. On the expenditure side coal is responsible for 36,700 $\frac{1}{2}$; oil, engine-room stores, &c., 8,900 $\frac{1}{2}$; wages, 30,200 $\frac{1}{2}$; repairs, maintenance and renewals of buildings, machinery and mains, 30,000 $\frac{1}{2}$; rent, rates and taxes, 17,000 $\frac{1}{2}$; stationery, printing and advertising, 1,800 $\frac{1}{2}$; general establishment charges, 2,500 $\frac{1}{2}$; law and Parliamentary expenses, 3,000 $\frac{1}{2}$; interest on mortgage debt, 61,300 $\frac{1}{2}$; sinking fund, 44,157 $\frac{1}{2}$; and instalment of loans repaid, 5,043 $\frac{1}{2}$. The corresponding expenditure estimate last year was for 175,459 $\frac{1}{2}$ and the approximate actual expenditure 189,266 $\frac{1}{2}$; whilst the income, which was estimated to be 166,447 $\frac{1}{2}$, was approximately 189,266 $\frac{1}{2}$. On capital expenditure the amounts, which last year were estimated at 875,799 $\frac{1}{2}$, and of which 626,959 $\frac{1}{2}$ was actually disbursed, this year drop to 350,600 $\frac{1}{2}$. Buildings and machinery at Dickinson Street are to cost 20,000 $\frac{1}{2}$, at Bloom Street 16,000 $\frac{1}{2}$, at Stuart Street (where the new railway is an added charge) 200,000 $\frac{1}{2}$, whilst the various distributing stations are estimated to cost 66,000 $\frac{1}{2}$ before next March. Mains are put at 42,000 $\frac{1}{2}$, meters at 1,500 $\frac{1}{2}$ and motors

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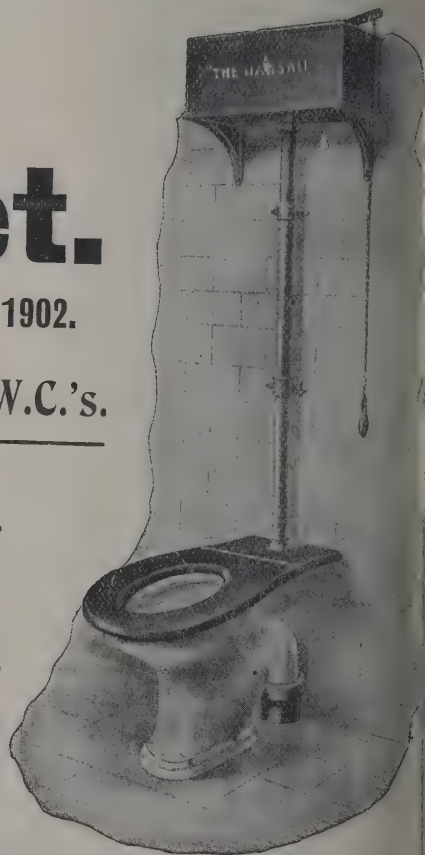
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5,000l. There only remains the cost of street lighting, which last year was 500l. out of an estimated 600l., and which this year is estimated to cost 400l. net from the rates.

EASINGWOLD WATERWORKS.

On Tuesday last an important scheme for supplying the villages of Carlton Husthwaite, Raskelf, Flawith, Tholthorpe, Easingwold, Aldwark, Tollerton, Huby and Sutton-on-Forest with an ample supply of pure water was brought to a successful fruition. The reservoir is situated just beyond Kilburn, at the foot of the Easingwold Hills, and directly beneath the feet of the Great White Horse, which is such a prominent landmark, visible for many a mile. The works, which are of an extensive nature, bear testimony to the efforts which the Rural District Council have made to boldly grasp the question of supplying a large part of their district with a copious and pure supply. Messrs. Fairbank & Son, C.E., of Lendal Chambers, York, were consulted, and after an exhaustive inquiry into the existing condition of the district and the possibility of procuring a good and permanent supply of water, the scheme now completed is presented to and approved by the rural district council. Application was made to the Local Government Board to borrow the sum of 17,600l. in order to carry out the works, and after an inquiry by Mr. W. A. Ducat, on August 30, 1900, permission to do this was granted. The supply is obtained from two sources, namely, part of the springs supplying the Kilburn reservoir and the Cragg Hall springs. The supply from Kilburn is conducted to the inlet chamber, and any water not actually consumed is returned to its original course by means of the overflow. Cragg Hall springs are conducted into the inlet chamber of the reservoir by 4-inch cast-iron pipes. These pipes are provided with an equilibrium float valve at their lower end, so that as soon as the reservoir is full the rest of the Cragg Hall spring water overflows into its original watercourse at Cragg Hall. The total supply available from these two combined sources is close upon 80,000 gallons per twenty-four hours. From the inlet-chamber the water flows into the covered storage-reservoir holding 120,000 gallons. The reservoir is constructed of Portland cement concrete, and is provided with a usual overflow, wash-out pipes and valves for controlling the supply, and is covered with a self-supporting galvanised iron roof. A special feature of the reservoir is the drawing off the supply to the villages from just beneath the surface of the water by a floating arm. A 5-inch pipe is carried from the

inlet-chamber to the reservoir, and is provided with a valve so that the water may flow direct to the villages at such times as when the reservoir is being cleaned out. From the reservoir the water is conducted by a 5 inch cast-iron main as far as Alne Cross, then to Huby in a 4-inch main, and finally to Sutton in a 3-inch main. Three-inch mains for the purpose of distributing the water are laid in the various villages. Valves are provided *en route* to divide the delivery main into sections and control the supply. Wash-outs and air-valves are provided, also hydrants in the villages for fire protection and local flushings. The water is supplied to consumers by service pipes carried to the boundary of the private property and provided with stop taps. About thirty miles of mains have been laid. The water level in the reservoir is about 400 feet above the surface of the ground at the lowest part of the system. A break-pressure tank therefore is provided at Husthwaite so as to prevent an excessive pressure on the lower portion of the system. The whole of the works have been designed and carried out under the supervision of Messrs. Fairbank & Son, who in 1898 completed the Nunnington, Stonegrave and District Waterworks, who have been represented on the works by Mr. R. Godfrey as resident engineer.

BIRKENHEAD TOWN HALL TOWER.

A SPECIAL meeting of the Birkenhead Town Council was held recently to consider a recommendation of the finance committee to accept the tender of Messrs. William Thornton & Sons, Wellington Road, Liverpool, to rebuild the upper stages of the tower of the town hall for 5,335l.

Mr. A. M. Robinson, chairman of the finance committee, said the Council had been called specially so that the work of restoring the tower might be commenced at the earliest date. There were six tenders received, the amounts varying considerably. The lowest was unfortunately coupled with unfavourable conditions for the Corporation, among them being a clause setting down the time for the work at a great deal more than double the period agreed to by the firm recommended, whose tender was next to the lowest. Messrs. Thornton had agreed to all the somewhat onerous conditions imposed by the Corporation, and their tender and work was fully approved by the architect, Mr. Henry Hartley. Among other buildings Messrs. Thornton were building the Royal Insurance Company's new offices in Liverpool. They also

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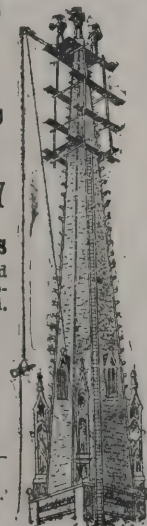
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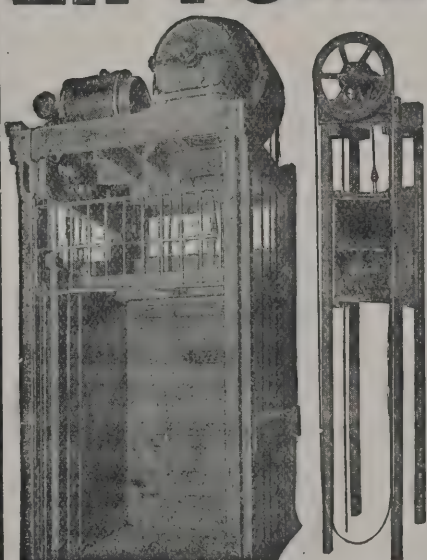
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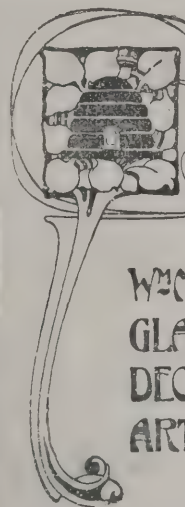
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undertook to complete the work in six months, which would give the Council the use of the completed town hall for next winter. He moved that the tender of Messrs. Thornton be accepted. Mr. W. G. Wall seconded.

Messrs. Grice and Snape asked for particulars of the other conditions of the lowest tender which rendered it unfavourable, Mr. Snape stating that it came from a Birkenhead firm and deserved full consideration before it was rejected. Personally, too, he doubted the wisdom of completing such work in the short space of six months.

Alderman Singleton said the lowest tender was from Mr. J. E. Gabbutt, of Birkenhead, who tendered to do the work in fifteen months for 4,997/. Messrs. Thornton offered to complete it in eight months for 5,085/., but afterwards reported that the special stone required by the Corporation could not be obtained, that particular quarry having contracted to supply all their available stone elsewhere. They offered to supply another and harder stone at an extra cost of 250/., and undertook to do the work in six months. Apart from the time the money difference in the two tenders was 330/., and more than that amount would be saved in the renting of outside offices for certain departments which could be rehoused in the town hall as soon as the work of restoration was complete. Under the circumstances the finance committee unhesitatingly recommended Messrs. Thornton's tender as the most advantageous in every way.

Mr. Snape thanked Alderman Singleton for the explanation, and said he entirely agreed with his observations.

The committee's recommendation was accepted without further comment.

THE SURVEYORS' INSTITUTION AND IRELAND.

ARRANGEMENTS for the visit of the Surveyors' Institution to Ireland next month are now completed. The Conference on the first day (Thursday, May 7) will be held, by permission of the Royal Dublin Society, in the lecture theatre of Leinster House, when the visiting members will be received by Lord Ardilaun, and an address of welcome will be delivered by the Lord Mayor of Dublin. The morning will be devoted to the reading and discussion of papers, after which the Irish members of the Institute will entertain the visitors at luncheon. In the afternoon parties of members will visit Trinity College,

St. Patrick's Cathedral, Dublin Castle, the National Library, the Bank of Ireland and Guinness's Brewery, and in the evening there will be a dinner at the Métropole Hotel. On the following day excursions will be made to Powerscourt House, by permission of Viscount Powerscourt; to the Agricultural College, Glasnevin; to Belfast and the Giant Causeway, and to Killarney, reduced fares having been provided for in each case. It was hoped that arrangements might have been made, as on former occasions, for a reduction of fares on the English railways, but this has proved impossible owing to new regulations at the Clearing House. The Irish railways, however, have been more compliant, and have conceded special facilities. Reserved saloon carriages will be attached by the London and North-Western Railway Company to the luncheon car train leaving Euston at 11 A.M. on Wednesday, May 6, and the party will reach Dublin (North Wall station) at 8.30 P.M. The Shelbourne hotel will be the headquarters of the Institution during the visit.

FIRE IN AN IRON AND STEEL FRAME BUILDING.

THE Roosevelt Building, Broadway and Thirteenth Street, says the *Engineering Record*, is a 110 by 110-foot eight-storey and basement building used for commercial, manufacturing and warehouse purposes. It had unprotected cast-iron interior columns 8 inches in diameter and steel wall columns. The floor and roof were of hollow tile segmental arches between 10-inch I-beams, supported on double 12-inch I-beam girders. The lower flanges of the beams and girders were protected by plaster on expanded metal furring, set close to the steel without enclosed air space. The floors were covered with 1-inch boards nailed to wooden strips bedded in concrete filling. The ceiling was plastered direct on the under side of the floor arches. There was a central elevator and stair shaft and a rear elevator and a rear stair shaft, all enclosed with hollow-tile partitions having wooden doors and large windows glazed with thin glass in each storey. Both sets of stairs had iron strings and stone treads without reinforcing webs. The basement, first, second, fifth and seventh storeys were occupied with stocks of clothing on wooden tables. The third and sixth storeys were used for the manufacture of suspenders and neckwear, the fourth storey for storing spool and embroidery silks, and the eighth storey for a tailor's cutting department.

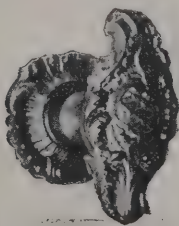
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ing and contents was injured or destroyed by a severe fire was made the subject of investigation by the Continental Insurance Company of New York. Their special inspector trained engineer made a report in which he described the destruction of the building substantially as above noted, the extent of the damage, and, in conclusion, the lesson to be learned from the standpoint of the insurance company. He stated the building as belonging to the "class commonly designated as fireproof buildings with unprotected ironwork adapted for mercantile and like manufacturing purposes." The report goes on to say that—

"The first warning of the fire was given by the pneumatic (automatic) alarm with which the building was equipped. As far as can be determined, it started in rear part of the northern half of the sixth floor amongst a quantity of drummers' trunks, samples, &c. It evidently spread very rapidly and reached the central stair and elevator shaft referred to (which was practically not cut off except by thin glass windows and wooden sashes) and entered each of the floors above. The sixth and seventh floors were divided in two at the centre (north of the stair shaft) by 2-inch brick tile partitions plastered $\frac{1}{2}$ inch on each side, and the fire succeeded admirably in confining most of the fire on the sixth floor to the southern half; but in this portion the stock was about total on each floor. In the eighth floor the fire burned more fiercely than on the others, and produced the most disastrous results. Five of the cast-iron columns supporting the roof broke off clean about 2 feet from the top, and all of the remaining columns were badly warped and twisted; like part of the framework of the outer walls, where the portion had been pulled off by the falling of the roof beams, giving way of the columns caused the entire roof except about one-third of the area in one corner to fall, and in consequence one section of it fell through the eighth floor, making a hole in the same about 12 by 15 feet, and landed on the ninth floor, which sagged considerably (where hit) from the increased load but remained intact. Part of the roof dropped on the stair landing in the central shaft referred to and fell right down through the building, carrying each landing with succession. The ironwork in the sixth and seventh floors appears to be in good condition, and structurally the building does not appear to be seriously damaged below the eighth floor, with the exception of the two broken floors where the roof fell through. The exterior walls being chiefly of brick and terra-cotta, damage to them was slight. Had they been of stone the

loss would probably have been much larger. Loss on building estimated at from 25 to 30 per cent.

While this fire is probably the most important that has occurred in this class of risks in New York, it can hardly be considered as teaching any new lesson, but rather as demonstrating and emphasising the opinions universally held by insurance engineers; firstly, that vertical openings not thoroughly enclosed in fireproof material are an extremely vital defect, and make an otherwise well-built building practically at the mercy of any fire once well under weigh, and secondly, that unprotected ironwork is a dangerous thing, never to be depended upon. The floor arches withstood the extreme heat of the fire satisfactorily, and it can be stated to a certainty that had the elevators and stairways been enclosed according to underwriters' standards, and the ironwork been protected, the same fire under the same conditions would not have spread beyond the floor upon which it originated.

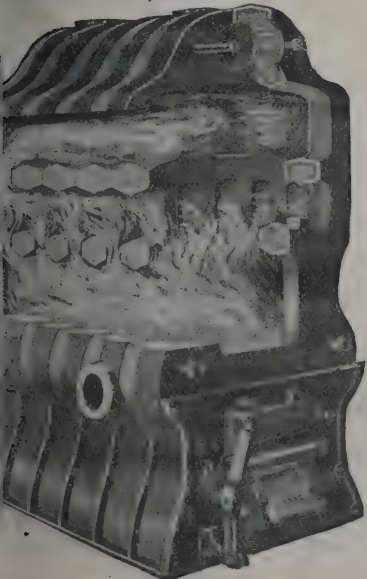
Another point the fire emphasises is the necessity of at least two stairways in all buildings of this class, and the importance of having the treads rest on an iron web or plate, as called for under the new laws. It will be noted that one stairway in this risk was made a wreck by the falling of the roof, and had it not been for the second stairway escape would have been entirely cut off for the firemen, and there would have been no way to fight the blaze except from adjoining buildings. From an insurance standpoint a fireproof building with unprotected ironwork and floors not cut off when filled with merchandise is scarcely better than an ordinary building, and as far as the stocks in such buildings are concerned they are hardly as desirable, if all on one floor, as when in an ordinary building of medium height. The floors of a fireproof building act as a reverberating furnace, and stocks contained therein are liable to be most effectually cremated, but if they be distributed over several floors properly cut off only that proportion on the floor where the fire originated should suffer.

BRIDGE CONSTRUCTION AT WORKINGTON.

MR. A. A. G. MALET, M.Inst.C.E., Local Government Board inspector, held an inquiry at the Albert Hall, Fisher Street, Workington, into the application of the Workington Corporation to the Local Government Board to borrow the sum of 15,048*l.* for the purposes of bridge construction. Mr. Sylvain Mayer, barrister-at-law, instructed by the town clerk,

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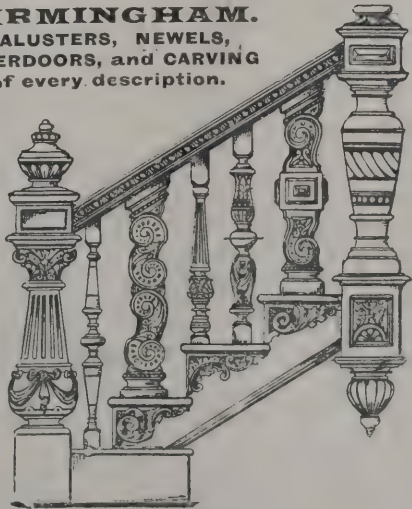
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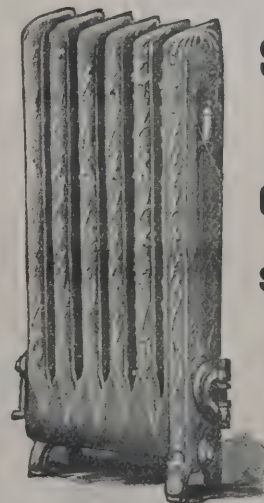
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Mr. John Warwick, appeared on behalf of the Workington Corporation.

Mr. J. Bintley, surveyor to the Westmoreland County Council and engineer of the bridge works, produced plans and gave evidence. He detailed the items of expenditure not included in the specification. Amongst these were a cut-water and the pitching of the west bank. In his opinion the pitching of the bank would prevent the flooding of part of the town by the spring tides. The bridge was commenced on July 4, 1901. He was practically certain that his estimate would not be exceeded.

The Inspector inquired if there was any other authority except the County Council concerned.

Mr. Mayer replied in the negative.

Mr. H. McAleer: What has the additional cost of the girders been?

Mr. Bintley: About 1,700%.

The Inspector: What do you mean by additional cost?

Mr. McAleer: The original girders did not turn out quite right.

The Inspector: The girders were found useless, you say?

Mr. McAleer: That is with regard to the mill stream bridge.

In answer to the Inspector, Mr. Mayer explained that the girders for the mill stream bridge were rejected, and the Maryport bridge girders were used instead, and fresh girders obtained for the Maryport and railway bridges. The extra cost was 1,700%. He had the rejected girders on hand, which he would try to sell.

Mr. McAleer said he thought Mr. Bintley ought to bear the loss in connection with the girders.

The Inspector: You must take that to the Town Council. This point of the County Council's contribution seems rather mixed up.

Mr. Mayer stated that Mr. Bell, Mr. Eden and Mr. Wood all made estimates for a bridge, but not for the work that had been constructed.

The Inspector said what the Board would want to know was on what basis the 10,000% put in the Act as the provision for a new bridge was made, and why the bridge actually constructed had cost 27,000%.

Mr. Mayer said Mr. Bell's bridge would have drowned the houses out at Northside. Mr. Bell put in nothing for compensation.

Mr. Bell: I was not asked to.

Mr. McAleer: There would not have been if the thing had been carried out in the proper way.

Mr. Bell said his instructions were to make a bridge between two points. There was a great deal of feeling whether the bridge should come out at the top end or at the lower part of the town, and he made a straight road to come right out on William Street. The intention of the Council then was to buy the William Street property.

The Inspector said a point was that at first the Council considered 10,000% would be sufficient, and now they sought sanction for the greatly-increased scheme.

In reply to the Inspector, Mr. Hodgson stated that the County Council had never promised any specific sum.

The Inspector asked what might be given by them.

Mr. Hodgson: I can only say that the committee have considered the application, and that at present the minutes of the County Council speak for themselves. It was exceedingly improbable that the County Council would contribute more than 5,000%. The County Council objected strongly to the height of the bridge. As far as they could the County Council were insisting on bridges 17 feet 6 inches in height on account of tramways. The bridge was only 14 feet 6 inches.

The inquiry then terminated.

THE CONSTRUCTION OF A SKYSCRAPER.

In the *New York Evening Post* Mr. Edward Lowry gives an account of the way the tall buildings of New York are raised. In the beginning, he says, there is the man with the money who buys the ground and pays for the building when it is erected. Next comes the capitalist, who executes the plans, prescribing definitely and comprehensively what manner of building is to be erected; how many floors, of what height and width, saying where stone shall be put and where iron. He draws plans showing the exterior appearance of the building. Then the third factor, the designing engineer, takes charge. Before his share in the work is explained it must be understood that a modern steel-frame building is constructed on the same architectural principles as a canvas canoe—a light tough cover on a rigid, secure frame. Given the dimensions of the cover, the engineer designs a steel frame over which the hull of stone, brick and cement may be reared. In a steel-frame building the only purpose the outer walls serve is to keep out the weather. When the designing engineer has made

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is shop drawings and sent them to the rolling mills his work ended.

The site cleared and the steel framework ready to be delivered, the fourth and most interesting factor—the engineer of construction—takes the work in hand. Because these men, by habit, speech and manner, in mental alertness, in their power to grapple with and master problems and obstacles, in their ability to “turn a keen, untroubled face home to the instant need of things,” typify what we are all proud to call the American spirit, the day’s work of one of them is chronicled here:—

First, he must be a master of men, knowing the sluggards among the workers, and the malcontents from the trustworthy, and able to bend them all to his will. In erecting a big “skyscraper” employment is given daily for many months to from 500 to 800 men, representing from thirty to sixty-five trades. Each of these trades has its union, and each of these unions has precise ideas as to the limitations of a day’s work and the price to be paid therefor, and in the present state of a fallen world these ideas are “subject to change without notice,” as the programmes in the vaudeville houses put it. The construction engineer must have the tact and the knowledge of human nature necessary to keep these men of diverse interests working in harmony. He will, if he is a man of the first class, seek to establish such relations with his men that they will show his interest is their interest, and that any delay on the work is “a throw-down for the boss.”

In one building that I know of, the estimated cost of the outside marblework alone was 1,000,000 dols. One day, when every marble worker in New York was busy, the men of that trade on this particular job decided they must have 50 cents added to their daily wage. The lock-out lasted a week before the men were taken back, and their demands granted. The enforced concession cost the contractors in round numbers just 2,000 dols. “And that didn’t do me a bit of good,” commented, in rueful tones, the engineer who told me the story. The incident throws a sidelight on one of his manifold responsibilities.

Sometimes it happens that men of two trades claim the privilege of doing a certain kind of work. The engineer must decide which trade is to have the job, and must make his decision so plain and deal such evenhanded justice as to satisfy the disappointed artisans. Practically not a week passes that is not marked by some labour dispute that, however trivial in its beginning, has not in it potentialities for

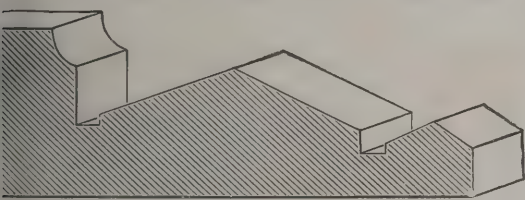
danger and delay. So it has come about that one of the prime requisites of a construction engineer is an ability to handle men. This must be considered apart from his executive ability, as shown in a well-ordered plan of work, supply of materials, and the direction of the activities of his labourers and artisans.

When an engineer is assigned to a building he takes the plans of the designing engineer and the architect, and studies them until he has mastered and carries in his mind the last intricate detail of each truss and beam and angle, until he knows each physical detail of the building to be erected, as a man may know his own children. An engineer coming into New York one morning recently from his New Jersey home pointed to a string of flat cars on a siding loaded with iron beams and pillars:—“There’s that section C stuff I have been waiting for,” he said. He had recognised it from the plans.

Carrying the entire plans for the building engraved on the plates of his mind, the engineer is ready to begin work. When the ironworkers and the riggers have shoved the framework up three or four storeys, the masons, stonecutters, steamfitters, fireproofers, tilelayers, carpenters and what not are called in, and the work of putting on the hull of the structure begins. The engineer is in daily consultation with the architect; he lives on the building, and as soon as possible establishes his office in it. Here he installs a clerk to receive materials, a time-keeper, a stenographer and maybe a clerk. At a certain hour each day he requires his division foremen, that is, the foreman of each trade, to report. He questions them regarding the progress of the work and the number of men employed and their needs. But decisive action is never taken until he has made personal inspection. The engineer must know as much about the work of each trade as the best man in that trade knows. He notes the number of men employed on each task, and he must know whether or not they are doing their full stint.

When the boss steamfitter comes to him with the demand that a hole be cut through an angle iron that a certain pipe may be placed, he must know whether the hole is necessary or not. He must be able to tell a stonecutter or a mason with equal positiveness wherein his work is lacking.

He must look far ahead and keep constantly before his eye a mental picture of the completed building. When a pipe is once placed or a beam laid and rivetted, the work must not be undone again to make place for something that should have gone before. Mr. Kipling has written of that board of London



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directors who destroyed half an acre of calculations by decreeing at the eleventh hour that Findlayson's bridge should be half a foot wider than the original plans specified. The engineer must uphold the plans of his architect.

Sometimes it happens, when haste is desirable, that a building is started before the architect has completed his detailed plans, when none of the "inside work" is laid out. Then the engineer's work becomes doubly difficult. He must anticipate the plans of the architect, and do many important pieces of work on his own responsibility. Told that a certain heating system is to be installed, work must be directed in such a way that the steam or hot-air pipes will not mar the inside architectural beauties of the building. Every question the engineer decides means a saving or a loss in time and money to his employers, and usually involves no inconsiderable sum. They all agree that the man who can see furthest into the future and discern the needs of the growing structure is the man of highest value.

One afternoon, while I sat in an engineer's shanty on the ground floor of a big building now towering over Madison Square, these things happened in the order in which they are related:—

The engineer, a stockily-built, square-jawed young man, with the clearest grey eyes I ever saw, sat at a flat-topped desk going through a mass of papers like a young steam-engine. The cavernous interior of the incomplete structure echoed with the clanging of the rivetters' hammers and the harsh rattle of steam-winch.

"Take a letter to these cement people, Miss Daisy. Tell em that last lot of stuff wasn't up to grade, and I won't stand or it. Make it pretty strong. Tell the architect I'll be here all day to-morrow, and he can come any time he gets ready. You can answer this other stuff yourself. Have 'em all ready in an hour. Jim, tell Brannigan—y' know him? Foreman of the painting gang?—tell him to paint eight of those A16 beams along the Twenty-fourth Street side of section C with that new rust-proof paint. I want the architect to see how it goes. I don't want the rust spots covered where they were painted before, y' understand?"

He began signing the day's time card, while an under-sized man in a labourer's mortar-stained overalls stood in the doorway, waiting for the boss to look at him.

"Well, what is it? What can I do for you?"

The man whispered in the engineer's ear for a few minutes.

"Well, do you want to stay on the job? You can if you

want to, and you won't have to pay anybody 10 dols. either. Send that labour delegate to me, and I'll put it up to him so good and hard he won't come about this job again. The work's too hard, eh? and you want to quit? All right. Tom, give this man his time up to five o'clock. You come back here then and get your money."

"Scared out," said the engineer in explanation to his visitor. "I took him on to oblige a friend of mine, and to-day a walking delegate told him he would have to pony up 10 dols. if he wanted to stay on the job. He hasn't earned that much yet. I've got that labour delegate just where I want him, but this man says the work is too hard for him."

His assistant came in with a roll of blue prints. "You'll have to make a ground plan of that area on the east side of the entrance; the masons want to begin on it in the morning."

"What shall I do about this man?" broke in the time-keeper; "he says," &c. A workman came to the door. "Them cornice-irons that you wanted to see are here. Can you come up now?" "Jersey City is on the 'phone," said the stenographer, "and they want to know when you'll be ready for that fancy bronzework." These problems of the day's work were disposed of as rapidly as they came up. Then the engineer talked of the future:—

"Building booms, as history will show, have come in New York at long intervals. Each boom has been marked by some characteristic. Just now we are riding on the crest of the wave and eating cream. Never before at any one time has so much money been put into building in New York. I calculate that it is going to last about ten years more, and I can figure out where I won't care what happens after that time. I'm going to make my pile in those ten years. I've earned what's coming to me. I've had to master sixty trades before I could hold this job, and learn a lot of other things besides. I've sweated and worried about things until I am gray on the temples at thirty-five."

"Ten years from now these masons that are getting 65 cents an hour now (they'll get 75 next year) will be glad to work for 35 cents, and may be less. Then these labour unions will begin to crumble and go to pieces, when the work gets scarce. Mind you, I'm not against 'em, not for a minute. Anybody's liable to play a pat hand too strong, and they are certainly doing it."

These are the views of many other engineers. For the most part they impress you as strong men who know their work and are able to do it up to the handle.

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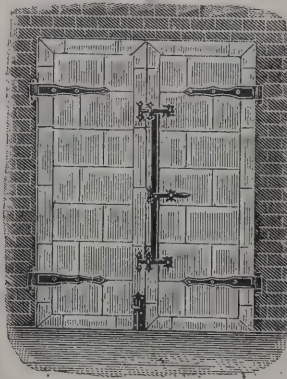
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THE WEEK.

BUILDERS and others who have obtained approval of plans from local authorities will be wise in acting with some expedition. We are so accustomed in this country to consider all edicts as irrevocable unless a complicated procedure is gone through, the nature of by-laws is apt to be overlooked. They represent the state of knowledge about sanitation and construction at the time they were issued. They are only, as it were, tentative efforts to insure public safety. If knowledge advances they have to be altered, but in such instances there can be no doubt inconvenience may be caused. An appeal case which was heard a few days since by the Lord Chief Justice, Mr. Justice WILLS and Mr. Justice CHANNELL, is enough to show what is possible. Mr. WHITE, a builder in Sunderland, appealed against a conviction of the local magistrates for a breach of by-laws in the construction of a terrace. The plans for all the houses had been approved, but before all were completed new by-laws were issued. His counsel contended that the appellant had acquired an indefeasible right to erect the houses according to the plans which had been approved, and that the local authority could not deprive him of that right by passing new by-laws, and that the new by-laws were *ultra vires* in so far as they sought to deprive the appellant of the right which he had acquired. Further, it was argued that the houses in question were not new buildings; that the terrace was one entity—one building, in fact, and that the commencement of one of the houses which formed the terrace was the commencement of the whole terrace. The Lord Chief Justice considered it would be undesirable to tie the hands of local authorities for all time from altering their by-laws in respect to the construction of houses, simply because the houses formed part of a terrace, the plans in respect to which had been previously approved. The question as to the time of the commencement of the building of the houses was one of fact, and he was of opinion that the new by-laws were not *ultra vires*, and that the justices were right. There was no difference of opinion among their lordships, and the appeal was accordingly dismissed with costs. Application was made to bring the case before a higher tribunal, but Lord ALVERSTONE said they had not power to grant it. This is to be regretted, for similar cases have lately arisen, and it would be well if some check were imposed on the issue of new by-laws. The liberty to alter is especially hard on architects who prepare plans in London for buildings to be erected in provincial towns and districts. It needs constant watchfulness on the spot in order to become acquainted with the changes that are allowable. They should be treated in a similar way to changes in harbours or channels, which are announced in such a manner that mariners can amend their charts. At least there should be some central office in which records of new and amended by-laws could be seen without much difficulty.

THE discovery of a beehive tomb at Orchomenos, of which the walls were adorned with slabs covered with a design that might be called Assyrian, has revived the interest in a place described by HOMER as renowned for its wealth. It was known as the Boeotian Orchomenos, as there was another city of the same name in Arcadia. There are so many ruins about the site, it is difficult to determine where was the city or its most important part. It has been supposed there was a removal, caused by the overflowing of a lake, to a higher position. The treasury of Minyas, included by PAUSANIAS among the wonders of Greece, stood at the foot of the Acropolis. It was constructed of white marble, which must have been conveyed from a long distance. The ancient topographers evidently preferred the treasury of Orchomenos to that of Mycenæ. SCHLIEMANN visited the place and made some discoveries in it, but he cared more for Mycenæ from its connection with Troy, of which he was in search. There can be no doubt that Orchomenos has importance of its own which makes it a

desirable field for exploration. The work is about to be undertaken under the auspices of the Bavarian Academy. Funds have been provided by Herr JORDAN, and the operations will be directed by Herr BULLE, who will have the aid of Herr FURTWÄNGLER. They will endeavour in the first place to bring to light the remains of the palace. As Orchomenos was called the City of the Graces, it is to be assumed the place possessed some architectural dignity. But, so far as is known, the masonry was of polygonal construction, the style seen in Tiryns having been only partially adopted.

THE worship of MITHRA, or the Sun, existed at an early age in Persia. It may have been derived from India, but how far it was followed in Greece is not clear. That it was allowed in Tripoli during the Roman occupation is made evident by a recent discovery. Two sarcophagi have been found bearing an inscription in Latin to the effect that a man and his wife of the Punic race reposed within them. On one was painted a representation of a lion with the sentence, "Leo jacet," and on the other a lioness with the words, "Quæ lea jacet." From the figures it is concluded that the deceased when living were sun-worshippers. The Mithraists were divided into seven classes, which the worshippers were expected to pass through before they were considered as fully initiated into the mysteries. The Punic couple belonged to the fourth degree, and must have gone through the three inferior degrees of Coraces, Gryphi and Milites. If they had survived for a longer period they might have ascended through the upper grades of Persæ, Heliodromi and Patres, although, according to some, the last consisted of priests or priestesses.

BRESLAU is about to lose one of its treasures. "The Golden Crown" will shortly be removed. The building occupies a large site in the centre of the town, and it will be supplanted by several houses of business. "The Golden Crown" was much prized by the people, for it was one of the stateliest mansions to be found in Germany. It was erected between 1521-28 by JOHANN HOLTZ, who by his marriage was able to obtain possession of the site, which even at that time was valuable. The building evidently was erected when Italian influence was powerful in Breslau, and an old representation of it shows that the front was adorned with figures and ornament executed either in painting or in scraffito. An inscription dated 1544, "Quævis terra patria," suggests the building belonged to a stranger, and indeed HOLTZ was not a native of Breslau, but of Cologne. The house was altered from time to time, yet it was never degraded, and was always occupied by people of some rank. Breslau's prosperity through manufactures is increasing, and the ancient patrician mansion, like many another example of antiquity, has to succumb to trade. There is general regret at its loss, but the inevitable is not to be avoided.

It was expected that the name of the late CHARLES GARNIER would be given to some thoroughfare in the vicinity of his principal work, the Paris Opera House. A street will be called after him, but it will not be in the centre of the city, for the "Rue Charles Garnier" will run over the site of the former prison of Roquette. This is supposed to be preferable to a street at Mazas, where the prison for juvenile offenders stood. The Rue de la Roquette was not always connected with prisons and executions. The original name was Rochette. It contained a branch establishment of the Hospitaliers for paying patients and for other people who desired the quiet of a convent life without entering a religious order. SEDAINE, the dramatist, who was also secretary to the Academy of Architecture, and who is held by some to have been the originator of comic opera, lived for many years in the street. RÉAUMUR, the naturalist, was also a resident. But all admirers of the architect would have preferred to see his name on a tablet in a different district.



TYPES OF COSTUME: ENGLISH, SIXTEENTH CENTURY.

ARCHITECTURE AT THE ROYAL ACADEMY.

ANYONE who was familiar with the statements about the depressed state of the building trade which have appeared in so many newspapers during the past year would be amazed on seeing the large number of drawings in the Architectural Room of the Royal Academy. There are about two hundred and fifty, which is in excess of the average. It is not to be assumed they are all remarkable as works of art. Indeed, we must admire the unusual leniency which was exercised in examining many of the drawings. If the most excellent of those submitted appear on the walls the question must be asked, "Of what quality were those which were rejected?" and the answer will suggest mournful reflections about the condition of modern architecture. This year a novel experiment is attempted in the hanging of the drawings. As a rule there is a mixture of various classes of work on each of the walls. But care was generally taken to place those which were considered as most impressive opposite the entrance, and on the long wall there were if possible several points of vantage utilised in order to avoid any appearance of monotony in so large a space. That arrangement is not followed this year. The majority of the drawings which represent ambitious works are to be found on the short walls which flank the entrance, while with a few exceptions the wall with the largest area is assigned to domestic buildings. It may be supposed that the few people who will turn into the room during the season are incompetent to judge of important designs, while the majority of visitors, whether old or young, can appreciate a drawing of a house. Anyone who is thinking of erecting a domicile will find in the Academy this year examples to suit all requirements and all degrees of wealth.

It would be a thankless undertaking to discriminate between the merits of about 150 houses. A reader would not be gratified by an exercise in which there could be little variety, for the limitations of invention for town houses, country houses, business premises, flats and offices are fixed by laws which resemble those of fashion. Designs are to be seen by Messrs. GEORGE & YEATES, BELCHER, MOUNTFORD, WORLEY, R. BLOMFIELD, BOLTON, WIMPERIS & EAST, CATTERALL, MITCHELL, PRENTICE, C. SMITH & SON, PERKS, WILSON, MAWSON, A. C. BLOMFIELD, GUY DAWBER, E. NEWTON and others whose manner of treatment can be inferred without difficulty. But, as we have remarked, the judging this year was rather benevolent, and many designs for simple structures have in consequence found places as if to encourage the authors. A more rigorous standard of criticism will be applied by other architects, and in that way success will be neutralised.

Mr. BODLEY's "diploma work," "A View of the Exterior of St. Mary's, Clumber," with two other designs by him, are hung among the houses. The Duke of NEWCASTLE's chapel is the most remarkable example of its class in England. As a rule Englishmen were timorous before a suspicion of being ostentatious in devotion, and therefore their chapels were not detached buildings. Indeed, BACON in his ideal Elizabethan mansion, supposes the chapel to be an annexe to the withdrawing-room. As a result, it is difficult to discover examples of private chapels, apart from those in

churches or cathedrals which have architectural interest. St. Mary's, Clumber, might be a parish church, and in style it is among the most interesting of the architect's works. The interior of "Proposed New Church, Leeds," is another fine Gothic example which is so treated that the chancel appears from colour and adornment to be the necessary climax of the composition. The "Design for Canon Carter's Tomb" gives opportunities for using sculpture and mosaic. We hope there will be no retrenchment of details for the sake of economy. Mr. JACKSON has a view of "New Buildings for Hertford College, Oxford," in which a bridge is introduced—a novelty in collegiate buildings—and the "Entrance to Sedgwick Memorial Museum, Cambridge." The position is sheltered, but there is compensation in the number of steps which will have to be ascended. The "Proposed Restoration of Gateway of Nottingham Castle" is one of those exercises which give delight to all who love Mediævalism, and Mr. JACKSON has evidently worked at it *con amore*. Mr. BELCHER has a drawing of the remodelled "Tapeley Park, North Devon," a large brick mansion in which apparently some features of dressed stone are introduced. "The Royal London Friendly Society's New Building" is a hopeful indication of co-operative enterprise in undertaking a costly building as an investment. The upper parts are not sacrificed to the ground floor, and vertical as well as horizontal divisions are emphasised. A large-size model of a corner is also exhibited. An entrance wing to "Cornbury Park, Oxon," shows some novelty in the treatment of the Ionic capitals and of the caps of pilasters. Tapestry has been provided for, and the hall is refined in all details. Mr. ASTON WEBB has two large elevations of the "Victoria and Albert Museum," together with a detailed drawing of a bay. For the first time it is possible to obtain an adequate idea of the exterior of the new building. Although they have a generic correspondence the two elevations show variety of treatment between general lines, and it is evident also that in the details traditional forms have not been followed with exactitude.

Some designs for the Liverpool Cathedral are exhibited. Mr. SKIPWORTH has three drawings, an interior which, being in grey and white stone, has a reposeful effect, and exterior parts which are in keeping. Mr. CORLETTE's interior is marked by severity, while the exterior from the point of view taken appears to be constricted by the numerous buttresses. Mr. BERESFORD PITE's design is of a Byzantine type, the tower showing a later development of the style. The flat domes give the key to the composition for the arches and many details are in keeping with them. There is consequently a sense of unity throughout; still, the design from its novelty could not fail to be considered as extraordinarily expensive by men who had to count the cost and found a difficulty in attracting subscriptions. Mr. C. H. REILLY's "Design for a Cathedral," of which there are interior and exterior views, is Italian in style. There is no plan, but evidently the dome is sufficiently capacious to comprise the greater part of the building, as if it were a symbol of a protecting Providence. The small chapels, as shown on the exterior, appear insignificant beside the mass

of the building, but there is on the whole an effect of majesty which it was courageous to introduce. Mr. J. OLDRID SCOTT has a drawing of the "New West Front, Hereford Cathedral," which is in keeping with the older work, and the drawing of "St. John the Baptist Church, Norwich," is almost suggestive of a cathedral.

There are several competition designs for municipal and other buildings. That the colonies may be turned to account is shown by Mr. HALSEY RICARDO'S "Proposed Government Building at Johannesburg." The building covers a large area, but economy was recognised. The blocks in which are entrances slightly project, and the intermediate parts show verandahs with flat arching. The design for "Lahore Post Office," by Mr. M. STARMER HACK, is Classic treated in an Indian spirit, and the effect is pleasing. Mr. MOUNTFORD has some drawings for the "New Sessions House" for the Corporation of London, but he has not been favourably treated this year, as some of his works have been skied, although they merited positions on the line. In fact, this year there is a good deal of haphazard hanging, and we do not consider that the exhibition will be considered as satisfactory.

INDUSTRIALISM IN AMERICA AND ENGLAND.

WHEN NAPOLEON found his improvised ambassadors were discomfited by foreign ministers he changed his tactics. He induced some of the Royalist aristocrats to accept office and sent them on embassies. They ferreted out all the information he desired. Some of our manufacturers, also believing in the principle *similia similibus curantur*, have endeavoured to imitate NAPOLEON'S example. Finding themselves outwitted in the markets by Americans and Germans, they sent foremen and managers to the rivals' countries in the hope of discovering the secrets of success. They have been rarely fortunate. Manufacturers have then gone abroad, and they also have been puzzled. When they relate their experiences they generally admit the failure to discover much difference between the foreign systems of production and transacting business and their own. The workmen they consider on the whole not more productive than English workmen. The wages are at least as high and the other expenses not less. In the case of Germany, some of the travellers have not hesitated to say that the classes of productions with which they were best acquainted could not be sold so cheaply if it were not for secret subsidies from the Government. In America the case is different. For the differences between the work in the two countries there is always the plausible explanation that American work is made to be sold, and there is indifference about its endurance.

The Mosely Commission, of which the reports have appeared, is the most organised of the attempts to gain information about the methods of our rivals. It was confined to work in the United States, but sooner or later Germany may be subjected to a similar investigation. The experiment originated with Mr. ALFRED MOSELY, who invited representatives of trade societies to accompany him as guests in a tour of which the main object was the investigation of industrial methods. The majority of the members belonged to trades producing exports, such as cotton, cutlery, paper, printing, leather, machinery, &c. Americans are not, however, content with becoming our competitors for an export trade. They have already endeavoured to supplant Englishmen in some forms of building in this country. Accordingly the Operative Plasterers, the Operative Bricklayers, the Operative Carpenters and Joiners were allowed to send deputies. This broadening of the scope of the inquiry merits recognition at a time when the building trades are in a state of fluctuation, and the Americans believe they have gained the advantage of appearing under the highest auspices as contractors. In a late number of one of their building papers it is stated that HIS MAJESTY, wishing to have schools erected near Sandringham, was compelled to give the order for them to an American firm, as they were prepared to complete the work in about a quarter of the time asked by an English firm. There is little doubt of some error in the story, but it is calculated to advance American

interests in this country and to facilitate the success of strangers.

It would be absurd to suppose we have a monopoly of good building in England or to deny the possibility of Americans producing work which will be as enduring as ours. But it should be remembered that among all practical arts building is the most representative of the spirit of a country, and as it happens the national spirit in England and America is not identical.

We are more or less conservative and the present is affected by the past, while in America the future has stronger influence on the present time than any former age whether near or remote. Sixty years ago EMERSON told his countrymen that theirs was "the country of the future," and that "Man's heart the ALMIGHTY to the future set by secret and inviolable springs." Everything around them was "giving an aspect of greatness to the future, which the imagination fears to open—a new and more excellent social state than history has recorded."

Although for less transcendental reasons the American has so kept his eye on the future, he can only look on his own time as one of transition. In the description by a hustling "engineer of construction" which we published in our supplement last week, he told his interviewer that his own views did not extend beyond a future of ten years, for in that time he was to "make his pile," and for what was afterwards to happen he did not care. It was not impossible masons' wages would then be 35 cents instead of 65 cents, and the whole building system would be changed. We cannot expect people who believe that invention may at any time cause a revolution in a trade will do more than create temporary organisations. The ruling maxim is "get out as much work as possible to-day, for our process may be superseded to-morrow."

In the reports of the Mosely Commission we find many instances of the power of this apprehension, and its influence on the expedition with which work is produced. One of the party tells us that at Mr. CARNEGIE'S works at Homestead on an occasion when things were being taken very quietly, "I saw a large block of steel turned out of the furnace and laid on the rollers, and in three minutes and thirty seconds it was a steel plate 150 feet in length, 3 feet wide and $\frac{3}{4}$ inch thick." The representative of the carpenters was told by the head of one woodworking factory:—"Machinery does the work here. Whenever we hear of a new machine coming out, and we find it is better than what we have got, we chuck the old out and put up the new one at once. Here is a mortise machine, the best I could get at the time. Now there is a new one. I ordered one at once, but I cannot get it; such is the rush of orders. That is how we get along so fast with the work here; in the old country they just drag along with the old machinery, and only when it is worn out, and not till then, will they think of replacing it."

In the Cleveland factories for joinery machinery was not only supreme, but omnipotent. "I found," says Mr. CRAWFORD, "machines doing what we entirely do by hand labour at home. All the men had to do was to put together, the cleaning-off being done by a machine called a glass-papery machine. It had rollers about 4 feet wide. Round each roller was a layer of carpet, and then the glass-paper. As the rollers moved in opposite directions both sides of a door or sash would be cleaned off at once. The pulleys of sash-frames are rounded at the ends instead of square, as at home. The machine completes the housing, nothing being left for the mechanic but to put it in its place." Bevelling or chamfering, glueing-up, &c., are all performed by machinery. Two joints 1 inch thick can at once be completed by the jointer, four caps or trusses are simultaneously turned out from the carving machine, and the carving is never touched by hand unless in special cases. A franking machine mortises sash-bars. A housing machine can do any width desired. In a billiard-table manufactory it was found that the veneers of the legs were put on from the band-saw; the veneer is steamed and stamped by a machine the exact reverse of the leg. At a large cabinet factory, having an area of 11 acres, Mr. CRAWFORD ascertained that "nothing is done by hand, except in the shop where new designs or patterns are made. They have a show of furniture every six months, when three new designs are submitted to their

customers; if any of them take, then an exact pattern of every piece is made, and all are numbered and sent out into the factory. The machines do all the rest except glueing together." In a sash and door factory it was stated that four men with the aid of machines were able to turn out 150 five-panelled whitewood doors per day. A chain mortise machine for use when the mortise does not go through is described. It works on two small pulleys like a band-saw, digging into the wood and bringing up the core with an action like a grain elevator.

It is, we suppose, difficult for any English trader who is allowed to inspect American manufactories to resist the belief that in our country we do not sufficiently utilise machinery or are too considerate in the working of machines. Mr. MOSELY, who organised the Commission, says:—"My own observations lead me to believe that the average American manufacturer runs his machinery at a much higher speed than is the usual practice in England—in other words, 'for all it is worth'—and the men ably second the employer's efforts in this direction." If the machines are less productive with us, Mr. MOSELY believes it is owing to the absence of inducements to the attendants like those obtainable in America, where large earnings are willingly paid to men because it is considered the profits will be proportionately increased.

There are trades in which machinery can be of only partial assistance, and what is their character in America? Bricklaying is one. Mr. TAYLOR, the reporter, arranges the buildings he examined into three classes, viz. those with steel skeletons, buildings of smaller types resembling those in England, and suburban houses and villas. He was surprised to see men at work on different floors at the same time, but the only advantage of the arrangement is the saving of time to the contractor or client. In America more than elsewhere time is supposed to be money, and becomes a valuable asset. On the other hand, the rivalry which is induced causes rushing and scamping. Of work in the first and the other classes of buildings which more nearly correspond with English, Mr. TAYLOR says that "no architect or engineer worthy of the name would permit any of these systems to obtain in this country, as in all three there is no pretext and no attempt to properly bond the brickwork. Nearly all the faced work consists of stretching courses only (merely a veneer), although on the rough and interior walls of any thickness there is usually one course of headers or bonders to every five or six courses of stretchers, instead of English bond consisting of alternate courses of headers and stretchers, or the Flemish bond consisting of headers and stretchers laid alternately in each course—either of these systems (the English for preference) securing the proper bonding of the brickwork, both longitudinally and latitudinally. Flushing-up or grouting, i.e. filling in the interstices with mortar of a more or less liquid nature, in order to obtain greater solidity of the work, is very seldom practised." Gauged work is rare, owing to its cost. Terra-cotta blocks partly hollow are employed for partitions. The bricks, we are told, are "very well burnt, very hard and fairly true." Measuring is per 1,000 bricks. Mr. TAYLOR says that hitherto cheap work and nasty was demanded, although some good work is now executed. He describes a party wall of a comparatively new building as "certainly one of the worst specimens of work I have ever seen; joint upon joint, in many cases, for eight and nine courses at a time; very few cross-joints put up at all, and in several places no mortar had been used to even bed the bricks, which were laid on dry. I was informed that that class of work obtained a few years ago, and when I suggested that probably in those days bricklayers were employed to lay bricks, not mortar, my informant quite agreed."

Mr. TAYLOR ascribes the defects to custom and system rather than to employers and employed. But so long as Americans believe in the coming of constructional revolutions, we can hardly blame them if they do not endow their buildings with the qualities which are required for a lengthened endurance. The English builders' desire to see work "stronger than strong enough" must seem to Americans to be only a relic of old fogeyism. The effect of an introduction of American methods in this country would be, according to Mr. TAYLOR:—"All that natural

pride the real craftsman takes in the strength, durability and finish of his handicraft would be extinguished and destroyed; all the years of struggle and work we have had to raise the standard of workmanship to its present high standard would have been in vain, and all would be sacrificed to the interests of present-day utility." Those who are eager, owing to their ignorance of the differences between building construction and modes of production in which machinery is the chief factor, to see American contractors at work in this country will do well to reflect on the inevitable consequences of the innovation. English buildings have generally resembled other things in this country. They exemplify that commanding sense of right and wrong from which springs, according to EMERSON, that thoroughness and solidity of work which is recognised as a national characteristic.

The plasterers have long been reckoned as the *enfants terribles* of the building trade in England. When we found a representative of their incorrigible association was one of the Commission, we anticipated a report in which American work would be lauded. Mr. DELLER has, however, set all prejudices aside, and presents an impartial statement. When he was asked whether he could cover 10 yards of lathwork with one hod of stuff he was nonplussed, but when the doer of such a feat said that was all the stuff allowed by the "boss," it became a revelation of the American system. Next he heard that "a plumb rule was seldom if ever used, and that employers invariably insisted upon either adulterating the better material or substituting altogether inferior material to that contracted for." Such work as he saw in the Buffalo Post Office he declares to be "a standing disgrace to the trade." At Cleveland he was informed that "the architects preferred speed to quality, everywhere they think only of to-day;" but, as we have said, that is a national characteristic. The President's room at Washington had walls which were "very poorly plastered," and at a theatre in the evening Mr. DELLER states that he had "the mortification of sitting under a ceiling that had simply one coat on the laths." In New York, for the first time in America, he saw real plastering, but the bad could not be worse. On the whole, Mr. DELLER found the work to be "far and away behind that executed in England, and the hampered conditions are anything but pleasant to work under." The scaffolding is often dangerous, which he attributes to the utter disregard for stability and human life.

There will be found a general agreement among the members of the Commission about what they saw in the towns visited. In all that can be carried out by the aid of machinery the Americans are ahead of us, for they sacrifice machines with as little remorse as six-storey buildings are transformed into twenty-five or thirty-storey skyscrapers. But in work which demands the constant operation of men's hands it cannot be said they have gained or are likely to gain supremacy.

THE NEW GALLERY EXHIBITION.

IF the will could be taken for the deed, if aspiration were a substitute for perfect execution, then this year's summer exhibition at the New Gallery would be attractive to all classes of visitors. It would, however, be necessary to avoid applying the tests usually supposed to belong to the painting of natural objects and to be satisfied with forms of which it can only be said they are suggestive. No doubt paintings can be seen on the walls which recall actualities, but the unreal classes become most characteristic of this year's exhibition. There is of course another way of regarding the collection. An exhibition is a sort of market which is dominated by the law of supply and demand. There are people who from a belief in their individual superiority and refinement are dissatisfied with ordinary life. They resemble those who wish to have better bread than can be made from flour. If they desire pictures of a peculiar sort it is allowable for artists to produce them. But many of the works in question appear to be only exercises made by amateurs for their own enjoyment.

The work which could be pointed to as the highest example of the new aims would be Mr. WATTS'S *The Sower of the Systems*. While recognising his genius, which often attains the sublime, we are compelled to say that in this

instance he has attempted to make painting serve a purpose for which it is incompetent. It may be Miltonic to suggest the Creative Power casting worlds into space with the same ease as the sower throws seed. But painting should be Dantesque, or, in other words, precise and definite rather than Miltonic. We see a figure, or rather an adumbration of a figure, of which the only portions distinctly human are the hands. The robe resembles a cloud which is piled up in such a way as to make it doubtful whether there is a head. This no doubt may be intended to recall the figure in the Temple of Isis, and the inscription, "I am whatsoever is, whatsoever has been, whatsoever shall be; and the veil which is over my countenance no mortal hand has ever raised." But when considered as a question of technique what is it more than the old Classic painter's evasion of a difficulty in expression by covering the face of AGAMEMNON in representing the sacrifice of his daughter? Mr. WATTS has not the courage to follow the example of the Renaissance artists. But by so doing he omits the part of the body associated with intellect, and it might be said that his figure is no more than a mechanical apparatus, part of which resembles the human hand. The truth is that painting has its limitations, and it is only reasonable to respect them. Mr. WATTS departs from nature in a majestic manner. Some other exhibitors merely display their weakness. His *End of the Day* is simply a combination of colours, which an uninitiated observer would not be able to define. We seem to have a renewal of TURNER's attempts to make colour serve instead of form, or something corresponding with FLAUBERT's proposal for a fine poem in which melodious words should be introduced regardless of sense.

Another endeavour to make colour supreme is in the *Fates*, in the first room, by Mr. WALTER CRANE. As a decorator he has produced admirable colour schemes, but, knowing the company in which his picture would be placed, he has in this case become lawless. The daughters of THEMIS were generally known as sisters of the same age, but we do not quarrel with the artist because they belonged to different periods of life. From the peculiar diversity of colour, which seems to be haphazard, the solemnity of character which should belong to them ceases to be manifest.

Near this last work, in the south room, is Lady WENLOCK's *Sunrise on the Himalayas*, which will afford much delight, for it appears to be an honest representation of a natural phenomenon. All the world over it is supposed that "jocund day stands tiptoe on the misty mountain tops" without much change of manner. But nature varies, and this sunrise is a novelty. Mr. GERALD METCALFE's *Credo* shows the knight looking steadfastly forward as if prepared for some coming struggle, regardless of the very substantial demon behind him. It is a brilliant example of colouring, and asserts itself over the neighbouring works. It is refreshing, however, to turn from symbolical subjects to Mr. GRAHAM PETRIE's *The Market, Fiume*, one of the pleasantest scenes of its class, and Mr. ERNEST PARTON's *To their Night Pasture*, showing sheep going towards a small plantation that stands out against the sky. Mr. SHANNON, in his *The Baroness de Meyer*, enhances the subject by making art and nature auxiliaries to the figure. On one side are some tall lilies, and behind is a sculptured prie-dieu or band of ornament. The lady is clad in black and ray. The companion picture, *The Baron de Meyer*, is in the west room. The first impression is that a priest is represented, for the peculiar black robe and white collar are not suggestive of modern secular attire, but the blue lining of the sleeves is out of keeping with that notion. The *Sleeping Nymph* of Mr. LLEWELLYN shows a figure who has selected a spot amidst trees and rocks, well adapted to increase her charms. Mr. GODWARD's *Old Story* is a Greek youth and girl with the usual variable accompaniments; and Mr. HERBERT SCHMALZ as an expressive French girl holding an old-fashioned glass called *A Toi*. Mr. HENNESEY's *Twilight and Night* might be presumed from the title to be an allegory, but it is simply a happy presentation of a child between an old French peasant woman and one much younger. Mr. FREDERICK SHIELDS, a painter animated by the highest aims, and he sometimes has expressed moralities very ably on canvas. But it

is doubtful whether, despite the aid of a long description in the catalogue, any visitor will find the time requisite to interpret his *Patience*. The figure bears a manifold, if not a heavy, load. Mr. BARCLAY's *Amongst Flowers*, children in a field abounding with primroses, is another welcome sight. Sir J. D. LINTON's *Madonna and Child* competes with the Italian works in which the Virgin is seen seated on a throne with a narrow back that rises to a height. Upholstery and robes are of the richest stuffs. The wreaths or swags are of the requisite stiffness, and the picture is unquestionably one of the most brilliant in the south room. The face seems to be a portrait rather than an idealisation; not only RAPHAEL's *Madonnas*, but those of other Italian masters, are no more than portraits, which, through the influence of association, have come to be regarded as if they were superior in idealism to ordinary life. They served as altar-pieces, and we doubt if in any church or chapel the work before us could be utilised in any way. Mr. REGINALD BARRATT's *In the Piazza, Venice*, shows two of the recessed entrances to St. Mark's, with one of the flagstaffs in the foreground. Here we have accuracy combined with pictorial effect. The New Gallery artists are not disposed to acknowledge inspiration from books. The incident from "Wilhelm Meister," by the Hon. JOHN COLLIER, is therefore somewhat of a novelty. It represents the egg-dance of MIGNON. It is doubtful whether in that scene the Italian girl was dressed as a boy, for she had been purchased out of the troupe of tumblers. But the figure is suggestive of the fairy-like creature. A German looks on the Walkyries as of gigantic size, but Mr. CRANE, in *The Walkyries' Ride*, shows them as particularly slim figures—as if they formed a part of the light cavalry.

In the west room are Mr. WATTS's paintings. Mr. G. WOOLISCROFT RHEAD has represented the *Ten Virgins*, but has carried the expression in the foolish faces to excess that ceases to be tragic. Sir GEORGE REID has two portraits in the room. TOM MORRIS, the golfer, is sure to be the favourite. Mr. J. T. PEDDIE's *Tulip Stealer* has almost from fine colouring the effect of a piece of tapestry. Mr. BYAM SHAW shows the ruins of an abbey which is visited by a mysterious old lady as an illustration of the text, "Here we have no continuing city, but we seek one to come." Mr. HALLÉ's altar-piece, *Madonna and Child with Attendant Angels*, is Guidoish in character, but is sufficiently successful to prove there is no necessity for convents to go to France and Germany for altar-pieces. His *St. George* shows the warrior on foot. The dragon is not more successful than the majority of those by other modern artists. Mr. LAVERY's *Miss Idonia la Primaudaye* is a skilful adaptation of black drapery against a black background, a variation being obtained in the gilded framing of the chair. Sir J. D. LINTON's *Washing the Beggars' feet on Maundy Thursday* is further evidence of his success in the treatment of old German costume. We see a prince in rich robes engaged amidst a crowd of monks and ecclesiastics, courtiers and others going through the annual ceremony. An incident of the kind, even in the present century, cannot be regarded as otherwise than serious. But as a painting the artist has marred the effect by the introduction of elements entirely out of place. It was never likely that a Hofnarr or jester would within a few feet of the prince have struck a man with his flapper. The painting becomes an incongruity, for we have a solemn sixteenth-century ceremonial represented as it would appear to a modern sceptic. The *St. Christopher* of Mr. WINDSOR FRY is a frank acceptance of Mediæval treatment. The saint is a powerful giant who might well use the stem of a tree as a staff. But the spirit of the legend is not suggested by the slight alarm of the Child at the faltering of his strong bearer. The work is carefully executed throughout, and is among the successes of the exhibition.

In the north room Mr. H. J. FORD's *Evening Harmony*, in which we see a satyr and nymph, gains distinction by the treatment of the upright lines of the pines. The rocks are of a reddish colour, and there is a glimpse of the ocean; it is an idyll in keeping with the title. Mr. A. D. PEPPERCORN's only contribution is *Evening*, a simple scene of a creek with very low banks, but which derives solemnity from the happy manner with which the time is indicated. The *Flowing Tide*, by Mr. MOFFAT LINDER, is an interesting effort to show waves on a flat shore with the

sun striking the crests as they arise. The *View on the River Uruguay*, by Mr. MacWHIRTER, would pass for a scene in England; there is nothing especially suggestive of South America. The *Scheherazade*, by Mr. WILLIAM WONTNER, looks like an English girl clad in very bright eastern robes. Mr. W. H. BARTLETT'S *Waiting for the Ferry* is one of the Connemara subjects painted with his customary feeling and truth, but is larger in size than the majority of its predecessors. Mr. PICKERING'S *Au Pays de Chataigniers et d'Oliviers, Corse*, is a revelation of Corsican scenery. The mountain peaks appear to have suffered in some great physical catastrophe, and almost every chasm is distinguished by a different colour. The trees seem to be wild, and present contrasts of form as well as colour. It is a mountain view to be remembered. Mr. THORNE WAITE'S *At the Foot of the Downs* is a vision of beauty almost too unsubstantial for an English landscape. The portrait of the late J. F. Bentley, the architect, by Mr. RENÉ LE BRUN DE L'HOPITAL, is so lifelike it should find a place in one of the buildings attached to the Westminster Cathedral he designed. The scheme of colour is suitable; a dark gray coat makes the sketch which the architect is considering stand out more effectually. The head was a difficult one to paint, but it is presented with force. Above it is a second portrait by the same artist, *The Very Rev. Alderman Canon A. White*. The countenance is refined, and would serve for an artist, a mystic or a divine; but it is strange to find such an apparent type of unworldliness doomed to the affairs of a borough council. Mr. JOHN LAVERY in *Spring* has a contrast to the portrait we have already mentioned, for here we have a girl with early blossoms painted vigorously.

There is no portrait in the exhibition which is likely to gain more attention than that of J. MacNeil Whistler, by JEAN BOLDINI. Without the name of the painter it would be accepted as a portrait of himself by Mr. WHISTLER. He is represented in mourning, and in his left hand carries a hat with a very deep band. The thin but sinewy right hand supports his head. The expression is vivid, as if the sitter were about to make a sarcastic remark in a friendly manner. It may be said that Mr. WHISTLER has set up a rival to himself. The work appears to be extraordinarily simple in treatment, but it would assert itself in any collection of portraits. Mr. A. J. BLACK'S *A Sea of Mirth* well describes waters which seem to express their revels by kaleidoscopic colours. Mr. T. AUSTEN BROWN'S *A Peasant Idyll*, a young man and a young woman, will excite much discussion. The colours, if few, have been laid on liberally, and the picture has almost the effect of a fresco in white and red.

On the wall of the balcony there are about a hundred smaller paintings of various degrees of merit. In the central hall are miniatures, examples of sculpture on a small scale, and of gold and silverwork, enamels and jewellery. The panels in gesso and mother-of-pearl cannot fail to attract the attention from their novelty and brilliancy.

THE GUILDHALL EXHIBITION.

THE visitor to the Corporation Art Gallery is likely to be startled on entering when he perceives the scarlet cloak in *My First Sermon*, and not far off finds its companion. For the moment it would be allowable to suppose that as this year's exhibition relates to the Dutch school, copies of the English painting were produced in Holland. On looking round it is realised that the main gallery—the only one worthy of the name in the building—is filled with paintings the late Mr. CHARLES GASSIOT bequeathed to the Corporation. The visitor will see before him many familiar works by representatives of the English school—CONSTABLE, PHILLIP, COOKE, DYCE, G. LESLIE, HOOK, MULLER, W. COLLINS, WEBSTER, FAED, GOODALL, &c. It will be wise to spend some time in the examination. It is not fair to draw a comparison between works belonging to two schools and produced under dissimilar circumstances, but it may be taken for granted that English works are more likely to afford pleasure to English visitors than the works by Dutchmen which are found in the upper rooms. Some critics may say there is too much diversity among the English paintings, but what else is to be

expected from a people who are not only travellers, but can take an interest in all manner of subjects?

The Dutchmen have the advantage of possessing a school of older date than ours, and examples of the earlier as well as living artists have been lent to the Corporation. By JACOB VAN RUISDAEL there are three forest scenes, a view on the Brill and a sea-piece. The artist's name is generally associated with forests and waterfalls, but the sea in his view on the Brill, as well as in the last-mentioned work, might be produced by a man who had devoted himself to marine scenes. He was one of the painters who believed there was a soul in nature, and he expressed his moods as if they were in keeping with his own. By REMBRANDT there are six examples, but it is impossible to accept them all as genuine without a little misgiving. Never was there an artist more addicted to representing himself, and the portrait lent by the Duke of WESTMINSTER is the earliest of all we have seen. His son TITUS might well pass for a bejewelled girl. *The Beginning of the Storm* is marvellous in its aerial effects, but the ground has suffered, and the gradation is ineffective. Lord DENBIGH'S *Abraham Dismissing Hagar and Ishmael* is characteristic. REMBRANDT was deficient in sympathy, and there is not a trait in this work to suggest that a wrong was being inflicted under the guise of morality. The Patriarch is one of the artist's conventional Jews with a rich turban, and HAGAR is a commonplace Dutch woman. *A Rising in a Dutch Town*, by GERRIT BERKHEYDE, is interesting from the care taken in the representation of a red brick church or town hall, and the restraint which the Revolutionists have imposed on themselves. JAN STEEN'S portrait of himself must have compelled his contemporaries to laugh at him. The man who painted such a work must have been wanting in self-respect, and it is a pity to see so much talent misapplied. There is only one flower-piece by JAN VAN HUYSUM, but it is a masterpiece. It is as bright in colour as if painted a few years ago. BREUGHEL'S road scene would suggest that Holland was a thickly-wooded country. The trees form a frame through which the earth and sky is seen in the middle, and the effect is heightened by the number of men wearing red coats. GERARD TERBURG'S portrait of a gentleman shows a student who might say "In my wisdom there is woe and in my knowledge care." He holds a volume with red edges in his hand, and another of larger size lies near him on a desk. On a shelf behind is a row of books all bound in plain calf. In those days labels were not found on the backs of works, and the artist was deprived, therefore, of one means of variety. Although on a small scale, there is no more definite rendering of character in the room, and the same may be said of a portrait of a young woman. A second portrait of a lady by TERBURG deserves to have a place in a book of costume, for never was there a more formal and stiff display of millinery. VAN AELST knew the value of vertical lines, although the subject might be only still life. In a *Dead Partridge* with hoods and gesses he shows the strings by which they are suspended, and, although evidence of a very useful practice, in this case it is unnecessary, or carried to excess.

It is remarkable how many paintings of buildings are to be found in the collection of which the subjects cannot be identified. VAN DER HEYDEN'S view of a town is very interesting, for there are two or three buildings elaborately represented, but the interest would be increased if it could be known what had attracted him. JAN FICTOOR is one of the Dutchmen who has been systematically neglected. The large head of an old man with a stern mouth is enough to demonstrate his power. By PAUL POTTER there is only one work, three rabbits, one of them resembling a squirrel. The decayed trunk of a tree introduced compels us to conclude that with all his love of nature he could not escape from conventionalism. FRANK HALS is at his best in single figures. His portrait of Admiral DE RUYTER belonging to Earl SPENCER, is a masterpiece; although he was an enemy of England he must in many ways have resembled an English sea-captain. The likeness does not correspond with one by FERDINAND BOL in Amsterdam. Beyond the naturalism the group called *The Man with the Rumble* cannot be considered pleasing; the faces are undoubtedly lifelike, but it is difficult to make a work of art out of so much ugliness. GEERAERT VAN HOEGGEEST was one of the foremost of the Dutch painters of architecture

The *Tomb of the Prince of Orange at Delft* shows the Gothic church in which men walk about without removing their hats. ALBERT CUYP generally represented animals on a small scale, but the *Head of a Cow* seems almost larger than life-size.

The pictures we have referred to would all be considered of immense value if they appeared in an auction room. But the modern examples of the Dutch school possess points of interest which will be more appreciated by the majority of visitors. In several of them we observe signs of a restlessness from which there is no escape. Holland is supposed by travellers from other countries to be a sleepy place, and only parts of cities like Rotterdam and Amsterdam show signs of the feverish activity inseparable from most parts of Europe. In several of the paintings the artists seem to be desirous to suggest there was no difference between Holland and the most agitated cities. Few would be able to recognise the view of Amsterdam by JACOB MARIS, owing to the want of repose in all parts. The *Knife Grinder*, which at one time was a stock subject and gave occasion for the introduction of several spectators, now a representation of a solitary man engaged with a big machine worked by steam or electricity. The nameless Dutch towns give a similar impression. It is therefore well to enjoy works recalling the old manners of the people, for a time is approaching when they will have to succumb to the modern love of expedition.

By JOSEF ISRAELS are no less than twenty-eight works, and he may be considered as a connecting link between the past and the present. The old Dutch masters, if they could return to earth, would enjoy most of his works seen in the gallery. But they could hardly help pointing out that in a Jewish wedding, with its full-sized figures in latest fashions, the painter was unable to resist the temptation to get out of his true element, and in such a scene as *Washing the Baby* they would say that in his haste he was indifferent to the form which the infant was to assume. JOSEF ISRAELS is an admirable painter and he is a master of the pathetic, but there is no use in concealing the fact that he can be careless in the modelling of his figures. The elements of his pictures, and especially of his interiors, are very simple. It might be said that the window with its muslin curtain and flower-pots is part of the domestic personæ. No painter of our time has made so much of glass. It serves to show the fisherman's wife anxiously looking out for the return of the husband; it becomes a ray of sunshine; it throws light on the whole of the workers in the sewing school; it reveals the church in which the old churchwarden is an authority. But JOSEF ISRAELS is equally successful in utilising land that is not picturesque. The flat and gloomy ground is adapted for the funerals he represents. The shallow canal serves to wash the cradle, a painting which has no touch of tragedy in it; and *The Late Hour* would be less sombre if we saw a woman and child journeying through a less desolate district. The *Young Lovers*, both silent, simple and stupid, seem to be a product of the land over which they walk, and the son of the chosen people, a poor Jew dealing in rags and cast-off clothes of the humblest kind, is in keeping with his miserable habitation. The earlier masters have painted Dutchmen and Dutchwomen of as humble a condition, but they never, like M. ISRAELS, made it plain that the peasants also could feel pangs of the keenest kind.

JACOB MARIS in number comes nearest to M. ISRAELS. He does not confine himself to the incidents of one class of people or one class of painting. He can be pathetic. A shepherdess and sheep indicates a bovine desire to protect the barefooted girl to give protection to her flock from the coming storm; while the power of the colouring in his little work is almost Venetian. In *Gathering Seaweed* the great expanse of sky makes the ground appear insignificant. *A Stormy Sea* might have come from the hand of a specialist, and *The Arrival of the Boats*, in which a fisherman is introduced to pull them ashore, is equal to any work of M. ISRAELS. *The Weary Watcher* is marvellous in its light and shade and feeling. MATHEW MARIS is more modern. The vaporous view of the outskirts of a town is almost ghostlike. The ram's head would bear microscopic examination. The still life with its brass platter will sustain comparison with any French or Dutch work. In a *Lady with Goats* it is hard to say whether the trees, the animals, or the richly dressed woman is the most captivating. The

Butterflies, representing a child lying on a bank with her long hair floating about, seizes the attention by the vigorous drawing and the skill with which blue, white, brown and green are utilised. *L'Enfant Couchée* is a variation of the same scheme, and no less successful. In the *Lady of Shalott* he has taken a subject with which he could have little sympathy, but he is not the first artist who has failed in treating TENNYSON'S poem. WILLEM MARIS, the third of the brothers, devotes himself mainly to small cattle-pieces.

Another Dutch painter who is largely represented is ANTON MAUVE. He appears to be the most faithful representative of the old school of landscapists. He prefers, of course, out-of-door scenes, but his view of the studio of his master, VAN OS, a room in an old mansion with a grand chimney-piece, proves that in his early days at least he had the qualities of producing successful interiors. The garden at the back of his own house with its thatched cottage, plants and trees is delightful. There are two works by MESDAG which suggest his power as a marine painter. JAN BOSBOOM is the modern successor of the Dutch painters of interiors. There are four of his pictures—an interior of a cathedral; a church in Maasland, with a massive timber roof; an archway at Hoorn; and a second interior of a remarkably white cathedral.

It is evident that the old traditions which made the school famous continue to be respected, for in almost every variety of painting the early practice continues to receive attention. It would not be possible in the limited space of the Guildhall Gallery to exemplify the history of Dutch art, but a comparison of the early and later works will convince the student of art that the continuity between past and present, at any rate from the time of REMBRANDT, was unbroken. In England, Dutch paintings have long been favourites, but it may be doubted whether at any time examples have been brought together to surpass in interest those which the public can enjoy through the exertion of the library committee of the Corporation of London.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE annual general meeting in connection with the Edinburgh Architectural Association was held on the 22nd ult. in the Rooms, 117 George Street, Edinburgh, Mr. A. Hunter Crawford, F.R.I.B.A., president, in the chair. The treasurer's report showed that there had been exceptional expenditure, but that up to date there was a small credit balance. Among the office-bearers appointed were the following:—President, A. Hunter Crawford, F.R.I.B.A.; past president, Henry F. Kerr, A.R.I.B.A.; vice-presidents, H. O. Tarbolton, J. Stuart Syme; hon. secretaries, William M. Page, Colin B. Cowrie; hon. treasurer, W. Glassford Walker, C.A. In his closing address the President said that the membership, which now reached the total of 358, was the largest attained in the history of the Association. He alluded to the proposed registration of architects, and moved that it be remitted to the Council of the Association to consider what reply should be sent to the Royal Institute on the subject. This was agreed to, and it was also arranged that the associates' section of the Association should communicate their views on the subject to the Council. The meeting thereafter separated.

ROMAN REMAINS AT CAERWENT.

THE exploration at Caerwent, which has been continued during the winter, has resulted in further important discoveries. A small building with an apsidal end, which it is thought may have been a Christian church, has been unearthed at the north gate, where Lord Tredegar is conducting the search. Near the gate in an adjacent field have been disclosed the remains of an amphitheatre about 150 feet in diameter. The consent of the parish council was obtained to excavate on the village green, and here, it appears, was the centre of the Roman town. One of the most important discoveries yet made at Caerwent was here. It consisted of a memorial-stone, mutilated, but still standing upright on a broad stone base. The stone, which is 3 feet in height, has panelled sides, and on one bears a well-preserved inscription showing that the citizens of Silurum erected the stone in honour of an officer, whose name, however, is unfortunately missing, though enough remains of the inscription to show that he was a commander of the Second Legion, governor of the senatorial province of Gallia Narbonensis, and legate of the imperial province of Gallia Lugudunensis. The inscription reads as follows:—"... legatus legionis secundæ Augustæ proconsuli provinciae Narbonensis legato Augusti præpore provinciae Lugudunensis ex decreto ordinis republica civitatis Silurum."

NOTES AND COMMENTS.

STUDENTS of German art will hear with regret of the death of FRIEDRICH PECHT, the author of "German Artists in the Nineteenth Century," "The History of Munich Art in the Nineteenth Century," an autobiography and recollections and other works. He was a constant contributor of criticism to the Munich journals and was editor of the periodical *Die Kunst für Alle*. By birth he was a Swiss, for he was born at Constance in 1814, being therefore the NESTOR of the numerous Munich art critics. He began as a lithographer, and assisted in the production of the series of plates from paintings in the Dresden Gallery. Like so many artists he was attracted to Paris, and studied in the atelier of PAUL DELAROCHE. When he returned Munich was enthusiastic for wall paintings, and PECHT was allowed to decorate the Maximilianeum. He also adorned the council chamber in Constance. For the last fifty years he resided in Munich. He published drawings illustrative of the works of LESSING, GOETHE and SCHILLER. His "Shakespeare Gallery" is one of the most interesting books of its class.

WHEN an agreement is entered into that works are to be kept in order or maintained for a certain period it is sometimes supposed not to be easy to determine whether it is necessary for an architect or engineer to grant two certificates, viz. the customary final one and a special certificate for maintenance, or whether a single certificate can be made to serve both purposes. That seems to have been the difficulty in which the case lately decided in the Irish King's Bench Division, *McLARNON v. Carrickfergus Urban District Council*, originated. Plaintiff entered into a contract to carry out a sewage scheme for 4,999*l.* 1*s.* 3*d.* in the course of twelve months. After completion the works were to be kept in order for a year, and 10 per cent. on the amount of the contract was to be retained. There were some extras, and plaintiff claimed 1,040*l.* as the balance due, including the retention money. The defendants lodged 50*l.* in Court, and contended that neither the balance nor the retention money was to be paid unless a certificate was forthcoming from the engineer. When the case was tried judgment was given for the plaintiff for 975*l.* The District Council appealed on the ground that judgment should have been entered for them or the application for a new trial granted. There was no certificate forthcoming, and it had been agreed that 10 per cent. was to be retained for twelve months. It was also alleged that the terms of the contract had not been complied with. The appeal was heard last week by the Lord Chief Baron, Mr. Justice GIBSON and Mr. Justice BOYD, when their lordships came to the conclusion that judgment should have been entered for the defendants at the trial, and it was accordingly changed, with costs against plaintiff. We must suppose that in this case the plaintiff did not understand the terms of his contract. He should have known that a final certificate was necessary under any circumstances, and although it might appear rather severe, it was allowable for the architect to wait until the term of maintenance was at an end. The litigation might be avoided and the contractor need not be left at the mercy of the Council as he is at present if in the contract deed it had been stated that the final certificate was to be granted within a certain period after the completion of the work, 10 per cent. of the amount, of course, being retained.

THE Department of Agriculture and Technical Instruction for Ireland announce that a limited number of scholarships and of teacherships in training, tenable at the Royal College of Science, Dublin, will be offered for competition among students of science and technology in 1903. The scholarship will entitle the holder to free admission to lectures and laboratories, and to instruction during the associate course, with a maintenance allowance of 21*s.* per week for the session of about forty weeks each year, and third-class railway fare for one journey each session to and from Dublin. The examination for these scholarships will be held in Dublin on June 3 and on July 1 and 2, but application for admission to the

examination must be made on or before May 30 next, on a form to be obtained from the Secretary of the Department, Upper Merrion Street.

THE struggle for existence among architects is exemplified by the circumstance that no less than 124 designs were prepared for a proposed free library in Castleford, Yorkshire. The work might be expected to attract only architects in the district, but drawings arrived from many parts of the country. Mr. BUTLER WILSON, the assessor, has made his award, with the following results:—1st premium, Mr. GEO. H. VERNON CALE, of 60 Newhall Street, Birmingham; 2nd premium, Mr. WILLIAM BAKEWELL, F.R.I.B.A., of 38 Park Square, Leeds. The assessor has placed the designs by the following architects, next in order of merit:—Mr. H. V. ASHLEY, 50 Berners Street, London; Mr. FRANK L. HESLOP, East Parade, Leeds; Mr. JAMES CARTER, 64 Hinkle Street, Darwen; Mr. ARTHUR MCKEWMAN, 3 Newhall Street, Birmingham; Mr. HENRY T. HODGES, 7 First Avenue, Heaton, Newcastle; Mr. A. F. McMILLIGAN, Central Chambers, Castle Street, Liverpool.

MR. HENRY VAN BRUNT, the American architect, died on April 8. He was born in 1832. He designed several important buildings, one being the Memorial Hall of Harvard University. He was President of the American Institute in 1899.

ILLUSTRATIONS.

CATHEDRAL SERIES.—WORCESTER: CHAPEL OF ST. JOHN.

HIGHER ELEMENTARY SCHOOL, FINCHLEY.

THIS school, for which tenders have just been received, is to be erected on the Great North Road, between East Finchley and Whetstone. The school, which will give accommodation for 330 scholars, contains on the ground floor ten classrooms, a large central hall 60 feet by 30 feet, separate cloak-rooms and entrances for boys and girls, and headmaster's room. On half-landings rooms for assistant masters and mistresses, and on first floor physical and chemical laboratories, balance and preparation-rooms, lecture-room and drawing-class room. A schoolkeeper's house is to be erected on the site. The buildings are built of brick, with picked stock facings for back and Wrotham sand-faced bricks for the front walls, with Bath stone dressings. All internal walls will be plastered with "Sirapite" excepting the lower portions, which have glazed brick dados. The roofs will be covered with Westmoreland green slates. The heating will be by means of ventilating radiators, and a thorough system of automatic ventilation will insure a frequent change of air. The floors are of fire-resisting construction. All classrooms are lighted from the left hand, and the laboratories have in addition cross lights and top lights. Mr. W. G. WILSON, A.R.I.B.A., of 5 Bloomsbury Mansions, Hart Street, W.C., is the architect.

DESIGN FOR TOWN HALL, PONTYPRIDD.

THE conditions required the placing of the principal elevation and entrance to the short frontage facing Gelliwastad Road. An opportunity seemed to present itself of making a special feature of the council chamber, which is given plenty of height, and is not hampered by rooms or offices over. The central spacious corridor seems to be an integral part of the scheme. The long elevation to Morgan Street was of secondary importance, and is treated inexpensively. Local stone was to be used for the walling, and Bath stone dressings. The cost of the building at 8½*d.* per cubic foot amounts to 10,000*l.* Mr. ALBERT E. DIXON, Leeds, is the architect.

THIRKLEBY CHURCH, YORKS.

NEW GAIETY THEATRE, STRAND.

IN view of the visit of the members of the Architectural Association to this theatre to-morrow, we have thought it would be of interest, not only to the members of the Association, but to our general readers, to give some details of this, the most prominent structure at present rising upon the Strand Improvement, together with a *résumé* of the facts which led to the consummation of the reinstatement, rather than the confiscation, of the Gaiety Theatre by the London County Council—a policy of new lamps for old.

Prior to the passing of the London County Council (Improvements) Act, 1899, the Gaiety Company opposed the Bill in committee, and after considerable negotiation with the Council, withdrew their opposition, in consideration of that body granting the company a lease at the rent now paid for the old theatre for fifty years of a site at the north angle of the so-called "island" site of at least a similar area to the existing theatre, plus such additional land as might be found necessary for further staircases, exits, &c, to comply with the then existing theatre regulations.

The new site allotted consists of 12,800 square feet, as against about 11,200 square feet upon which the existing theatre stands, and has a frontage of 97 feet 6 inches to the Strand, a corner frontage of 40 feet and a frontage of 138 feet 6 inches to Aldwych, both of which thoroughfares at the point being 100 feet in width.

In settling the question of reinstatement with the Council, a sum of money was agreed upon (50,000*l.*) as the minimum to be expended in covering the site, and a sum beyond this by way of compensation for disturbance. Designs were prepared and were part of the agreement as a "type" contemplated by the parties in entering into a contract; but a special provision was made whereby the Council, should they desire a building of a more ornate or costly character and design, should pay the difference between the cost of such more ornate design and the "type" design.

It is now well known that the perspective of the "type" design, which was on the line in the Academy in 1901, was intended to be carried out in red brick and Portland stone.

It was then found that the theatre (*qua* theatre) could not be carried up to the full height of 80 feet as permitted by the Building Act, and that the adjoining new Gaiety hotel and restaurant (also being reinstated) would, for obvious reasons, take advantage of the maximum height. The Council were of opinion that the difference in the heights of the two structures was not desirable, and were further of opinion that the material for the exterior should be of a more costly nature, and the architects were instructed to send in an amended design. This was done, but prior to this eight suggestions by as many architects had been submitted to the Council at its invitation for the general treatment of the elevation upon the Strand Improvement, which led to a somewhat chaotic condition of affairs, tending towards a delay which would have been against the interests of all concerned. This condition of deadlock was ultimately solved by Mr. R. Norman Shaw, R.A. (who from the first had taken a keen interest in this great street improvement), being approached by the architects, with the consent of the Council, and he, taking the matter in hand, prepared sketch designs for the exterior which were acceptable to the Council, and from which the architects prepared the working drawings of the exterior as now executed.

Practical architects will appreciate the difficulties attending the adaptation of plans to an elevation designed apart from such planning, but the difficulties have been surmounted in such a manner as can hardly be appreciated by the lay mind.

Pending the settlement as to the elevation, however, an entirely new set of theatre regulations had been passed by the Council, still further complicating matters and promising to be a fruitful source of controversy, but fortunately this was avoided, and a compromise between the old and the new regulations accepted. Still later, new regulations in regard to electric installations at theatres were passed by the Council, thus putting further trouble upon the architects.

It may be added that under the new theatre regulations no projection shall extend beyond one inch of the wall surface of any corridor or staircase, even if they exceed the dimensions prescribed; structural decorative treatment is therefore now a thing of the past to these portions of theatre buildings, and it is well the general public should be acquainted with the limitations imposed upon the architects.

Prior to giving a descriptive account of the building, we may mention that the plans in their successive stages had to receive the approval of the following bodies and committees:—

The improvements committee and its departments, the corporate properties committee (as freeholders), the Building Act committee and its departments, the theatres committee and its departments, the Lord Chamberlain, the Westminster City Council, the district surveyor, and the New Gaiety Theatre directorate.

Truly a Brobdingnagian task to be accomplished more than

once, but a course of procedure which will naturally appeal to all architects and building owners who are fortunate enough to obtain building agreements on the Strand Improvement, as being so simple and expeditious that they will welcome the arrangement as one which will at any rate enable them to complete their buildings at least a few years prior to the expiry of their eighty years leases.

Having given some slight insight to the members of the Association of the pleasurable occupation which may be derived from the preliminary steps essential to enable an architect to successfully erect a building upon this improvement prior to his entering the "sere and yellow leaf," we may be permitted to revert to the architecture of the Gaiety, whose career has happily not been brought to an untimely close by its infantile indispositions.

Internal Planning.

Auditorium.—The disposition of the site, with its two frontages diverging from the important circular corner, has naturally influenced the plan of the building. The position for the chief entrance was naturally at the junction of two such thoroughfares as the improved Strand and the new Aldwych, and gave the cue, so to speak, to the general internal arrangement, suggesting a symmetry of plan as regards exits and entrances about an axis passing through the chief entrance. This, together with the circular treatment of the crush-room and foyer, prompted by the most striking external feature, became the guiding principles in the planning of this theatre.

Entering, therefore, under the dome we find ourselves in a circular columniated crush-room, with retiring-rooms and box office, from which staircases lead right and left up to the grand circle "back." This again leads one right and one left for the full width of the tier, with three entrances thereto and down both sides of it, with additional entrances at the bottom, and midway between them on either side an extra exit on to the street, which obviates the necessity of passing through the crush-room in the event of a panic. This arrangement obtains practically in all parts of the house. Suitable accommodation for both ladies and gentlemen is provided for each part. Below the crush-room is the stall saloon, and above it are the saloons to the grand circle, balcony and gallery, all following the lines of the crush-room and circular or oval in plan. A special feature has been made of private retiring-rooms or lounges to the private boxes of the stalls and grand circle tiers; those to the latter on the O.P. side become the royal retiring-rooms, with a separate entrance from Aldwych, and with private and separate accommodation. The ranges of boxes and the adjoining retiring-rooms can be respectively thrown into one at will.

The entrances and exits to the parts other than the stalls and grand circle are alternately in the Strand and Aldwych. On the north side is provided a convenient and commodious suite of offices for the use of the management.

The open colonnade or loggia is approached by two staircases from the gallery level.

Great care has been taken in designing the line of the tiers so as to insure a perfect view of the whole of the scene from every seat in the house.

The theatre is what is known as a "three tier house," and the seating accommodation is approximately as follows:—Gallery, 400; upper circle, 250; dress circle, 180; stalls, 140; pit, 320; private boxes, 48; total, 1,338.

The chief dimensions are as follows:—Auditorium, 60 feet wide by 64 feet deep; proscenium, 30 feet wide by 32 feet high by 36 feet 6 inches deep.

Stage and Dressing-room.—Behind the proscenium is a commodious stage 45 feet deep, and of an average width of 80 feet, with a mezzanine floor and cellar below. Right and left to the Strand and Aldwych are the stairs leading to the stage exit and entrance and the dressing-rooms, numbering twenty-nine in all.

The flies will be provided with a separate gallery for the convenience of the electrician managing the lighting effects.

The "gridiron" is very convenient, and of more than usual working capacity.

Exterior Treatment.

The grand but simple proportions of the Italian Renaissance of the Florentine school have supplied the *motif* of the external treatment, sufficient relief for the large wall spaces being found in the large circular-headed windows and niches with their pilasters and pediments. The massiveness of the treatment is well crowned by the open order of coupled Ionic columns, entablature and balustrade. But the most striking feature is naturally the large dome 40 feet in diameter and 90 feet above pavement level, supported by seven pairs of consoles of strong, yet graceful, outline, and surmounted by a figure 17 feet in height.

The whole of the façades are executed in Portland stone, with bands of verde antique marble. The internal dome will be constructed of steel and concrete, and finished in gold and

colour mosaic. The external dome will be built up in steel and wood and covered with copper.

The crowning figure is being designed by Mr. W. J. Neathy.

Construction.

The whole of the construction is as fireproof as is practically possible, and generally consists of cement, greystone and blue lias-lime, brickwork and steel, and concrete floors and roof. The floors are almost exclusively finished in cement, and the roofs (of auditorium) with a double layer of asphalt. The steps throughout are of granolithic, supplied by Messrs. Lascalles.

Scagliola will be employed in the columns of the crush-room and foyer, with modelled caps and bases in plaster, and where practicable all architectural decorations will be in plaster.

Steel Construction.

The constructional steelwork of the tiers, roof and dome has been executed by Messrs. Dennett & Ingle, engineers.

The circles are constructed in steel and concrete throughout, and so designed as to carry from wall to wall of auditorium without intermediate supports. The main girders of circles vary from 3 feet to 4 feet in depth, and support lighter shaped girders through which cantilevers project 12 feet to 15 feet to the front of circles. The cantilevers are built up with steel plates and angles, and the larger ones have a depth of 2 feet at the fulcrum. The total weight of the three circles when fully loaded is estimated at about 350 tons, and this weight is transmitted to the foundations partly by the brick walls and partly by cast-iron and steel stanchions embedded in the brickwork. The stepped surface of circles is formed in concrete upon steel bearers spaced from 2 feet to 3 feet apart, and the ceilings are constructed with metal lathing suspended below the girders and cantilevers, and at such a level as to permit of an unbroken soffit and a clear height of not less than 8 feet from circle to ceiling.

The large dome, which will be a prominent feature of the new building, is placed partly over the auditorium, and is carried upon steel girders at the roof level. The two main girders support loads of 200 tons and 120 tons respectively. The ends of the larger of the two girders come over openings in the auditorium walls and are supported by twin rivetted girders, and the weight is eventually transmitted to the foundations by means of cast-iron stanchions built in the walls.

The total weight of the tower portion of the building at its base is estimated to be about 1,700 tons, inclusive of the loads supported upon girders and stanchions.

Fire-resisting Appliances.

To cope with an outbreak of fire, a complete system of high-pressure fire mains and hydrants is being installed by the well-known firm of Merryweather & Sons, Ltd., both in the auditorium and behind the scenes. In addition to this the proscenium is to be fitted with an improved double thickness asbestos fire-resisting curtain, with patent slip gear at the stage level and at the stage door, as demanded by the London County Council, as well as the usual raising and lowering gear and counter-balance weights. Provision is also made for cooling the curtain by means of a specially designed sprinkler controlled from the stage level or in necessity from the stage door.

Sanitary Appliances.

It need hardly be said that the plumbingwork and the sanitary appliances in general are of the best description and thoroughly up to date. The fact that the latter are being supplied by the eminent firm of Doulton & Co., Ltd., is a sufficient guarantee of their excellence.

Ventilation and Heating.

The system of ventilation is known as the propulsion system, and the ventilating and heating arrangements by Messrs. James Stott & Co., Ltd., are in combination.

The air-supply is all obtained at the roof line, one intake for the auditorium portion and another for the stage. These positions are selected as being at the purest points of supply.

Immediately after leaving each intake the air will be passed through a patent revolving air-screen, the functions of which are to arrest dust, smuts and any suspended matter that the outside air may contain. Leaving the screen the air is driven forward by means of a disc propeller, and passed through heating pipes that are formed of certain standard lengths with special gills or fins arranged radially at certain distances. The air, now being washed and in a high state of purity as well as warm, is passed into a short main duct over the ceiling of the auditorium and finally enters the auditorium through interstices or openings arranged in the fibrous plaster decorations.

Circulation and diffusion immediately begin, and the fresh air penetrates to all points of the house. For dealing with the gallery a special fresh-air trunk leads away in the roof from the fan-chamber,

The stage portion is arranged on similar lines, fresh air coming down from above after being suitably warmed and purified.

The temperature control is of the most complete character, inasmuch as the heating batteries are furnished with sliding valves that permit the whole of the heat being shut off or *vice versa*; the whole of it may be warmed, or, on the other hand, half warm and half cold sent forward, or any intermediate mixture of each, and all this simply by raising or lowering the dampers in question, and without in the slightest degree restricting the volume of the air. The positions of the inlet points at the ceiling level are arranged and calculated so that at no point will there be a stagnant portion. The whole of the atmospheric contents will be continuously diffusing and circulating, and gradually but imperceptibly reach the various levels of outlet.

For the outlet special flues run from the pit level and the stage floor to the roof, and on the various circle plans connection is made with these foul-air flues at the floor level. The heating medium is in the shape of a low-pressure steam-boiler suitably placed in the basement, and from this the requisite mains are led on to the batteries in the roof.

A special feature of the system is that there will be no indications to the playgoer that the building is warmed or ventilated.

The necessity of hot-water pipes is entirely dispensed with.

From an architectural point of view this, we think, will be admitted a distinct step in advance. The displacement power of the air-propellers is computed to maintain a constant pressure in the building, but at the same time it is quite of an imperceptible character. Air leakage is thus outward, and therefore dangerous and uncomfortable draughts, so chronic to theatres, will not occur in this building. Opera cloaks and overcoats can thus be thrown off during the performance with impunity.

The system of heating is on the most economical lines, as all condensation is returned to the boiler, and after the performance is over steam can be shut off and all heat confined to the boiler instead of being transmitted hours and hours when not required through walls of the heating medium, as is the case with hot-water pipes.

From what has been said about the patent air-screen it will be readily understood that it forms a great factor in the preservation of the decorations and furnishings. In addition to its purification properties the screen is also used as a cooling medium.

The Electrical Installation.

In designing the electric-light installation every precaution has been taken to minimise the risk of a total extinction through the failure of supply. The two-circuit system is being installed throughout the theatre, in the auditorium, passages, entrances and exits, the lamps being installed alternately on two circuits, these being connected through the necessary switchboards and change-over switches to two absolutely independent sources of supply, so that the lamps at any moment can be fed either all from one supply or half on each as desired. As a further means of protection a number of lamps throughout the theatre are being installed for the purposes of identification, called "police lights," and connected to a third independent system of supply. In the event of the first two supplies failing there will be sufficient illumination for the public to leave the building in safety. These "police lights" will be used during the daytime for cleaning purposes.

The whole of the lamps in the auditorium, passages, &c., are controlled from two points only, the two large switchboards, having a total of about seventy switches, being fitted in chambers leading out of the stalls saloon, where they will be under the control of a responsible official. All the lamps in the auditorium in view from the stage will be controlled by switchboards by the fire-resisting pass door to stage, and will be fitted with arrangements for lowering the illuminating power of the lamps whilst the play is in progress, and under the control of the electrician in charge of the stage.

The electroliers and fittings are being specially designed by the architects so as to harmonise with the general scheme of decoration.

The stage is being fitted on the three-colour system, and special attention has been given to the regulating arrangements so as to produce the necessary lighting effects as near to nature as possible.

The system of regulation which is being adopted is novel in this country, although largely in use in the State theatres on the Continent. A total of fifty-seven regulators are provided for, this being the largest number in use in any theatre in England.

Two independent sources of supply will be available for the stage and three supplies for the dressing-rooms, &c.

A switch platform will be provided for all the stage regulating gear, the switchboard being bolted to the proscenium wall and the regulating gear being fixed on the up-stage edge of the platform, thus enabling the person manipulating same to

face the stage, instead of as now in usual practice having his back to the lamps he is regulating. The resistances themselves will be fixed in fire-resisting chambers built above the stage switchboard, extending to the under side of the fly floor, the multiple switches which are bolted to the resistance frames being connected to the regulating gear by means of steel wire ropes.

To enable some idea to be formed as to the amount of copper required for the installation, a total of 2 square inches sectional area of such metal is being installed from the point where the supply company enters the premises to the main stage switchboard, allowing of a carrying capacity of 5,000 lamps of 16 c.p. each.

A complete system of electric lamp signalling is being installed to the principal points in the stage cellar, on the stage and to the flies, the whole being placed under the control of the stage manager in the prompt corner.

A total of twenty-four arc lamp points are to be installed, and special lighting flies provided and fixed underneath the ordinary working flies.

The whole of the work is being carried out by Messrs. Roger Dawson, Limited, to the specification of the consulting engineer, Mr. Thomas J. Digby.

Decorative Treatment.

The Auditorium, Proscenium, Boxes, &c.—The former is flanked with twelve private boxes, with arched loggia over, forming also a constructional feature in carrying the novel vaulted ceiling with its squinch-arch treatment, trumpet-like in general formation for acoustic purposes, and embellished with bold winged figures and modelling by Mr. W. J. Neatby, and three decorative tympanum panels in oils by Charles Buchel, the principal one over the proscenium opening representing Aladdin journeying with his magnificent retinue to his new palace. Upon either side of this arched opening and in the spandrels are two niches containing figure-subjects of Music and Dancing, by Hibbert Binney. The whole of these figures will be decorated in colour.

The boxes are divided by pilasters and columns, in front of which are conventional figures bearing electric lights.

The Ceiling over the auditorium is fan-shaped, with the divisions embellished by shells, masks and swags.

The Circle Fronts are of modelled plaster, principally by Sidney Webb, and are most refined in detail.

Colour Scheme—The mural decorations will consist of a material by Rottmans, having a groundwork as seen by artificial light of old rose, with a raised "art nouveau" designed in gold, cerulean blue, Hooker's green and permanent red being sparingly introduced.

The decorative plasterwork (George Jackson & Sons) will be harmoniously treated with the above scheme, and an attempt made to modify the strong contrast between the circles and the walls usually so apparent.

The draperies and pelmets will be of pale moss green, richly embroidered, in conformity with the general scheme; the carpets and seats of similar colour.

The Retiring-rooms, in the rear of the boxes, will be of various colour schemes, in contrast to the auditorium; the royal rooms are in the Georgian style, having a special brocaded fabric on the walls.

The Crush-room will be in the Georgian style, with marble columns with bronze caps and bases supporting a modelled entablature and frieze; the walls will be suitably treated, and the floor of marble mosaic.

The Foyer is similarly treated, but the walls are panelled in hardwood, dull polished, six panels being occupied by full-length portraits of the following Gaiety favourites:—Nelly Farren as the Street Arab; Kate Vaughan as Morgiana in "The Forty Thieves;" Letty Lind as a Dancing Girl; Sylvia Grey in "Monte Cristo;" Connie Gilchrist in "The Forty Thieves;" Ellaline Terriss in "The Runaway Girl." The frieze above will be plain tinted, and the modelled ceiling entirely in ivory white.

The buffet, occupying a segment of the foyer, will be in hardwood.

The Balcony Foyer will be panelled in hardwood and tapestry fabric.

The Gallery Saloon will also be panelled for the reception of sketches in black and white by well known artists.

The decorative treatment for the corridors, as previously stated, will be somewhat restricted owing to the existing theatre regulations.

The architects are Messrs. Ernest Rüntz & Geo. McLean Ford, and in addition to the general structure the whole of the decorative work and upholstery are from their designs. The contractor is Mr. Henry Lovatt, of London and Wolverhampton. The clerk of the works is Mr. D. Davies, who occupied a similar position at the Adelphi, Apollo and Wyndham's Theatres.

It is anticipated that the building will be ready for occupation in or about the second week in August.

ARTISTIC FANS.*

THE paper I have the pleasure of submitting to you this afternoon is on a subject which, although it has been much discussed, has really not received the attention it deserves. Old china, miniatures, engravings and a host of other *objets d'art* all have their admirers; the artistic fan, however, though a fascinating object, has been undeservedly neglected by many connoisseurs.

The lack of enthusiasm as regards this interesting subject is to me incomprehensible; for the study of artistic fans is no narrow one. It necessitates a knowledge not only of the various fabrics used in the manufacture of this article of the toilet, but of the painters of various periods and nationalities who decorated them, and an accurate remembrance of the main incidents in history and mythology, in order to enable the student to understand the subjects depicted on the leaf.

What I may term the "genesis" of the fan dates to so remote a period that it cannot be accurately traced, and all that has been written and said on the subject is mere conjecture.

Uzanne, in his elegant and charming little book, entitled "L'Eventail," expresses himself as follows in regard to our knowledge of the origin of the fan:—

"The origin of the fan is still shrouded in the most unpenetrable mystery. It is in vain that pens have absorbed huge bottles of ink, and have composed ingenious essays, curiously interspersed with quotations from precious documents or citations in all languages to explain its origin. The point of interrogation is always omnipresent like a diabolical hieroglyphic sign, on which the erudition of archaeologists is sarcastically inscribed."

In view of this statement there is nothing left for me to do but to place before you some points of information, true or fictitious, historical or mythological, which are to be found in literature, and leave my intelligent listeners to separate for themselves the chaff from the grain, or fact from mere conjecture.

That fans are indeed a very ancient institution is proved by their mention in the Old Testament as implements employed for winnowing.

In Chinese records, moreover, it is stated that during the Chow dynasty, 1106 B.C., fans were used to keep the dust from the wheels of the chariots; at this time they were doubtless nothing more nor less than dried palm leaves, for ivory fans were not known in China until two centuries later, namely 991 B.C., and since then such diverse materials as dragon-skin, tortoise-shell, bamboo, oil-silk and rice paper have been employed in their manufacture.

Some of the older authors state that in China at a remote period fans or rather hand screens were made of peacock feathers, the tail feathers being mostly employed for this purpose. It is related, however, that in 650 A.D. the Emperor Kao-Tsong heard the cry of the pheasant which is an omen of good luck; he therefore henceforth resolved to use only a fan composed of the tail feathers of this bird.

A story is told of a mandarin's young wife who wished at the deathbed of her husband to swear that she would always remain true to his memory, but he said, "No, only promise me you will not marry again until the soil that covers my last resting-place is dry." The rest of the story is like the well-known tale of the widow of Ephesus. A lover appears, and the widow, true to her promise, daily visited the grave, but not to weep, for she was busily engaged in fanning the soil with her fan, so that it should dry up quickly and she could marry her lover without breaking the solemn promise made to her late husband.

The custom of using fans in Japan, as far as can be ascertained, dates back to the sixth century A.D., and in that country every person from the Mikado on his throne downwards in successive grades, noblemen, courtiers, priests, sages, women, dancing-girls, even children, all wielded a fan of special design according to his or her rank, profession or social standing. It has played an important part in life in Japan past and present, being an article of many uses and multifarious duties. As in Egypt, it was borne aloft in times of war as a standard. The "War Fan" was used by generals and commanders for directing the movements of the troops during action, and, if necessary, could be utilised as a shield for defence; it was strongly fashioned of double leather, sometimes even of wrought-iron lacquered, and it usually possessed a long iron handle.

In Japan a fan was wielded by the umpire of wrestling matches, and this custom is still in vogue. Lovers were wont to exchange fans as tokens of fidelity, and friends regarded the gift of a fan as a sign of liking and esteem. In the Land of the Rising Sun it is used to waft cool air to the heated countenance and to fan the charcoal flame used for cooking. Held above the head it shields the face from the fierce rays of the

* A paper by Miss Hannah Falcke, read before the Applied Art Section of the Society of Arts.

sun, and in the street it is waved in greeting or salutation. The nurse in Japan wafts a fan also gently to and fro over her infant charge to lull him to sleep and to keep off the insects.

At all times Japanese artists have delighted in expending their skill in painting on the open fan, and the present artists do the same. Their productions are sketchy, and perhaps, according to our Western notions, somewhat grotesque, but their touch is delicate and their colouring good. A charming custom prevails in Japan at artistic social gatherings. As a means of entertaining the guests and passing away the time, the brothers of the brush often sketch little scenes, groups and incidents of interest or history on fans, which are subsequently passed round and exchanged and carried away as treasured keepsakes.

I must not, however, enlarge further on the fan and its uses in the Far East, for it is a common article in the hands of every class, and has a place in every household. Indeed, it serves so many purposes that a volume might be filled with a description of its uses.

There are two hypotheses as to the manner and means that suggested the folding fan, and both have to do with the observation of nature.

According to one theory, it is said that an artisan of Tam Ba was seated one night at the door of his house idly fanning himself while watching the flight of the bats overhead. The idea suddenly occurred to him to fold the stretched material of the fan in imitation of the bats as they opened and shut their wings, and he thus originated the folding fan, which is called in Japanese "komori," a bat.

The other theory is equally fanciful, but perhaps the more probable. There is no doubt that the flat fan was originally simply a palmetto leaf, and the gentle breeze made by its moving to and fro on the parent tree may have suggested the use of a single leaf for the like purpose. It is said that the folding fan was likewise suggested by the palmetto leaf, for, undeveloped, it is pleated and packed, delicately and compactly, by nature's deft hands, and the clever Japanese, ever ready to seize and imitate something fresh, took advantage of the copy already prepared for them, and in 750 A.D. their supple fingers invented the folding fan.

Fans were already used in Egypt in the thirteenth century, B.C., as is clearly proved by the frescoes that ornament the palace Temple of Medinet-Haboo at Thebes; on these frescoes Rameses III is depicted, surrounded by princes and courtiers bearing hand-screens, semicircular in form, bright in colour and mounted on long handles. The fan at that period was, it must be noted, no feminine adjunct to the toilet, its use being only permitted to leaders of armies, princes and high dignitaries, by whom it was borne aloft as a sign of distinction, and, in the case of warriors, as insignia of command. Ostrich feathers were largely used for making these stately fans.

India, likewise, claims the right of having first invented the fan, and there is no doubt that, though we are not in a position to confirm or deny the assertion, the fan has for ages been used in this country of mystery and charm, of gay flowers and luscious fruits, of jewels, wealth and luxury. In a country so hot and enervating as India the fan was almost a necessity of life. In Hindostanee the fan is called "pank'ha," and to this day the term is applied to the huge swinging screens suspended from the ceilings in India and worked by natives during meal-times to cool the air for European inhabitants and Indians of wealth and high degree. In India fans were made of carved ivory, of tortoise-shell and sandal wood, of dried grasses, bamboo, palm leaves, straw, peacocks' feathers and muslin; also were they made of thin sections of wood joined in the centre, and with a handle at either end, so that when the two handles were brought together the fan opened like a circle, and when brought together in the opposite direction it closed up flat.

The fan was also known to the ancient Medes and Assyrians, and the Persians made use of the long-handled square or spherical fan of the hand-screen variety. The kings of the latter country when, taking the field against an enemy, were wont to be accompanied by a sacred fire carried on a splendid chariot drawn by four high-stepping, white steeds, and followed by a bevy of youths, 365 in number, clothed in yellow. So holy was this fire considered that it was thought that the breath of a man would defile it, and it was therefore always kept alive by a special fan. It is probable that the 365 youths were emblematical of the days of the year, and that the fire represented life.

From Asia, by way of Asia Minor or Egypt, the fan made its way into Europe.

Greece was the first country in Europe to adopt the fan, and that must have been at a remote date, for it is gravely asserted that the Sibyl of Cumæ was in the habit of wafting a fan to and fro whilst delivering her momentous oracles.

The first fan used by the Greeks was simple in form, but like most things Greek, very elegant. It consisted merely of a pair of birds' wings, joined and fixed on to a long handle. It was used by the acolytes in the temples to drive the flies

away from the sacrifice, and to cool the air. In the Temple of Artemis the vestal virgins utilised palm-leaf fans to fan the sacred fire, and branches of myrtle and the leaves of the Oriental plane-tree were likewise used for the same purpose.

It is a curious fact that, in contradistinction to the custom in vogue in Ancient Egypt and Japan, the fan in general was, in Greece, at first only used by slaves to cool the atmosphere, and thus contribute to the comfort of their masters.

A few days ago when passing through the Greek room at the British Museum my attention was specially attracted to the exquisite terra-cotta statuettes found in the tombs of Tanagra. Three of the female figures carried fans, two of them being of the palm-leaf shape and one circular in form. One little male figure also carried an enormous fan, round in shape, and covered by long feathers. These statuettes are, as you know, referred to the fifth and fourth centuries before Christ.

From Greece the fan by gradual stages crept on to Italy.

There are extant in our museums paintings on antique Etruscan vases of figure subjects, with accessories in the shape of fans. These are always of the hand-screen order, with long handles, and are square, pear-shaped, or semicircular, and covered with feathers. The presence of fans on antique pottery proves how ancient these ornaments must be.

At the dawn of Christianity the first converts at Rome were in the habit of using fans, and some documents of that era mention the circumstance that during the services held secretly in the Catacombs, deacons stationed at either end of the altar incessantly waved to and fro large fans to cool the close atmosphere and drive away the flies that might otherwise have settled on the sacred bread or have fallen into the chalice. This custom actually continued in vogue in the Church of Rome until the fourteenth century A.D.

Fans became very popular in Italy during the twelfth century, and were made of feathers either in bunches or fastened in a semicircle on to a frame. The feathers employed were those of the ostrich, peacock, parrot or Indian crow. They were of the hand-screen form, were made in the East and exported thence to Venice and other ports for distribution throughout Europe. The handles were made of ivory, or even of gold embellished with precious stones.

During the fifteenth and sixteenth centuries the fan in Italy became a most extravagant article, the kinds most fashionable being the feather, the folded and the hand-screen fan. Ladies were in the habit of wearing their fans suspended from the waist by a golden chain, as was the housewife's bunch of keys, and this mode may still be observed in some parts of Italy at the present time.

During the sixteenth century fans were articles of fashionable attire, not alone of ladies but of gentlemen, and were dainty little articles, the body being of paper beautifully painted on both sides and the small handle made of wood. The favourite subjects chosen for decoration were love scenes from literature and mythology, an explanation in verse being sometimes inscribed beneath.

More costly materials, such as kid or lamb-skin, vellum or satin, were also utilised for fans, and these were painted with no mean skill, the best artists not considering it beneath their dignity to decorate a fan. The sticks or bouts of the best fans were fashioned of tortoise-shell, mother-of-pearl or ivory, the latter being so beautifully pierced and carved as to resemble the finest lace. It was at this time that *Péventail plissé* was introduced into Italy.

In 1730 the fan in Italy was made entirely of ivory, carved or plain, and in some cases, as in the fan I now have the pleasure of introducing to your notice, three plaques of painted satin, beautifully executed, were skilfully appliqued on. This fan also is of the same date and both are known as *Péventail brisé*. The sticks and mount are in one, as you will observe.

By this time the fan had become so popular in Italy that it was equally common in the hands of the peasant and the duchess.

The two countries of Italy and France have ever had near commercial interests; thus it came to pass that the folding fan, called *Péventail plissé* or *éventoir*, was introduced to the French by the Italian perfumers in the time of Catherine de Medici, and soon became the rage, the hand-screen of Eastern origin being speedily abandoned.

France has produced some of the most beautiful fans possible from the fourteenth to the nineteenth century. The lightness and delicacy of the ornament, together with its beauty and elegance, seem to appeal irresistibly to a nation at once so tasteful and so sentimental. Indeed, the temperament of the French has shown itself at its best and their artistic skill at its highest in their treatment of fans, for in no country in the world has the subject been so lovingly and gracefully handled.

Almost from the time of their introduction into France the fan sticks were made of ivory, mother-of-pearl and tortoise-shell; they were richly carved and inlaid with gold, silver and other metals. Sometimes the sticks were made of gold and enriched with diamonds, rubies, emeralds and other precious stones, or with pearls; filigree silver was also in high favour.

The material of which the leaf was composed varied exceedingly, and comprised chicken-skin, swan-skin, kid and lamb-skin, as well as vellum, satin, silk and paper. It may be imagined that with such a choice of substances, many diverse effects could be obtained.

An old French book mentions that, in the reign of Charles V. of France, that monarch, about 1370, possessed a folding fan, bearing on its leaf the arms of France and Navarre, and having an ebony handle.

During the reign of Louis XIII., Anne of Austria introduced many Spanish fashions into France, fans made of scented wood amongst them. The fashion, however, did not last long, for the artistic eye of the French rebelled against the inferiority of the Spanish workmanship, the coarseness of the carving, the crudity of the colouring, and the ungracefulness of the drawing. Under these circumstances it is not surprising to learn that the trade soon dwindled, and finally collapsed entirely.

During the reigns of Louis XIV. and Louis XV., the arts and crafts flourished exceedingly, and fans were not neglected. The leaves of chicken-skin, vellum or parchment were painted in figure or pastoral subjects by such celebrated artists as Watteau, Lancret, Detroy, Vien, and even the celebrated Greuze; landscape and pastoral subjects were painted by Joseph Vernet, Boucher, Baudoin and Lebrun. All lent their splendid talents for the adornment of these ladies' toys.

The fan now shown on the screen is of the time of Louis XV., and this one, which is called the "French Marlborough Fan," exhibits on the side shown to you three vignettes, depicting respectively the parting of the Duke and Duchess of Marlborough on the departure of the former for the scene of war, the Duchess watching her husband from the tower, and the duke's tomb.

On the reverse side the nineteen verses of the famous satirical song, entitled "Malbrouk," are printed. They were composed after the battle of Malplaquet in 1709, when the duke was reported to have been killed. This song maintained its popularity in various parts of Europe for a century and more.

During the time of Louis XV. there lived a family of four brothers named Martin. One of them was an able chemist, and invented a wonderful varnish. It was delicate and transparent, and possessed the lustre and hardness of fine porcelain glaze. The brothers, being coachbuilders, at first employed this varnish to finish off the carriages they made, but later on it was used for the purpose of varnishing painted fans. It is asserted that the inventor of the varnish ornamented the fans as well as varnishing them, but this I think is improbable. In any case this varnish, called "Vernis Martin," was used to glaze all the best fans of the period.

Unfortunately the secret of its manufacture, jealously guarded during the inventor's life, died with him, and though many attempts were made to imitate it, they were unsuccessful. During this period the sticks were smaller and more delicate than in the preceding reign, and perhaps the richness and loveliness of colouring and design of the leaf was improved by the introduction of Chinese sticks, or sticks ornamented in the Eastern style. Some fans were painted by a French artist, finished by Martin and the sticks subsequently decorated by an Oriental painter. Other fans, as the one I now show you, were of *ivory brisé*, the leaf and stick being combined; this particular *eventail* is interesting from the fact that it tells its own tale. It is evident that the fan itself was of French workmanship; the decoration of the upper part was probably undertaken by a Flemish painter in France, the sticks or bouts were ornamented by an Oriental artist, and, finally, the varnish was put on, but evidently by an imitator of Martin's method, or by one of his pupils, as it lacks the translucent appearance of real "Vernis Martin." I also have pleasure in showing you another fan of the same period, but somewhat larger; the mount in this case, however, was the work of a French artist, as will be seen. The period of Louis XVI. was also a luxurious one. Specimens are very scarce at present, as they were small, delicate and easily broken. The sticks were beautifully carved in figures, horses and chariots, dogs, birds and trees, and then coloured true to nature. The leaf as a rule was of a light and flimsy material, sometimes spangled, and in very rare cases painted by artists of renown.

Then followed the dark and dreadful days of the Revolution, when Louis XVI., the heavy and foolish, and his consort Marie Antoinette, the beautiful and light-hearted, suffered death on the guillotine. All good taste died during this time, and the art of fan-making languished. Luxuries of every sort savoured of the hated aristocrats, and no woman would have dared to use a jewelled or gold-handled fan. Those fans that were made at this time were of coarse paper, and reflected the temperament of the people. *Liberté, égalité, fraternité*, was the cry, and crude drawings of current incidents figured on the fans. The meeting of the National Assembly, the murder of Marat in the bath by Charlotte

Corday, &c.—these incidents depicted on the fans showed, as in a mirror, the mind of the people. In this connection, it is interesting to note that, on one *eventail*, Charlotte Corday is represented carrying a dagger in one hand and a fan in the other.

Again there was a lull, and again there was a revival of the art of fan-making during the Empire period. The fans of this time were small, and either made of horn painted with flowers, or muslin or silk gaily spangled (like this one on the screen). A few, such as the two I now show you, were, however, larger.

There were fans also that reflected the feelings of the French for Napoleon, such as his portrait, with folded arms and downcast gaze, or his likeness in the well-known cocked hat and grey riding coat. There were fans, too, that exhibited a martial spirit, and these were decorated with cannon and other cruel instruments of war, the escutcheon of the Emperor, the flag of France or the fleur-de-lys. A few, on the other hand, were painted with classical subjects.

During this time also, the fan was used by hostesses as a token of greeting, salutation, or welcome to their guests. Many degrees of intimacy were thus expressed, from the formal stately wave of the fan to the playful rap on the arm or shoulder of the welcome friend.

In the year 1827 the fan was indirectly an important factor in the conquest of Algeria by the French. The Dey of Algiers insulted the consul of France by giving him a blow with his fan of peacock feathers. War was declared, and Algiers became the property of the French.

In 1829 the taste for luxurious fans revived, and fans in imitation of those of the time of Louis XV. again became the fashion, but they never attained their former excellence; the master hands were gone, the spirit that animated the period of Louis XV. could not be revived, and the result was a failure, because, although expensive materials only were used, the taste of the former periods was lacking.

Spain has ever been the land of romance and gallantry, and the home of song, music, and the dance. The mandoline and guitar are played by enamoured swains beneath the windows of their sweethearts. The music is accompanied by tender love songs or serenades, and dark-eyed beauties shielded from view by their large fans glance forth into the night to ascertain who it is that is serenading them. When the first fans were introduced into Spain, they were eagerly adopted by the lovely and coquettish ladies, and to this day the fan is considered an essential part of a woman's dress, and is her constant companion.

Though the Spanish fans are by no means models of artistic excellence, there is no country on the face of the globe where they are so gracefully wielded. The *abanico* is really an important weapon in the mimic warfare of coquetry and flirtation in the hands of an accomplished señora or señorita. Mrs. Salwey, in her clever book on fans, thus expresses herself on the fan of Spain and its uses:—

"The fan in the hand of a Spanish lady knows no rest; it is perpetually in motion, portraying the feelings and thoughts that are passing through the mind of its owner. It is her interpreter, often unconsciously. It is always in her hands; in church, in places of amusement, when visiting or walking, and on every occasion. There is a complete language of the fan which is studied with great care and persistence until it is thoroughly acquired, and it is almost a necessity to study this accomplishment."

Later on the fans, or *abanicos*, in Spain, following the lead of other European lands, were made to fold, and they possessed one distinct advantage over the others, namely, that they were made to open both from right to left and left to right. The little ivory fan I here show you is a specimen of this style, and has four distinct sides.

I find that during the fifteenth century, and even later, the fan was used in Spain by men as well as by women; indeed, at the bull fights, the fan was frequently employed by the toreros to flap in front of the bull and thus rouse his slumbering ire and cause him to charge his insulter. Be this as it may, it strikes me from what I have read on the subject that the use of the fan by toreadors on these occasions was really only a means of showing their courage in the face of extreme danger by an affectation of indifference and frivolity.

It is curious how a national sport, pastime or custom becomes impressed on the art of a country, or even on articles of jewellery or wear. Now, perhaps fans come under the heading of both "art" and "wearing apparel," and therefore the fan is in Spain impressed with the spirit of the country, for whereas other lands have more pleasing subjects to portray, the Spanish fans are mostly painted with scenes from the arena, and I fancy this subject does not appeal to tender-hearted Englishwomen. True, other subjects—the dance, the serenade and so on—are depicted on Spanish fans, but the bull fight is the most popular one. The mother-of-pearl sticks are gaily decorated.

A printed Spanish fan of the eighteenth century, though crude in colour and imperfect in drawing, is interesting from

the circumstance that it bears the words *Origen de los Abanicos*. Psyche is depicted asleep on a couch under a tree. Cupid is standing by bearing in one hand his arrows and in the other a wing torn from the shoulder of Zephyr, who is disappearing in the distance.

Of the German and Dutch fans I can have little to say in this paper as they are not particularly interesting. Perhaps I have not seen enough of them to be a good judge. They are mostly illustrated by pastoral subjects, but these are heavily treated. Historical subjects have also a place in the decoration of these fans.

English fans are said to date from the year 1307. Thus it will be noted that fans made their appearance almost simultaneously in the fourteenth century in France, Italy, Spain and Great Britain.

During Queen Elizabeth's reign fans became the height of fashion; they were of an extravagant description, the sticks being made of mother-of-pearl, inlaid ivory or gold and silver studded with pearls, rubies and emeralds.

After Queen Elizabeth's death twenty-seven fans were found to have been entered in the inventory of her wardrobe.

Now good Queen Bess had a strange but refined notion that a fan was the only gift permissible from a subject to his sovereign. Sir Francis Drake presented the queen with one. It is described as being of red and white ostrich feathers, and the gold handle was decorated with a half-moon of diamonds and pearls, which formed a frame for a miniature of herself.

Another fan presented by the Earl of Leicester was of white feathers. The handle was likewise of gold and was thickly jewelled, bearing a lion rampant with a muzzled bear beneath its foot; still a third fan was of swansdown, its handle representing a golden monster, with head and breast of mother-of-pearl.

I must not forget to mention that at this time fans were by no means monopolised by women, though the use to which they were put by men was by no means too gentle, for Aubrey says:—"The gentlemen had prodigious fans, and they had handles at least half a yard long; with these their daughters were oftentimes chastised."

As articles of use, wear or ornament become more widely known they become universally adopted, or, in the phraseology of the past, "the mode," and thus it happened in England that by the latter part of the sixteenth century fan-making had become an important trade in England, though the fans were not so artistically made as in France until the revocation of the Edict of Nantes, in 1685, when numerous French fan-makers came to England, and by introducing their industry improved the taste and style of fans here.

This fan shown on the screen is of English manufacture and dates from early in the nineteenth century. The fans of former centuries are a faithful mirror of passing events and a truthful recorder of history, music, politics, social customs, sports and poetry. There is scarcely an occurrence of importance that has not been painted or printed on a fan. Gay subjects, grave subjects, heroes of the sword and pen, each and all have been portrayed on fans. The most striking events of ancient history have been transferred to chicken-skin or vellum, or immortalised on silk or paper. An account of the fans of the eighteenth century would form a comprehensive history of the period, and the late Lady Charlotte Schreiber's wonderful collection, given by her to the British Museum, is representative of this time.

I feel that no paper on fans would be complete without some reference to this remarkable collection, but as the time at my disposal is drawing to a close, I must content myself with the mention of a few, together with the names of their makers and publishers. With the exception of one or two, all Lady Charlotte Schreiber's English fans were printed on paper or skin, plain, or coloured by hand. The *eventails* I am referring to comprise historical, geographical and botanical fans, riddle fans and fans representing scenes from Shakespeare, mythological subjects, portraits of Milton, Wellington and Napoleon I.

Very curious is one on which a punning bill of fare of a wedding dinner is printed. Melancholy soup with crooked sauce, the divine part of a man boiled, and a Dutch prince in a pudding are among the good things set forth on the menu.

The love scene is a pretty fan; it was issued by "Clarke & Co., fan-makers to their Royal Highnesses the Duchess and Princess of Gloucester, at their warehouse, No. 26 Strand. N.B.—Inventors of the Pockett Sliding Fans."

Lady Charlotte Schreiber's collection likewise contains a garden scene, which was issued by Chassereau, and which is dated 1741.

"Boys with tops" and "Children with battledores" are two pretty printed paper fans the production of "A. Poggi, St. George's Road, Hyde Park."

There is also a "History of England," a duplicate of which I am fortunate enough to possess.

There is a highly interesting allegorical fan on the marriage of the Princess Mary with William Prince of Orange.

This fan was published by M. Gamble, who thus advertised it in the *Craftsman* of August 25, 1733:—

"The Orange Fan, with a letter to the lovely She who has more than 30,000 charms. . . ."

"Once more the Orange joins the British Rose,
And fragrant sweets they mutually disclose.
Entwin'd by Nature's bonds, their charms unite,
And from the Foil the Jewel shines more bright."

Another fan on the subject, but differently treated, was produced by "Jonathan Pinchbeck, fan-maker, the Fan and Crown, New Round Court, Strand"

There is no doubt that these two fan-makers were rivals, as will be gathered by the following advertisement which appeared in the *Craftsman* of September 22, 1733:—"The Original Loyal Nassau Fan, or Love and Beauty triumphant." A fan representing Bartholomew Fair is inscribed:—"Published as the Act directs by J. F. Setchel, 23 King Street, Covent Garden."

The most artistic and neatest trade-card of a fan-maker is the following:—"B. Coker, fan-maker, Wholesale and Retail, 118 Fleet Street, London. Fans neatly repaired." This card is small, and is decorated with a draped classical figure holding a shield on which the above lettering is inscribed.

In trying to cover so extensive a field as the history of fans, I have of necessity been forced to be brief in my descriptions, but I trust that I have been able to give to my hearers some faint idea of the great interest of the subject.

There are so many points worthy of notice that I felt it was almost hopeless to touch upon more than a few of the most representative of these. The great and abiding charm of the fan is connected with its personal associations, and however ornamental it may be, however great its artistic value, usefulness is never entirely overlooked. The fan is an object loved by its possessor, and when we look at any collection of fans we cannot but feel how great is this personal charm.

Each age has left its mark in the pattern of the fan. Events of passing interest as well as those of historical importance have been recorded, and artists of repute have been found to ornament them. The variety of styles is so great that there cannot fail to be some to interest all tastes.

I hope that in the present day we shall never let this artistic feeling die out, for we may be sure that in the future, whatever fluctuations there may be in fashions, the fan will always hold a high position in popular esteem.

ARCHÆOLOGY IN DURHAM.

THE annual meeting of the Archæological and Architectural Society of Durham and Northumberland was held in Bishop Cosin's Library, Palace Green, Durham, last week. The Rev. Dr. Greenwell, president, was chairman.

It was decided to visit the following places during the ensuing summer:—Two days' meeting—First day, Hull, Hedon, Preston, Patrington, Welwick; second day, Barton-on-the-Humber, Thornton Abbey. One day meetings—1, Haltwhistle, Williamstown, Bellingham; 2, Warkworth, Guyzance, Felton; 3, Seaham, Dalton-le-Dale, Dawdon, Easington; 4, Tanfield, Kirklington.

The President said that when visiting Seaham, where they had an unrestored church, they would have the pleasure of meeting the Rev. A. Bethune, who was ninety-three years of age, who still conducted three services every Sunday, and is as capable as he was thirty years ago.

The President then delivered his annual address. In connection with the visit to Sockburn, says the *Durham Advertiser*, Dr. Greenwell told the legend of one of the Conyers slaying the dragon with a falchion, still treasured at Sockburn, and went on to impress upon his hearers that Durham is not part of England. It was the Palatinate of Durham, and the present king is Count Palatine of Durham, had his officials and chancellor, and so on. Hence they had this very remarkable fact in connection with their county, that they were separated from every other county in England by theirs being a kingdom in itself. Formerly, when the Bishop of Durham entered the Palatinate, the Lord of Sockburn presented to him the falchion, by reason of which the lord held his land. Had he not done so the bishop could have taken the land into his own hands. Unfortunately the king had not come to claim his ancient possessions in the Palatinate. Were he to do so, Mr. Edward Blackett would present His Majesty with the falchion. At the close of his review of last season's visits the President said their Society was in a very good financial state. They always experienced great difficulty in getting out their Transactions. There were a great number of members who were capable of writing excellent essays on various subjects but who would not do so. He could not tell why. But he had thought in order to stop the gaps which were always gaping that they might spend a considerable portion of their balance in this way. Some of the

most interesting things to be seen were a number of pre-Conquest stones in the shape of crosses, grave covers, &c., scattered throughout the counties of Durham and Northumberland, and he proposed to issue in connection with their Transactions illustrated descriptions of these sculptured pre-Conquest stones, commencing at Hartlepool and travelling northwards. These could be either bound up in the accounts of their meetings or separately into one volume. These stones could be reproduced either by some photographic process or drawn. It would be an exceedingly valuable book, and would be a work worthy of their Society. If the meeting assented the work would have to be put in hand at once. He proposed that, promising to write as many descriptions as he could.

Archdeacon Hamilton thought it a very desirable undertaking.

The proposition was carried.

The President said they would not do anything in a scamped way. Whatever they undertook would be thoroughly well done. Whatever could be produced by photography should be done, because they then got a representation of the subject as it is. The President paid a high compliment to Mr. Footitt as a draughtsman, remarking that it was impossible to find a man who worked more in the spirit of the old work. All of them might be acquainted with the "Rites and Monuments of Durham," a book written by a man, if not a monk, who must have been a novice here. At all events, he was very intimately acquainted with the monastery of Durham and everything that went on therein. He produced an account which it was patent at first reading had been written by a man who knew all the ins and outs of the place. He told them of the altars, the ceremonies and everything that went on in the cathedral before the Dissolution. That book was produced by the Surtees Society a great many years ago. They were indebted to the Surtees Society for a great many most valuable works connected with the history of England north of the Humber, and no more valuable book was produced than the "Rites." It was out of print and unobtainable except at high prices. A fresh edition had been taken in hand by the Surtees Society. The editorship had been undertaken by as capable a gentleman as could possibly have been selected—Canon Fowler. No man is better acquainted with monastic rites and ceremonies, and no man is better acquainted with the cathedral of Durham than was Dr. Fowler, who had spared neither money nor time nor pains over the new edition, which would really be a monumental work. With regard to the excavations at the cathedral, the road going through from the cloisters into the cemetery and the monks' ante-chamber to the chapter-house had been cleared up, and a good deal of old work had as a consequence been made visible. Dr. Gee, the new master of University College, took an enormous interest not only in the building, but in the history of Durham Castle, and was determined to draw up an account of the castle which he (the President) hoped would be reproduced in a separate book. Plans were being made by Mr. Hodges, one of their members, who some years ago made a very careful survey of the castle, and who had his notes ready, and would undertake to produce the book on a large scale and containing a very ample plan. Dr. Gee would assist in writing the history of the castle. Thus they would have produced a work of very great value indeed. It would be an expensive work, and he hoped members would assist to obtain subscribers. In connection with the work Dr. Gee had undertaken to have some excavations made. As those present knew, there were a great many places and features about the castle respecting which a little light was required, and a little digging might enable them to form some idea of what possibly the great castle built by William the Conqueror, on his return from Scotland after defeating the King of Scotland, and bringing the whole North of England into subjection was. On his return William found Durham was in a defenceless state. His euteuant, Robert Cummin, had been murdered in the bishop's house. All Cummin's men had also been murdered. William determined in that year, 1072, to build a castle at Durham. Of that castle there still remained the old chapel. He thought there were some other remains. They were not quite certain, still if excavations were made probably some light would be thrown upon what the original castle of William was. It had been altered at various times by Bishop Pudsey in the twelfth century, by Bishop Beck in the latter part of the thirteenth century, by Hatfield in the fourteenth century, and later by Fox and Cosin. It had consequently passed through a great number of alterations and a great number of additions had been made. Nevertheless it still possessed most of the characteristics of an important castle of the first magnitude. It was one of the great castles of the County Palatine of Durham against Scottish inroads. The County Palatine had the great castle at Norham, and the other great castle was at Durham. Besides, the bishop had a number of houses and places where he lived, but Norham and Durham were the great castles which protected the Palatinate and the rest of England against the raids and invasions of the Scots. In conclusion,

Dr. Greenwell wished long prosperity to their Society, hoping that they might all live to see a few more years of it.

The members, under the guidance of Mr. Freeman, then proceeded to the cloister garth, and were entertained by Father Brown's description of the recent excavations, and what had been found. He described from the "Rites of Durham" the beautiful lavatory which originally existed there for the monks to wash their hands when summoned to meals. The chief meal was at 11 A.M. It was very curious how for a simple purpose like that there came to be erected such a magnificent building as the lavatory doubtless was. From the number of pieces of shafts, rings and capitals found there had been an Early English building there, but what it had been there was at present no apparent sign. In the deep well which had been cleaned out there was discovered the grave cover of Henry of Horncastle (latter part of the fourteenth century). How that grave cover got down that well, which also contained a lot of Early English debris, burnt coal, &c., it was difficult to say.

ARCHITECTURAL ASSOCIATION OF IRELAND.

THE final meeting of the session of the Architectural Association of Ireland was held on the 21st ult. in the rooms of the R.I.A.I., 20 Lincoln Place. The president, Mr. Fred. G. Hicks, occupied the chair. In his opening address he laid some stress on the subject of examinations by the Royal Institute of the Architects of Ireland, which he was gratified to know was very favourably received by the members generally. A deputation was appointed to wait on the Institute in connection with this very important move. He felt quite satisfied that the time was not so far distant when the profession on this side of the water would have so benefited by the change as to reach the highest pinnacle of architectural renown. Architecture, like everything else in the country, was going to advance, and the rising generation must be, in a measure, responsible for this advancement. Let them look to it that their efforts should be worthy of them, and the great profession they had adopted. Education was the key-note of the age, and in this respect it was gratifying to know the Government contemplated spending some millions on technical education in this country. He hoped architecture and the other arts would not be lost sight of. A knowledge of them was quite as essential for the layman as for themselves, else how could they expect him to have a desire for the beautiful, or to appreciate it when he had got it? He looked forward to the time when the State would exercise some control over architecture and building. It might come with registration, if ever that came. He feared both were a very long way off, but public bodies should not be allowed to entrust architectural work to incompetent men or to erect buildings with public money that would be an eyesore for a century (that was if the building did not fall down). The lords of the soil in their own interests and their successors, to say nothing of the public, should have no dealings with the jerry-builder or the jerry-architect. If they wanted to develop building estates profitably let them appoint an architect of repute, by whom all designs must be approved. He was glad to say that this was done on some estates near Dublin, but he regretted on other estates builders and architects were allowed to do just as they liked, with very disastrous results. Good work had been done during the past session. He hoped there would be a good competition for the prizes afforded by the Association and by the individual firms in connection with the technical demonstrations which were being organised. With regard to his successor, Mr. Ashworth, the best interests of the Association would be safe in his hands.

TESSERÆ.

Roman Influence in France and England.

MANY English towns stand on the site of Roman towns, but very few, if any, English towns can trace the same uninterrupted connection with primitive times which is still plainly written on the ancient cities of France. It is by no means clear that the Roman towns in Britain so generally occupied Celtic sites as they did in Gaul; it is quite certain that few or no English towns can show the same continuous existence from Roman times which so many French towns can. A great gulf, an interval of historic darkness, a period given up to the conjectures and inferences of ingenious men, divides their latest recorded Roman existence from their earliest recorded English existence. No existing English, or even Welsh, bishopric pretends to trace an uninterrupted episcopal succession further back than the sixth century. That any English town retains a traditional, or even an imitative, Roman constitution, is a mere dream without a shadow of proof. Nay, it is not even certain that the sites of the ancient Roman towns were continuously inhabited. Many of them are utterly for-

saken; others have changed their names; of those which have kept their names several are suspected to have changed their sites. London retains its name, but learned antiquaries doubt whether the oldest English London occupied the site of Roman London. Except when it has been tampered with by recent changes, the episcopal succession in a French city has gone on uninterruptedly since the third or fourth century; the present cathedral stands on the site of a church of those primitive times; the extent of the diocese marks the extent of the Roman civil division of which the city was the head. Then came the Teutonic inroads—those of the Franks in the north, those of the Goths and Burgundians in the south. The connection with the seat of empire, with Rome old or new, first became nominal, and then was wiped out altogether till the day when the Roman diadem was set on the brow of a Frankish king. But the Gaulish hill-fortress, the Roman city, lived through the storm. It remained a seat of habitation and of dominion; it retained its name, its position as the head of a district; in the south it even retained large traces of its Roman municipal organisation. Above all, it retained its character as a seat of spiritual rule, the seat of a chief church and its chief pastor. The cities of Gaul have lived on uninterruptedly from the days of Sextius and Cæsar till now. The episcopal churches of Gaul lived on uninterruptedly from the days of primitive Christendom to the great Revolution. And with most of them the great Revolution itself was only a passing eclipse. The chief towns of France, in short, are places which have been abodes of man, seats of man's industry and government, such as industry and government have been at various times, for eighteen hundred or two thousand years, and for as many more prehistoric centuries as anyone chooses to add. Dynasties, governments, nations, languages, all have changed; but to this day the chief fort of each tribe overrun by Cæsar commonly remains the cathedral city of a diocese, and is often also the capital of an ancient province or a modern department.

The Acropolis at Athens and the Rock of Cashel.

Comparison has been made between the rock and ruins of Cashel and the Acropolis of Athens, the most famous memorial of antiquity which the world possesses. There exist many curious resemblances. Both were strongholds of religion, honoured and hallowed above all places in their respective countries; both were covered with buildings of various dates, each representing its peculiar age and style in art. And as the Greeks, for the sake of effect, have varied the posture of their temples so that the sun illuminated them at different moments, the old Irish have varied the orientation of their churches, that the sun might rise directly over against the east windows on the anniversary of the patron saint. There is at Cashel the great cathedral, in loftiness and grandeur the Parthenon of the place. There is the smaller and more beautiful church, Cormac's chapel, the holiest of all, like the Erechtheum of Athens. Again, the great sanctuary upon the Rock of Cashel was surrounded by a cluster of other abbeys about its base, which were founded there by pious men on account of the holiness and greatness of the archiepiscopal seat. Of these one remains, like the Theseum at Athens, eclipsed by the splendour of the Acropolis. The prospect from the Irish sanctuary has indeed endless contrasts to that from the Pagan stronghold, and such as are not without a certain harmony. The plains around both are framed by mountains, of which the Irish are probably the more picturesque, and if the light on the Greek hills is still the fairer, the native colour of the Irish is infinitely more rich. So, again, the soil of Attica is light and sandy, whereas the golden Vale of Tipperary is among the richest in the world. Both places were the noblest homes, each in their own country, of a religion which civilised, humanised and exalted the human race; and if the Irish Acropolis is left in dim obscurity by the historical splendour of the Parthenon, on the other hand the gods of the Athenian stronghold have faded out before the moral greatness of the faith preached upon the Rock of Cashel.



Lead Joints.

SIR,—In constructing a series of wide flights of square York stone steps (in the open), employer insists on the jointed ends being run with lead, and is desirous that the joints of Portland stone paving should also be made with lead. His idea is that horizontal joints made in cement are soon washed out by the action of rain; but as I have never heard of such a thing as he proposes doing, and have my own ideas on the subject, I shall be glad if your readers will give me their experience and views.

C. OF W.

GENERAL.

The Prince of Wales laid the foundation-stone on Monday last of the City of Westminster workmen's dwellings, to be erected in Regency Street. The site covers a superficial area of nearly an acre and a half, and the buildings will have a frontage to Regency Street of 305 feet, to Page Street of 175 feet and to Vincent Street of 228 feet. They will consist of three parallel blocks six storeys in height, including half basement and attic storeys, divided by roadways or playgrounds 40 feet wide. The rents range from 3s. to 4s. a week for one-room tenements to 11s. to 12s. for four-room tenements. Messrs. Joseph, Son & Smith are the architects, and Sir John Mowlem Burt is the contractor.

His Majesty the King of Sweden and Norway has graciously accepted from Professor Corfield, M.D., of University College, a copy of the Milroy Lectures on "The Etiology of Typhoid Fever," delivered by him before the Royal College of Physicians last year by special request of the Council of the College, Dr. Corfield having been for the past eleven years a Fellow of the Medical Society of Sweden.

The Duc de Loubat has presented 20,000 francs to the French Académie des Inscriptions et Belles-lettres for the purpose of completing the clearance of the soil of the Isle of Delos.

A Bill to provide for the registration of architects was brought into the House of Commons by Mr. Atherley-Jones and read a first time on Thursday in last week.

The Annual Dinner of the Artists' Benevolent Fund took place on Thursday, April 30, at the Royal Institute of Painters in Water-Colours, Piccadilly. Sir W. B. Richmond, R.A., presided.

The Royal Institute of Painters in Water-Colours, Piccadilly, have elected as members Mr. James Clark, Mr. Frank Reynolds, Mr. J. Sanderson Wells and Mr. Graham Petrie.

Lord Sefton has promised 2,000*l.* to the Liverpool Cathedral Fund, which now amounts to nearly 174,000*l.*

Sir John Aird & Co., the engineers, have met with an ample supply of water for the proposed King's Sanatorium for Consumption, near Midhurst. The springs are to run to a pumping-station and then the water will be pumped over a high hill, necessitating much labour. The resident engineer estimates that it will be eight months before the work of completing the water-supply for the sanatorium will be accomplished.

Mr. David B. Butler will read a paper entitled "Certain Vexatious and Fallacious Cement Tests now in Vogue," on Monday next before the Society of Engineers.

Mr. Walter Frederic Osborne, R.E.A., the portrait-painter, died last Friday at his residence, Dublin, at the age of forty-three years. He had exhibited frequently at the Royal Academy, Royal Hibernian Academy, and the Society of Oil-Painters.

The Count of Turin laid the first stone of the new Campanile of St Mark last Saturday. The stone, which was placed in the centre of the foundations, was an oblong of trachyte 2½ feet long, 1 foot deep and 1 foot wide. In the centre of the stone was hollowed out the space required to receive the parchment and the gold and silver coins commemorating the event. The Royal Academy fund towards the rebuilding amounted to 1,000*l.*, made up in the following manner:—53 members of the Royal Academy, 291*l.* *cs.* 6*d.*; 35 other artists, including architects, 87*l.* 7*s.*; 159 other subscribers, 621*l.* 12*s.* 6*d.*

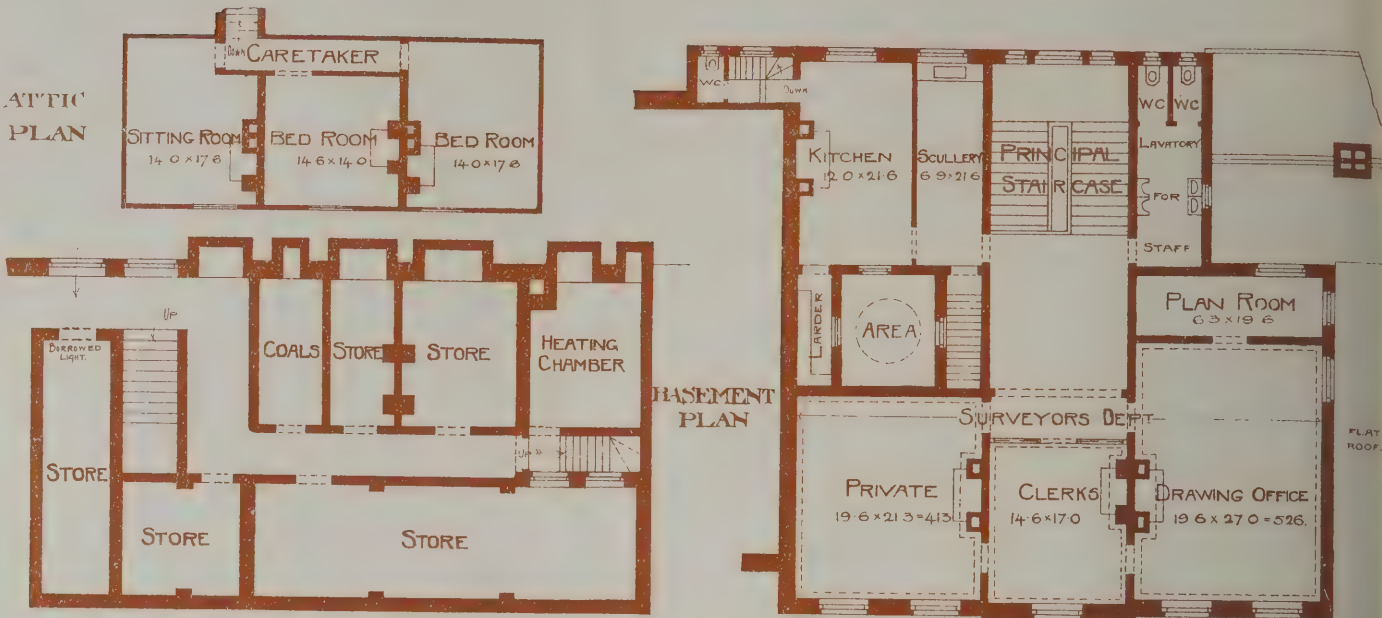
The Royal Marines war memorial, which was unveiled last Saturday, has been erected on a site in St. James's Park provided by the Office of Works. Two figures, designed and sculptured by Captain Adrian Jones, represent Marines Mr. T. Graham Jackson, R.A., designed the scheme of the pedestal. Bas-reliefs depict the action of Graspan and a scene recording an episode during the defence of the Legations at Peking. It was cast by Messrs. Hollinshead & Burton, of Thames Ditton.

The Edinburgh Architectural Association's fifth visit of the session will take place to-morrow (Saturday), and will be to Wemyss Castle.

Sir Weetman Dickinson Pearson, Bart., member of Parliament for Colchester, has been appointed a director of the National Provident Institution, to fill the vacancy caused by the death of Mr. William John Barron.

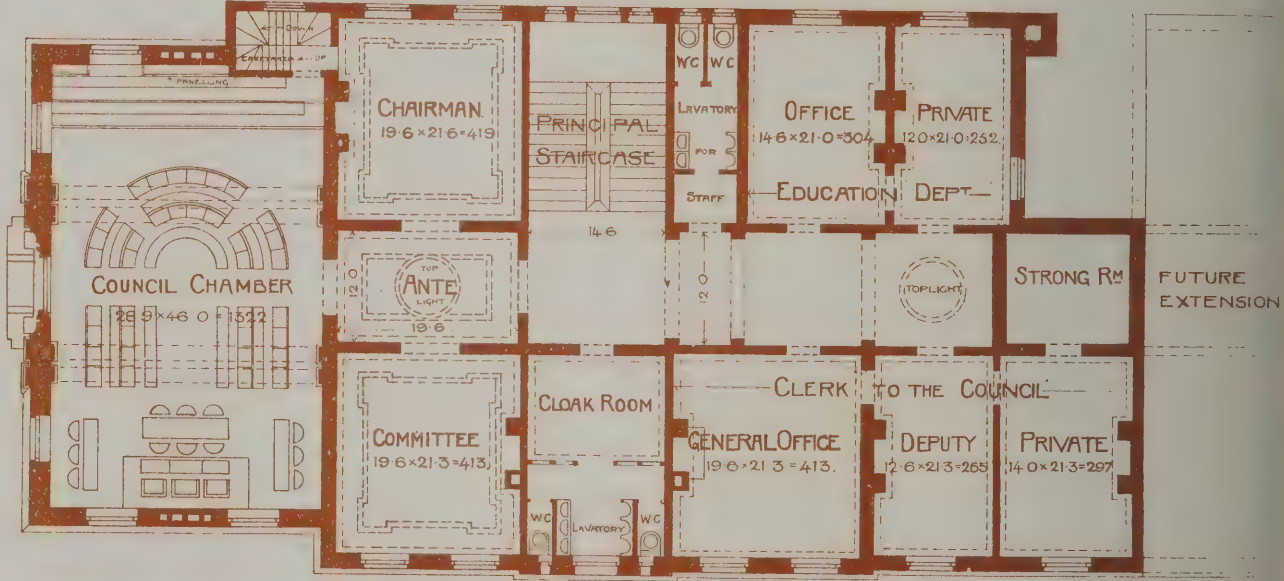
The Council of the Institution of Civil Engineers have made the following awards for papers read and discussed before the Institution during the past session:—A Telford Gold Medal to Mr. Maurice Fitzmaurice, C.M.G.; a Watt Gold Medal to Mr. Bertram Hopkinson, and a George Stephenson Gold Medal to Mr. Percy John Cowan. Telford premiums to Messrs. Charles Hopkinson, B.Sc., Ernest Talbot, Frederick Wilfrid Scott Stokes, Percy John Cowan, James Tayler Milton and William James Larke. The presentation of these awards, together with those for papers which have not been subject to discussion and will be announced later, will take place at the inaugural meeting of next session.

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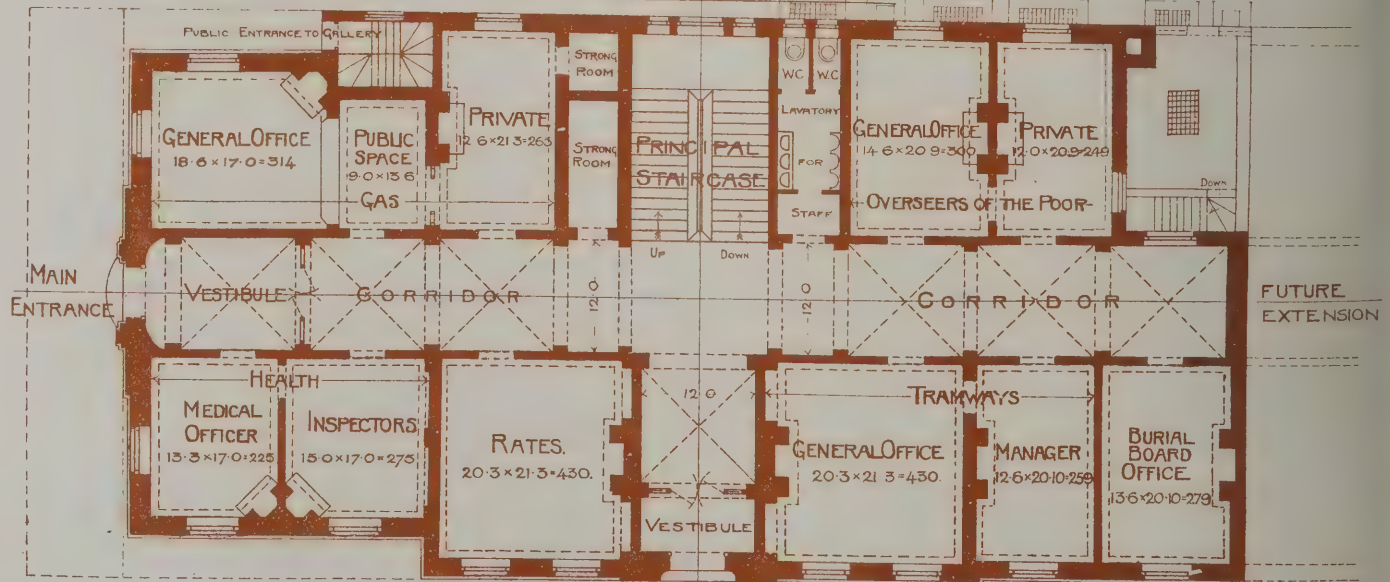


PONTYPRIDD TOWN HALL.

SECOND FLOOR PLAN



FIRST FLOOR PLAN



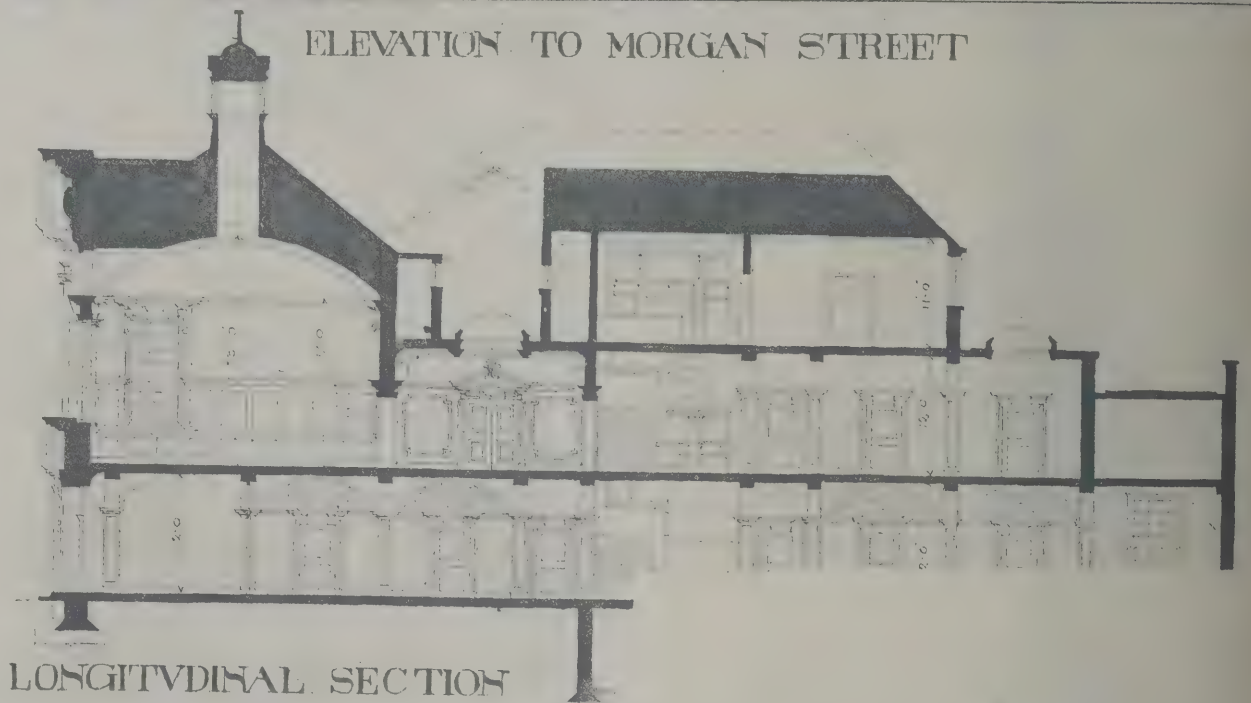
GROUND PLAN

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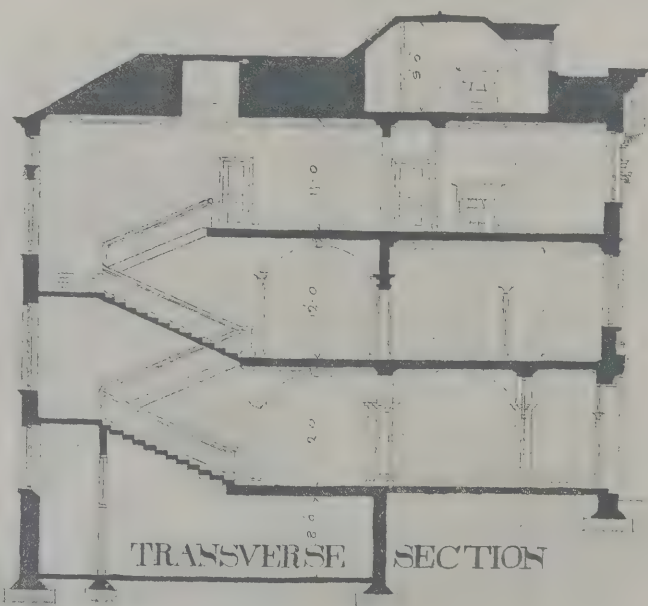
PONTYPRIDD TOWN HALL.



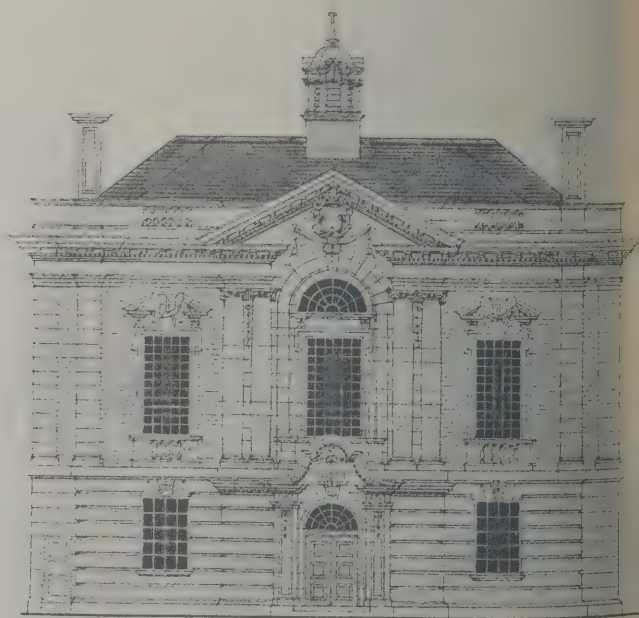
ELEVATION TO MORGAN STREET

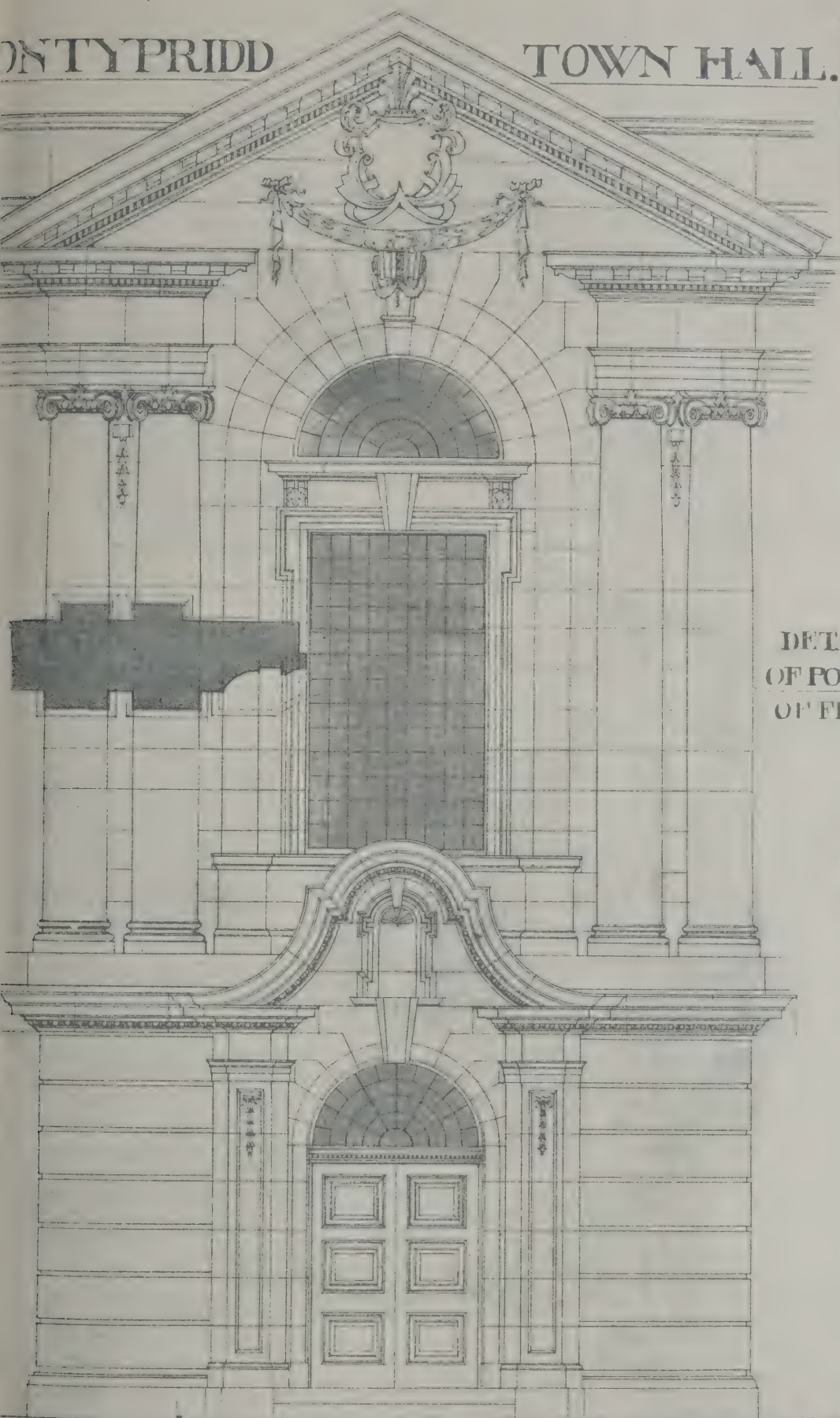


LONGITVDINAL SECTION

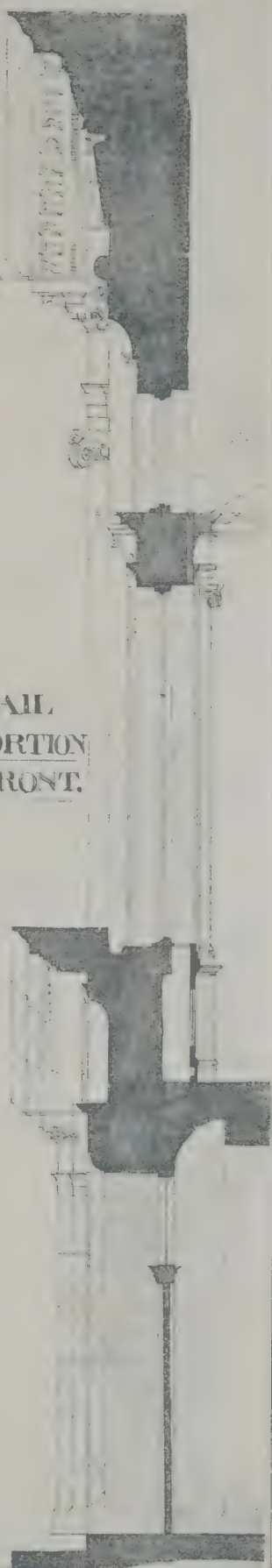


TRANSVERSE SECTION





DETAIL
OF PORTION
OF FRONT.



ELEVATION.

SECTION.

PLAN.

SCALE OF FEET. 1 2 3 4 5 6 7 8 9 10 11 12 13 14

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The Architect, May 1st 1903





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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

NEW BROMPTON (KENT).—May 30.—Designs and plans are invited in competition for public swimming and slipper baths to be erected in Windsor Road, New Brompton. Three premiums are offered, one of £20 to the author of the design which is considered to be the first in order of merit, one of £10 and one of £5 respectively for the second and third. Mr. F. C. Boucher, clerk, New Brompton, Kent.

STOCKTON-ON-TEES.—May 13.—Designs are invited for a girls' high school, to be erected as a memorial of Her late Majesty Queen Victoria, at a cost not exceeding 5,000l. Premiums of 25l, 15l and 10l respectively will be awarded. Mr. C. J. Archer, 77 High Street, Stockton-on-Tees.

CONTRACTS OPEN.

ACTON.—May 7.—For the erection of the central schools to accommodate 1,100 scholars, with teachers' rooms, caretaker's house, manual, cookery and laundry centres, covered playgrounds, latrines and boundary walls, &c., in Shakspeare Road. Messrs. Edward Monson & Son, architects, Grosvenor House, Acton Vale, W.

ALNWICK.—May 13.—For the erection of twelve houses at Alnwick, for the North-Eastern Railway Company. Mr. William Bell, architect, Central Station, Newcastle-on-Tyne.

ASHBORNE.—May 4.—For the erection of a gas manager's house, Mayfield Road, Ashborne. Mr. Edward Forshaw, architect, Balance Street, Uttoxeter.

AYLESBURY.—May 5.—For additions to the literary institute, Aylesbury. Mr. Fred Taylor, architect, Aylesbury.

BARNES.—May 11.—For taking-down premises known as 32, 33, 33A and 34 High Street, Barnes, with outbuildings, sheds and walls appurtenant thereto, and for the clearing of the site. Mr. G. Bruce Tomes, surveyor, Council Offices, High Street, Mortlake.

BARNET.—May 13.—For alterations to the workhouse. Messrs. White, Son & Pitt, architects, High Street, Barnet.

BARNESLEY.—May 4.—For the erection of two houses, Carlton Road, Smithies, near Barnesley. Mr. J. W. E. Knight, architect, 22 Regent Street, Barnesley.

BARNESLEY.—May 6.—For the erection of one house and outbuildings in Sackup Lane, Darton, near Barnesley. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnesley.

BENTHAM.—May 9.—For the erection of the Bentham Wesleyan chapel and schools. Mr. John F. Curwen, architect, 26 Highgate, Kendal.

BIDEFORD.—May 12.—For erection of free library and municipal offices. Mr. Alfred J. Dunn, architect, 86 Colmore Row, Birmingham.

BIRMINGHAM.—May 4.—For the erection of boundary walls and outbuildings on the workhouse estate, and for forming a new entrance and doors to one of the corridors of the workhouse. Messrs. C. Whitwell & Son, architects, 23 Temple Row, Birmingham.

BIRMINGHAM.—May 12.—For extension of Sparkbrook culvert and reconstruction of sewer in Stoney Lane, with man-holes, &c. Mr. John Price, city surveyor, Council House, Birmingham.

BIRMINGHAM.—May 14.—For erection of two lodges, stables and loco. sheds, &c., on the site of the Frankley reservoir, near Birmingham. Mr. Edward Orford Smith, town clerk, Council House, Birmingham.

BISHOP AUCKLAND.—May 7.—For the erection of fifteen cottages in Grey Street and five cottages in May Street, Bishop Auckland. Mr. F. H. Livesay, architect, Bishop Auckland.

BOSTON.—May 16.—For alterations and additions to the Shodfriars' school. Mr. James Rowell, Borough Surveyor's Office, Boston.

BRADFORD.—May 5.—For alterations to 123 and 125 Godwin Street. Mr. Frederick Stevens, town clerk, Town Hall, Bradford.

BRADFORD.—May 11.—For the erection of a doctor's house Barker End Road, Bradford. Mr. W. H. Herbert Marten, Cheapside Chambers, Bradford.

BRENDON.—May 6.—For the erection of a pair of cottages at Brendon, Devon. Messrs. Smyth-Richards & Fox, architects, Barnstaple.

BRIDLINGTON.—May 7.—For rebuilding the shop and premises, 38 King Street. Mr. J. Earnshaw, architect, Carlton House, Bridlington.

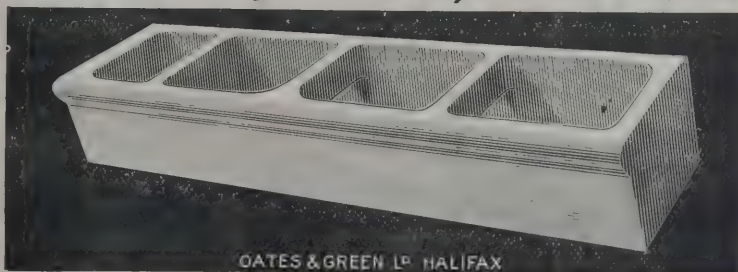
BRIDLINGTON.—May 9.—For the erection of a chapel at Bempton. Mr. Samuel Dyer, architect, 29 Quay Road, Bridlington.

BRIDLINGTON.—May 9.—For the erection of engine-room, boiler-house, boiler settings, chimney-shaft and offices. Mr. Ernest R. Matthews, borough surveyor, Town Hall, Bridlington.

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BRISTOL.—May 12.—For the erection of stabling accommodation in Portwall Lane, Bristol, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington station, London.

BURY.—May 4.—For the Blackford Bridge improvement works, comprising the taking-down of the present bridge and the construction of a new skew masonry bridge 50 feet between parapets, 66 feet span, with retaining-walls, road formation, &c., for the Joint Committee of the Lancashire County Council and the Corporation of Bury. Particulars may be obtained at the County Bridgmaster's Office, Preston.

CAMBERWELL.—May 12.—For the erection of public baths and washhouses in Old Kent Road. Mr. E. Harding Payne, architect, 28 John Street, Bedford Row, W.C.

CARLISLE.—For the plasterers' work required in connection with new cake factory at Caldewgate, Carlisle. Messrs. Johnstone Bros, architects, &c., 39 Lowther Street, Carlisle.

CARLISLE.—For the erection of four dwelling-houses at Morton Terrace, Wigton Road. Messrs. Johnstone Bros, architects, &c., 39 Lowther Street, Carlisle.

CATTAL.—May 8.—For the erection of an inebriates' home, with administrative wards, at Cattal, on the North-Eastern Railway system between Harrogate and York. Mr. J. Vickers Edwards architect, County Hall, Wakefield.

DEWSBURY.—May 4.—For the erection of two semi-detached residences in Birkdale Road, Dewsbury. Messrs. John Kirk & Sons, architects, Dewsbury.

ELLENBOROUGH.—May 9.—For the erection of a dwelling-house at Ellenborough, Cumberland. Mr. James Stobart, 11 Marsh Terrace, Ellenborough.

GLASGOW.—May 4.—For the construction of abutment walls and piers to carry the aqueduct across the river Kelvin at Partick Bridge, also to construct part of the sewer at each end of the aqueduct. Mr. A. B. McDonald, city engineer, City Chambers, 64 Cochrane Street.

GRIMSBY.—May 4.—For erection of shelters, bandstand and conveniences at the Grant-Thorold Park. Mr. H. Gilbert Whyatt, borough surveyor, Town Hall Square, Grimsby.

HALIFAX.—May 4.—For alterations to Haugh Shaw school. Mr. W. H. Ostler, clerk to School Board, 22 Union Street, Halifax.

HARROGATE.—May 5.—For the erection of convent, Harrogate. Messrs. Thos. Priestley & Sons, quantity surveyors, Oxford Chambers, Leeds.

HASTINGS.—May 11.—For construction of a lock-up division and other work in connection therewith at the fish-packing station, Rock-a-Nore, Hastings. Mr. B. F. Meadows, town clerk, Town Hall, Hastings.

HEANOR.—For erection of Wesleyan schools at Heanor, Derbyshire. Mr. Arthur Marshall, architect, King Street, Nottingham.

HORNSEA.—May 8.—For erection of two shelters (wood with glass fronts), Hornsea, near Hull. Mr. W. E. Warburton, surveyor, Public Rooms, Hornsea.

HOYLAKES.—May 11.—For the erection of a mortuary at Hoylake, Cheshire. Mr. Thomas Foster, surveyor, District Council Offices, Hoylake.

HUDDERSFIELD.—May 6.—For the erection of four dwelling-houses at Close Hill. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HUDDERSFIELD.—May 6.—For reseating the gallery of the Hinchcliffe Mill Wesleyan chapel. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

IRELAND.—May 5.—For alterations, &c., at the building for infirm classes at the workhouse. Messrs. Young & Mackenzie, engineers, Belfast.

IRELAND.—May 5.—For new sashes in upper portion of windows in school buildings, and upper sashes and casements in infirmary and main buildings at the workhouse. Messrs. Young & Mackenzie, engineers, Belfast.

IRELAND.—May 6.—For the erection of four houses on Duncreggan Road, Londonderry. Mr. Daniel Conroy, architect, 21 Shipquay Street, Londonderry.

IRELAND.—May 6.—For alterations to premises in Scotch Street, Armagh. Mr. H. C. Parkinson, architect, Armagh.

IRELAND.—May 8.—For the erection of the Carnegie free library, Cork. Mr. F. W. McCarthy, town clerk, Cork.

IRELAND.—May 8.—For alterations and improvements to Meelick Church, Limerick. Mr. Brian E. F. Sheehy, architect, 57 George Street, Limerick.

IRELAND.—May 8.—For the erection of a timber wharf at the waterside, Londonderry. Mr. Jas. Dawson, secretary, Port and Harbour Office, Londonderry.

IRELAND.—May 9.—For the erection of cottages in various townlands of Londonderry. Mr. J. J. S. Barnhill, engineer to the Rural District Council, 1A Strand, Londonderry.

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IRELAND.—May 9.—For the erection of galleries in St. Colomb's Church, Burtonport, and Star of the Sea church, Annagry, co. Donegal. Mr. Edward J. Toye, architect, 20 Great James Street, Londonderry.

IRELAND.—May 12.—For the erection of a Masonic hall at Arklow. Mr. Samuel Stuart, Ferrybank, Arklow.

IRELAND.—May 13.—For the erection of a coastguard station and signal station at Fanad Head (about eighteen miles from Milford), in the county of Donegal. Particulars may be obtained at the Office of Public Works, Dublin, and the District Office of Works, Londonderry.

IRELAND.—May 13.—For alterations and additions to the asylum premises at Down District lunatic asylum, Downpatrick. Messrs. Graeme-Watt & Telloch, architects, 77A Victoria Street, Belfast.

IRELAND.—May 13.—For the erection of a gentleman's residence at Queenstown. Messrs. W. H. Hill & Son, architects, 23 South Mall, Cork.

LAMBETH.—May 7.—For repainting, redecorating and executing general repairs to the Tate Public Library, South Lambeth Road. Mr. Henry Edwards, C.E., borough engineer, Lambeth Town Hall, Kennington Green.

LEEDS.—For additions to Providence U.M.F.C. chapel, Horsforth, and alterations to Lister Hill Mission, Horsforth. Mr. F. Musto, architect, Greek Street Chambers, Leeds.

LEEDS.—For the erection of two houses and shops and two scullery-houses, Burton Road. Mr. Edwin Hill, architect, 13 Oxford Row, Leeds.

LEEDS.—For the erection of a Primitive Methodist chapel and school, Armley, Leeds. Messrs. Howdill & Howdill, architects, 7 Oxford Row, Leeds.

LEEDS.—For the erection of four shops and dwelling-houses at corner of North Street and Lady Lane, Leeds. Messrs. Richard Horsfall & Son, architects, 22A Commercial Street, Halifax.

LEEDS.—May 11.—For rebuilding the Jubilee hotel and adjoining office premises, Victoria Square, Leeds. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

LEEDS.—May 16.—For extensions to the nurses' homes and the erection of new stables, &c., at the workhouse, Beckett Street. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

LEICESTER.—For the erection of stabling and six cottages, Nedham Street. Mr. J. Wigg, architect, 5 St. Martin's East, Leicester.

LONDON.—For pulling-down and re-erecting a new building between Oxford Street and Manchester Square. Messrs. Arthur Newton & Co., 23 Great Marlborough Street, Regent Street, W.

LONDON, N.—May 12.—For the erection of (a) conveniences, &c., at Highbury Fields, N.; (b) bothy, potting-shed, &c., at Meath Gardens, N.E., for the London County Council. Particulars at the General Section, Architect's Department, 18 Pall Mall East, S.W.

LONDON, N.—May 26.—For the erection of fourteen rows of cottage dwellings for the working classes on the White Hart Lane Estate, Wood Green. Particulars at the Housing Section of the Architect's Department, 19 Charing Cross Road, W.C.

LUTON.—May 4.—For the renovation of Union chapel, Castle Street. Messrs. J. R. Brown & Son, architects, Luton.

MANCHESTER.—May 4.—For the construction of a staircase &c., at Rusholme public hall. Particulars may be obtained at the office of the City Architect, Town Hall.

NEWCASTLE-UPON-TYNE.—May 18.—For the erection of blocks of dwellings for the labouring classes in Walker Road and Albion Row, Newcastle-upon-Tyne. Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley Street, Newcastle-upon-Tyne.

NEWTON-LE-WILLOWS.—May 9.—For extending the existing engine-house and for the construction of a cooling pond at the pumping station, Newton-le-Willows. Mr. C. Cole, clerk, Town Hall, Earlestown.

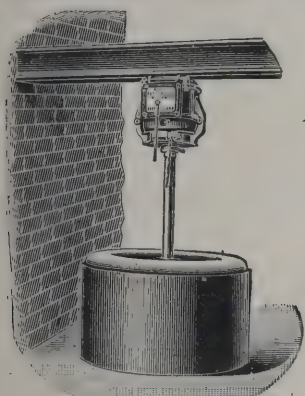
NORTH SHIELDS.—May 5.—For the erection of a female hospital pavilion at the workhouse. Mr. Henry Gibson, architect, Wellington Chambers, North Shields.

ORMSKIRK.—May 7.—For the erection of a boiler-house and additional hospital wards at the workhouse in Ormskirk, Lancs. Mr. James Dod, architect, D16 Exchange Buildings, Liverpool.

PORTSMOUTH.—May 5.—For the erection of a technical institute and free library in Park Road. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea.

PRESTON (LANCS).—May 4.—For the construction of a new skew masonry and brick bridge, 24 feet between parapets and

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PRESTWICH—For the erection of a church, Whittaker Lane, Prestwich, Lancs. Mr. Frank P. Oakley, architect, Haworth Buildings, Cross Street, Manchester.

ROTHERHAM—May 4—For the erection of a brick boundary walling, with entrance gates, to enclose land belonging to the Corporation at the corner of Rawmarsh Road and Drummond Street. Mr. J. Platts, architect, High Street, Rotherham.

ROYTON—May 18—For the erection of a police station and court-room at Royton, Lancs. Mr. Henry Littler, architect, County Offices, Preston.

SCOTLAND—May 4—For the rebuilding of Blairadam tavern, Kelty. Mr. T. Hyslop Ure, architect, 43 Carnegie Street, Dunfermline.

SCOTLAND—May 4—For the erection of houses in King Edward Street, Fraserburgh. Mr. William Reid, architect, Saltoun Square, Fraserburgh.

SCOTLAND—May 5—For additions to Marischal College buildings, University of Aberdeen. Mr. A. Marshall Mackenzie, architect, 343 Union Street, Aberdeen.

SCOTLAND—May 5—For the erection of a cottage for the farm grieve at the branch asylum, Daviot, Pitcaple, Aberdeen. Mr. George Taylor, clerk of works, Royal Asylum, Aberdeen.

SCOTLAND—May 5—For the completion of the excavator and mason's work of the tenements and saloons now in course of erection on the east side of High Street and north side of Duke Street, Glasgow. Messrs. Frank Burnet, Boston & Carruthers, architects, 180 Hope Street, Glasgow.

SCOTLAND—May 5—For the execution of the artificer work of workshops, stores, offices and enclosure walls to be erected by them at their generating station, Port Dundas, for the Glasgow Corporation. Mr. W. A. Chamen, electrical engineer, 75 Waterloo Street, Glasgow.

SCOTLAND—May 5—For the erection of offices, pump-house and accumulator tower at Regent Bridge, Aberdeen Harbour. Mr. R. Gordon Nicol, harbour engineer, Aberdeen.

SCOTLAND—May 9—For the erection of an infectious diseases hospital, laying-out grounds and incidental work at

Melrose. Mr. George Monteath, architect, Post Office Buildings, Newton St. Boswells.

SCOTLAND—May 13—For the erection of (1) new steading at Upper Mains of Tillygarmond, Birse; (2) servants' room, &c., at Balfiddie, Birse; (3) servants' room at Dalsack, Birse; (4) alterations on offices at Milton of Auchinhove, Lumphanan. (b) Carpenters and slaters' work of repairs to offices at Tulloch, Lumphanan; (c) Carpenters and plasterers' work of repairs to dwelling-house at Easter Clune; (d) Carpenters' work of repair to offices at Knows. Mr. Geo. Cocker, Balnahard, Finzean, Aboyne.

SHEFFIELD—For the erection of a Board school at Hands-worth, near Sheffield. Messrs. W. F. Hemsoll & H. L. Pater-son, architects, 18 Norfolk Row, Sheffield.

SHEFFIELD—For the erection of four houses, Lound Side, Chapel-town. Mr. W. J. Taylor, architect, Bank Street, Sheffield.

SOUTHAMPTON—May 4—For erecting the superstructure of the new electricity supply station on the Western Shore. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

SOUTHAMPTON—May 7—For the erection of an office at Otterbourne waterworks, near Shawford, Hants. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

SOUTHSEA—May 6—For the erection of business pre-mises, Albert Road, Southsea. Mr. G. E. Smith, architect, 145 Victoria Road North, Southsea.

SOUTH SHIELDS—May 4—For the erection of the new Scotia public-house at the corner of King Street and Mile End Road, South Shields. Mr. Henry Grieves, architect, Albany Chambers, South Shields.

SUTTON—For the erection of a residence at Sutton, Yorks. Messrs. John Haggas & Sons, architects, 71 North Street, Keighley.

TOLLERTON—May 4—For the renovation of the Wesleyan chapel, Tollerton, Yorks. Mr. J. Francis Todd, architect, Easingwold.

TORQUAY—For the erection of an annexe at the Victoria and Albert hotel, Torquay. Messrs. E. Appleton & Son, archi-tects, 10 Abbey Road, Torquay.

TRURO—May 15—For the erection of three houses near the railway station at Truro. Mr. Sampson Hill, architect, Redruth.

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UPTON.—For the erection of two pairs of houses at Upton, near Birkenhead. Mr. E. W. Johnson, architect, Lord Street, Southport.

WAKEFIELD.—May 6.—For the erection of schools and teacher's house at South Kirkby, near Wakefield. Mr. Walker E. Richardson, architect, Rothwell, near Leeds.

WALES.—May 4.—For the erection of a new concert-room and other extensions at the Working Men's Club, High Street, Neath. Mr. J. Cook Rees, architect, Neath.

WALES.—May 5.—For the erection of a shop and dwelling-house at Abercynon. Mr. Edmund Jones, 17 Margaret Street, Abercynon.

WALES.—May 6.—For the erection of a minister's house for Calvary Baptist church, Brynmawr. Mr. T. Hope, Ashfield House, Brynmawr.

WALES.—May 6.—For the erection of one shop and two dwelling-houses at Abertridwr, near Caerphilly. Mr. Morgan Williams, 3 The Square, Abertridwr.

WALES.—May 6.—For the erection of a residence at Maindy Crescent, Ton-Pentre, Rhondda Valley. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WALES.—May 6.—For the erection of 100 houses on the Pentwyn Isha estate, Penrhiwceiber. Messrs. J. Llewellyn Smith & Davies, architects, Aberdare.

WALES.—May 7.—For erecting ten houses at Hengoed. Mr. P. Vivian Jones, architect, Hengoed.

WALES.—May 7.—For the erection of lavatories and other alterations at the Bethesda County school. Mr. D. Griffith Davies, clerk to the Governors, Bank Chambers, Bethesda.

WALES.—May 9.—For the erection of sixteen or more houses at Cwmbran. Mr. C. Telford Evans, architect, 8 Queen Street, Cardiff.

WALES.—May 11.—For the enlargement of Williamstown Board schools, Ystradfydwg. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—May 13.—For alterations and extensions to the Blast Furnace inn, Pontlloftyn. Mr. P. Vivian Jones, architect, Hengoed.

WATFORD.—May 6.—For the erection of sanitary annexes at Leavesden asylum, near Watford, Herts. Mr. T. Duncombe Mann, clerk to Metropolitan Asylums Board, Embankment, E.C.

WALSALL.—May 14.—For the erection of orphanage buildings at Aldridge, Walsall. Mr. Frederick W. Mager, architect.

WARMINSTER.—May 14.—For cleaning, painting, decorating and renovating the Wesleyan church, Warminster. Mr. Pope, 32 Market Place, Warminster.

WHEATLEY HILL.—May 7.—For erection of a Wesleyan chapel at Wheatley Hill, co. Durham. Rev. W. J. Pearce, Wesley Villas, Thornley.

WHITCHURCH.—For the erection of Wesleyan schools, &c., at Whitchurch, Hants. Rev. J. W. Harbord, The Cedars, Junction Road, Andover.

WINSFORD.—May 5.—For structural alterations to the Meadow Bank school. Mr. J. H. Cooke, clerk, Russell Street, Winsford.

WINWICK.—May 4.—For decorating the recreation hall at the Lancashire county asylum, Winwick, Warrington. Mr. Henry Ellis, clerk and steward.

WITHINGTON.—May 5.—For the erection of a master's house at the workhouse at Withington, Lancs. Mr. James B. Broadbent, 15 Cooper Street, Manchester.

YORK.—May 9.—For the erection of engine and boiler-houses, offices, &c., at the electricity generating station. Mr. A. Creer, city engineer, Guildhall, York.

CONSIDERABLE excitement has prevailed at Dover during the last few days in connection with a poll being taken upon the question of the purchase of the electricity undertaking by the Corporation. The result of the poll shows a majority of 772 in favour of the Corporation acquiring the undertaking.

THE new Wesleyan chapel and schools at Higham Ferrers were opened on Easter Monday. The premises consist of a chapel to seat 550 persons comfortably, and in emergency 600; a schoolroom or lecture-hall to seat 400, with five classrooms opening directly out of it. There are also two classrooms leading out of the chapel. The other rooms are chapel parlour, stewards' vestry, minister's vestry, choir vestry and infants' classroom, making twelve rooms available for classes if required. The style of architecture is sixteenth-century Gothic. The whole of the work has been successfully carried out by Mr. Robert Marriott, of Rushden, from the designs of Mr. Tom Dyer, of the firm of H. H. Dyer, Son & Winterburn, architects, of Northampton and Leeds. The entire outlay, including site, is 6,238*l*.

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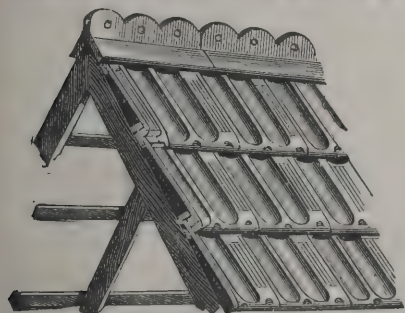
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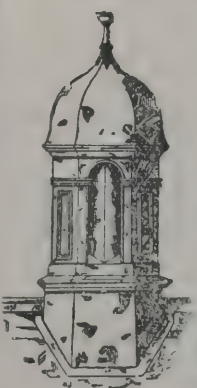
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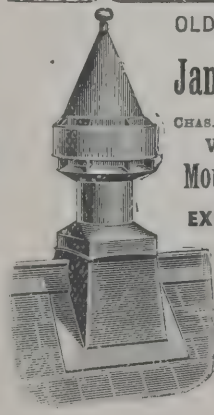
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TENDERS.**BARNSELEY.**

For the erection of house and shop at Four Lanes End, Mapplewell. Messrs. CRAWSHAW & WILKINSON, architects, 13 Regent Street, Barnsley.

Accepted tenders.

Turton & Field, Stairfoot, mason.
J. Smith, Western Street, joiner.
M. Fleming, Eastgate, slater.
B. S. Ledger, Staincross, plumber.
M. Fleming, Eastgate, plasterer.
Beaumont Bros, George Yard, painter.

BERGHAPTON.

For the erection of a small farmhouse at Berghapton, Norwich. Mr. ARTHUR J. CHAMBERS, architect, St. Giles's Plain, Norwich.

Haydon & Daniels	£590	0	0
Lincoln & Bush	548	0	0
Redgrave	516	0	0
Hipperson	510	0	0
Greengrass	493	0	0
Morris	490	0	0
Chaston & Grimson	482	0	0
Body & Son	465	0	0
Dowe	460	0	0
PLUMB, Norwich (accepted)	456	10	0

BEXHILL-ON-SEA.

For supply of electrical plant.

Accepted tenders.

British Westinghouse Electric and Manufacturing Company, 300-kw. steam dynamo (Belliss & Morcom engine and Westinghouse dynamo)	£2,839	0	0
Babcock & Wilcox, water-tube boiler and superheater	928	16	0
Flavell & Churchill, 10-ton overhead travelling crane	210	0	0

BEXLEY.

For sewerage works, &c, with manholes, &c. STREETERS & TODHUNTER, Godalming, Surrey (accepted).

BOURNEMOUTH.

For the enlargement of the head post office.

W. Hoare	£3,496	£183
C. A. D. George & Harding	3,433	122
Jenkins & Sons, Ltd.	3,363	176
J. McWilliam & Son	3,350	80

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BRIDLINGTON.

For the outside painting of the Council's property in Cliff Terrace and Garrison Street. Mr. E. R. MATTHEWS, borough surveyor.

J. M. Clarkson & Son	£21	0	0
G. Knaggs	21	0	0
E. Dunn & Sons	18	0	0
J. E. GARLAND, 8 Chapel Street (accepted)	15	10	0

CANTERBURY.

For supplying eight Doulton's white enamelled stoneware washtubs for the workhouse laundry.

G. Wiltshire	£43	0	0
H. W. BATEMAN, Canterbury (accepted)	30	19	6

CHELSEA.

For putting-in foundations for the new dwellings in Beaufort Street.

Mowlem & Co. (work to be done in 16 weeks)	£5,131	0	0
Fortescue & Sons (15 weeks)	4,897	0	0
Greenham (14 weeks)	4,750	0	0
Holloway Bros. (18 weeks)	4,710	0	0
Dubb Bros (18 weeks)	4,575	0	0
C. Wall & Co. (16 weeks)	4,459	0	0
Patman & Fotheringham (12 weeks)	4,273	0	0
Stimpson (14 weeks)	4,220	0	0
Cheesman & Sons (14 weeks)	4,120	0	0
FOSTER & DICKSEE (16 weeks) (accepted)	3,919	0	0

For erection of stables. Mr. T. WILSON, architect, 34 New Bridge Street, E.C.

Patman & Fotheringham	£3,650	0	0
Whitehead & Co.	3,615	0	0
C. Wall	3,590	0	0
Wall & Co.	3,439	0	0
Gould & Brand.	3,420	0	0
Nightingale	3,396	0	0
Chessum & Sons	3,320	0	0

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For Index of Advertisers, see page x.

DEWSBURY.

For the erection of two classrooms, outbuildings and fence walls at the Wesleyan school, Thornhill Lees. Messrs. JOHN KIRK & SONS, architects, Dewsbury.

Accepted tenders.

E. P. Sheard, Thornhill, mason.
Wilson Bros. Webster Hill, joiner.
J. Shepley, Northgate, plumber.
G. Hargraves, slater.
A. & F. Hodgson, Willans Road, plasterer.

DURHAM.

For street and sewerage works at Horden Colliery, near Castle Eden. Mr. E. W. LYALL, engineer, 29 Northgate, Darlington.

J. Carrick	£2,400	0	0
T. Brown	2,120	1	5
J. Burn	2,072	11	1
McLaren & Co.	2,069	17	9
Tough Bros.	1,850	0	0
A. E. Hobbs	1,706	19	11
J. FOWLER, Station Road, Darlington (accepted)	1,667	4	8

ECCLESALL.

For the erection of a bakery in Abbeydale Road, Ecclesall, Sheffield. Mr. H. L. PATERSON, architect, Cairns Chambers, 19 St. James's Street, Sheffield.

H. TURTON, Meersbrook, Sheffield (accepted) . £827 0 0

ERITH.

For street works in Horsa Road and Hengist Road, Northumberland Heath, and Victoria Street, Victoria Cottages, Alfred Road, William Street, Seabrooks Cottages and Staply Road, Belvedere, Kent. Mr. A. H. JENNINGS, surveyor for private street works.

Northumberland Heath.

T. FREE & SONS, Maidenhead (accepted)	£2,896	11	5
G. G. Page, 19 Lyndon Road, Belvedere (with- drawn)	2,614	3	4

Belvedere.

S. J. BRICE & SONS (accepted)	1,930	6	4
G. G. Page (withdrawn)	1,741	6	2
Surveyor's estimate, £1,948	9s.	6d.	

FINCHLEY.

For the erection of a higher elementary school and offices. School.

G. Batty & Son	£18,714	0	0
J. Bird & Sons	18,631	0	0
Coles & Sons	18,520	0	0
Patman & Fotheringham	18,282	0	0
Lawrence & Sons	18,097	0	0
Kilby & Gayford	17,827	0	0
Tout	17,346	0	0
Gough & Co.	17,134	0	0
Treasure & Sons	17,057	0	0
Jarvis & Sons	16,784	0	0
F. & E. DAVEY, Southend (accepted)	15,495	0	0

Cottage.

G. Batty & Son	1,438	0	0
Coles & Sons	1,300	0	0
Patman & Fotheringham	1,278	0	0
Lawrence & Sons	1,230	0	0
Kilby & Gayford	1,197	0	0
Jarvis & Sons	1,184	0	0
Gough & Co.	1,100	0	0
Treasure & Sons	1,038	0	0
F. & E. DAVEY (accepted)	980	0	0
Tout	930	0	0

For the supply and erection of the following plant :—(Section 7) steam, exhaust, feed and drain piping, auxiliary plant, chequered plating, tools and sundries; (8) main switch-board—two booster sets, testing instruments and apparatus.

Section 7.—Steam-piping, &c.

Geipel & Lange	£5,000	0	0
Wheeler Condenser Co, Ltd.	3,863	0	0
Crompton & Co.	3,794	0	0
E. Le Bas & Co	3,557	16	11
Sir Hiram Maxim, Ltd.	3,544	0	0
BABCOCK & WILCOX (accepted)	3,450	0	0
Aiton & Co.	3,417	0	0
J. Spencer, Ltd.	3,333	5	0

Alternative tenders.

Geipel & Lange	5,000	0	0
E. Le Bas & Co.	3,507	16	11
Sir Hiram Maxim, Ltd.	3,430	0	0
Babcock & Wilcox	3,400	0	0
J. Spencer, Ltd.	3,383	5	0
Aiton & Co.	3,357	0	0

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Siemens Bros. & Co.	2,280	0	0
General Electric Co., Ltd.	2,223	15	0
T. Parker, Ltd.	2,182	0	0
Mavor & Coulson	1,866	0	0
Sunderland Forge Co.	2,158	0	0
Crompton & Co.	2,135	0	0
Veritys, Ltd.	2,083	0	0
J. G. Statter & Co.	2,068	5	0
KELVIN & J. WHITE, LTD. (accepted)	2,046	5	0
Electric Construction Co., Ltd.	1,953	0	0
B. Thomas	1,950	0	0
Cowans, Ltd.	1,949	0	0
Consolidated Telegraph Construction Co.	1,893	0	0
British Westinghouse Co., Ltd.	1,316	0	0

HALIFAX.

For erection of a house at Hand Carr, Luddenden Foot. Mr. T. H. TYSON, architect, Fountain Street, Halifax.
T. Wild, Luddenden Foot, mason.
J. Kershaw & Sons, Mytholmroyd, joiner.
J. Robinson, Luddenden Foot, plasterer.
J. Brown, Luddenden Foot, plumber.
Total, £514 14s. 7d.

HASTINGS.

For the laying of water mains and the supply and fixing of hydrants and fire valves, &c., at the new workhouse, Ore, Hastings. Messrs. JEFFERY & SON, architects, 5 Havelock Road, Hastings.

Long	£393	19	10
Upfield & Son	302	13	0
Merryweather	292	14	9
Blakeborough	291	11	0
Glyde	238	14	3
SHAND & MASON, London (accepted)	230	4	6
Small	229	3	3

HORSHAM.

For carrying-out drainage scheme at Billinghamurst. STREETERS & TODHUNTER (accepted) . £4,395 0 0

HUNTINGDON.

For the erection of a post office at Huntingdon.

G. Riches	£3,175	0	0	A.
J. Parren & Son	2,707	9	0	—
J. Guttridge	2,697	0	0	£50 0 0
Siddons & Freeman	2,417	0	0	47 0 0
F. Geddings	2,387	0	0	40 0 0
G. Wrycroft & Sons	2,225	0	0	54 0 0
Redding & Son	2,210	0	0	96 0 0
F. R. Thackray & Co., Ltd.	2,137	10	0	140 5 0
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E. W. Beech	2,040	0	0	20 0 0
G. Page & Son	2,012	9	0	74 11 0
M. J. Allen & Sons	1,894	16	0	65 0 0

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IRELAND.

For erecting grand stand at athletic grounds, Cork. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.
D. DUGGAN, Phoenix Street (accepted) . £550 0 0

For enlarging Flanagan's hotel, Cork. Messrs. W. H. HILL & SON, architects, 28 South Mall, Cork.
D. DUGGAN, Phoenix Street (accepted) . £880 0 0

For the erection of a sessions house at Larne
J. Ferris . £1,465 0 0
D. MCILGORM, Larne, co. Antrim (accepted) . 1,445 0 0

KENSINGTON.

For the erection of a chapel of rest for the dead at Avondale Park and the entrance gates and piers in connection therewith.

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KENSINGTON—continued.

Gates.

London & County Builders, Ltd.	£103	0	0
T. Cruwys	90	0	0
W. Nash	90	0	0
W. S. Beaton	88	15	0
J. Shelbourne & Co.	86	0	0
C. R. Price	78	0	0
C. Dearing & Son	77	0	0
Foster Bros.*	75	0	0
Spiers & Son	73	0	0
F. Bryan	73	0	0

Borough engineer's estimate, £1,080. * Recommended for acceptance.

LAMBETH.

For the construction of an overground convenience for ladies and children at Vauxhall Park, South Lambeth Road. Mr. HENRY EDWARDS, borough engineer.

Doulton & Co.	£854	0	0
Foster Bros.	825	0	0
Spiers & Son	797	0	0
T. Laphorne & Co.	738	0	0
B. FINCH & Co., 82 Belvedere Road, Lambeth, S.E. (accepted).	728	0	0

LEEDS.

For the erection of three wooden shelters on Woodhouse Ridge.

SMITH & BLAND, Kirkgate (accepted)	£195	0	0
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For cleaning-down, painting, &c., the interior and exterior of the Meanwood Road baths.

J. GAUNT, New Wortley, Leeds (accepted)	£75	0	0
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For cleaning-down, painting, &c., the interior and exterior of the Seacroft and Becket Street hospitals.

Seacroft Street.

L. COOK & Co., Gathorne Terrace, Seacroft hospital (accepted)	£50	9	8
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Becket Street.

L. COOK & Co., Gathorne Terrace, Becket Street hospital (accepted)	£104	7	0
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LITTLEHAMPTON.

For the erection of a Coronation drinking fountain on the Common. Mr. H. HOWARD, architect and surveyor. E. G. HOLLAND, Littlehampton (accepted). £205 0 0

LONDON.

For repainting, &c, the workhouse premises, Poland Street, Oxford Street, W. Mr. WILLIAM LOCKWOOD, surveyor, 36 Gerrard Street, Shaftesbury Avenue, W.

W. Coleman	£1,030	11	0
W. R. Atley	1,000	4	11
Vigor & Son	738	10	0
C. Dearing	573	10	0
Johnson & Manners.	549	0	0
M. Pearson	542	0	0
Warburton & Son	498	19	5
P. McCarthy	490	4	0
Wollaston Bros.	470	4	0
A. Inns	430	0	0
Proctor & Sons	394	13	6
SMITH & FRENCH (accepted)	372	0	5

For additions to works, for the Oxychlorides, Ltd, Kilmore Road, Forest Hill, S.E. Mr. JOHN JAS. DOWNES, architect, 199 Lewisham High Road, London, S.E.

Hall Bros.	£915	0	0
W. O. Collingwood	903	0	0
S. R. Best	885	0	0

For supply of about 2,000 tons of the best blue Guernsey granite spalls, free from outcrop, at Notting Hill.

A. & F. MANUELLE, 57 Gracechurch Street, E.C., 9s. 9d. per ton (accepted).

MACCLESFIELD.

For painting the outside wood and ironwork at the cemetery lodges, mortuary chapels, &c.

A. E. WILLIAMS, Macclesfield (accepted).

MANCHESTER.

For erection of a goods shed at Trafford Park for the Lancashire and Yorkshire Railway Co.

E. TAYLOR & CO, LTD, Ebor Street, Littleborough, near Manchester (accepted).

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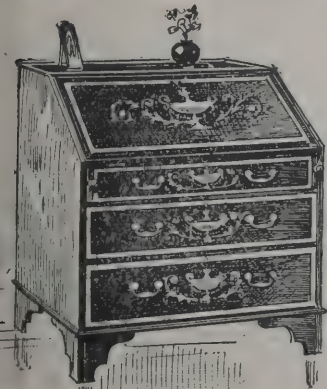
QUARRIES.

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COMBE DOWN.
STOKE GROUND.
WESTWOOD GROUND.
PORTLAND.

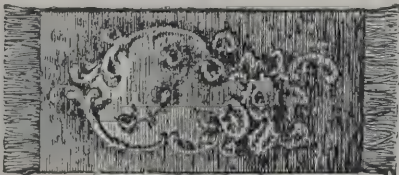


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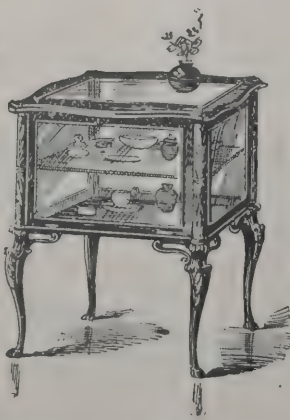
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Handsome Designs and Colouring.
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33 in. by 15 in. 3s. 9d.



Gilt Carriage Clock.
In case, 11s. 9d. each.



Handsome Carved Chippendale "Aquarium" Curio Case, with plate glass top, sides, and shelf, £3 7s. 6d.

MATLOCK.

For the erection of four 20-feet purifiers, connections, steel roof and lift for oxide, for the Matlock and District Gas Company, Ltd.

CLAPHAM BROS., LTD., Keighley (*accepted*).

NORTH BERWICK.

For supply of about 1,400 yards of 12-inch cast-iron spigot and faucet main pipes, &c.

MACFARLANE, STRANG & CO., LTD., Lochburn

Ironworks, Glasgow (*accepted*) £763 11 7

OUNDLÉ.

For the erection of the administrative block of an isolation hospital, fencing, drainage, &c.

W. Howard £2,090 19 0

J. Parnell & Son 2,037 16 1

J. Bridgefoot & Son 1,870 0 0

J. Lucas 1,850 0 0

G. Henson 1,8c8 0 0

C. Pettit 1,724 0 0

SIDDONS & FREEMAN, Oundle (*accepted*) 1,710 0 0

RASTRICK.

For street works at Lillands, Rastrick, Brighouse. Messrs. G. & G. H. CROWTHER, engineers, 38 New Street, Huddersfield.

J. BALMFORTH, Woodview, Elland, Yorkshire (*accepted*).

RIDGE.

For rebuilding The Old Guinea. Mr. PERCIVAL C. BLOW, architect, 7 London Road, St. Albans.

W. Sharp £1,907 0 0

Miskin & Son 970 0 0

J. Bushell 938 0 0

BOFF BROS., Park Street (*amended and accepted*) 905 0 0

ROCHDALE.

For street works in Philip Street, between Milkstone Road and Deepish Road, Rochdale.

J. MOORE, 23 Entwisle Road (*accepted*).

ST. AUSTELL.

For the erection of two dwelling-houses, St. Austell, Cornwall. Mr. J. MUTTON, architect, Charlestown.

Mason

R. Clemes £302 10 0

R. Richards 268 10 0

LOCKETT BROS., Bethell, St. Austell (*accepted*) 225 0 0

Carpenter.

A. Bennett 178 0 0

J. Northcoote 150 0 0

A. Mably 134 5 0

J. HARRIS, Mount Charles, St. Austell (*accepted*) 129 0 0

SCOTLAND.

For the erection of parish cottages, Carr Bridge.

Accepted tenders.

D. Grant, Carr Bridge, N.B., joiner £80 0 0

Ferguson & Cooper, Newtonmore, N.B., mason 75 0 0

J. Hay, slater 29 14 6

J. Hay, Grantown-on-Spey, plasterer 21 0 0

J. Hay, plumber 4 0 0

UTTOXETER.

For the erection of new vagrant wards, attendants' rooms, waiting-rooms, &c, at the union workhouse, Uttoxeter, and alterations to porters' room.

G. HODGES, Burton-on-Trent (*accepted*) £1,210 0 0

WALES.

For sewerage works, Maesteg. Mr. JOSEPH HUMPHREYS, engineer and surveyor.

McKee & McNelly £30,494 0 0

J. E. Evans 29,623 0 0

J. O. Brien 29,237 0 0

M. Thompson 28,170 0 0

A. Braithwaite & Co. 28,147 0 0

A. G. Collins 25,380 0 0

R. C. Brebner & Co. 25,027 0 0

Barnes & Chaplin 24,929 0 0

J. Riley 24,390 0 0

G. Rutter 22,973 0 0

E. H. Page 21,657 0 0

H. HILL, Reading (*accepted*) 19,023 0 0

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THIRKLEBY CHURCH, YORKS.

WALES—continued.

For the erection of twenty-five dwelling-houses at Llanbradach. Mr. GEORGE KENSHOLE, architect, Station Road, Bargoed.

Davies & Francis	£5,625	0	0
J. Lewis	5,505	0	0
J. Lloyd	5,250	0	0
J. Howells	5,225	0	0
W. Jones	5,025	0	0
T. F. Howells	4,675	0	0
THOMAS & HUGHES, Llanbradach (accepted) .	4,668	15	0
H. Shapcott	4,425	0	0

For the erection of schoolroom and classrooms at the rear of Wesley chapel, James Street, Ebbw Vale. Mr. R. L. ROBERTS, architect, Abercarn.

T. S. Foster	£1,185	0	0
J. Morgan	1,012	0	0
D. W. Richards	995	0	0
Smith Bros.	970	0	0
J. Newcombe	950	9	0
S. T. Davies	912	0	0
WILLIAMS & ROGERS, Cwm, Mon (accepted) .	885	0	0
Gaen Bros.	877	9	0
W. Marsh & Sons	875	0	0

For completing eight houses at Victoria Terrace, Ebeñezer, Carnarvon. Mr. HENRY THOMAS, architect, Castle Ditch, Carnarvon.

H. D. Jones	£846	0	0
Roberts & Williams	810	0	0
JONES BROS, Pontnewydd, near Carnarvon (accepted)	578	0	0

WALES—continued.

For additions to Llechwen, parish of Llanfabon. Mr. A. O. EVANS, architect, Pontypridd.

Morris & Thomas	£1,850	0	0
J. Howells	1,769	10	10
E. Turner & Sons	1,758	0	0
KNOX & WELLS, Cardiff (accepted)	1,585	0	0

For the erection of a Congregational church at Pontypool. Messrs. SWASH & BAIN, architects, Midland Bank Chambers, Newport, Mon.

LEADBETER BROS, Crindau Joinery Works, Albany Street, Newport (accepted)	£4,197	0	0
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WIRRAL.

For the construction of the Fender Valley outfall sewer. Messrs. BELOE & PRIEST, engineers, 13 Harrington Street, Liverpool.

J. Lee & Son	£53,600	0	0
J. Byron	51,107	0	0
J. & T. Binns	41,813	11	0
Bennie & Thompson	40,682	19	6
S. Johnson & Sons	35,873	0	0
A. Graham & Sons	35,231	0	0
Johnson & Langley	34,951	12	5
Bower Bros	34,698	0	0
G. Read & Sons	34,000	0	0
A. Kellett & Sons, Ltd.	32,817	0	0
H. S. Buckley	32,182	16	9
W. Roberts	29,690	0	0
G. Bell	28,388	11	4
J. THOMAS & SON, Oxtou (accepted)	28,000	0	0
J. Ainscouth & Son, Gladwick, Oldham (with-drawn)	26,547	15	7

OUR attention has been drawn to a little discrepancy which appeared last week in our account of the opening of the new Baltic and Shipping Exchange, which we spoke of as having been built on the site of the old Baltic. The old Baltic, however, was of course situated in Threadneedle Street, some little distance from the site of the new building.

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"MARMORITE."

A NEW decorative material of wide potentiality is being introduced to the English building world by the "Marmorite Artistique" Syndicate, of 30 Great St. Helens, who on Wednesday gave an exhibition of specimens at the Trocadéro Restaurant. "Marmorite" is a by-product of glass with an admixture of iron (the latter having a toughening effect), and, as its name implies, it bears a strong resemblance to marble, from which indeed, *in situ*, it would be indistinguishable. It can be made in any colour and practically to any size, takes a high polish, and is susceptible of ornamentation either incised or applied in any style. Admirable effects are produced by figure or other painting; and for outside application the colours can be burnt in and the decoration thus rendered indestructible. Among the examples shown were a fascia and piers, each in one piece, for a shop front, and decorated panels in a variety of styles, amongst them being a large number adapted to the purposes of advertisement, a use to which the material lends itself in a marked manner. "Marmorite" is eminently artistic in appearance, and possesses the additional advantage of being comparatively inexpensive, its cost, which however, of course, varies with the amount of applied ornament, being about 100 francs per square metre.

TRADE NOTES.

ARROLITHIC paving has been selected for the new surgery at His Majesty's dockyard, Devonport.

THE steelwork of the Falkirk Theatre, near Glasgow, will be almost entirely composed of Differdange beams supplied by Messrs. H. J. Skelton & Co, 71 Finsbury Pavement, E.C. It is believed that a great saving in space, certainly in cost, will be effected by this means.

WE are informed by Messrs. G. M. Restall & Sons, of Birmingham, that they have appointed Messrs. E. R. Burt & Sons, of the Lime Works, Camberwell, S.E., to be their sole agents in London for their fireproof Adamantine plaster and metallic Albion cement.

A LARGE clock, with Cambridge chimes, has been erected in the parish church of Ottershaw, near Chertsey, as a memorial to the late vicar. Messrs. John Smith & Sons, Midland Clock Works, Derby, carried out the work to the general designs of Lord Grimthorpe. The same firm are making a large clock for Accra Church, West Coast of Africa.

MESSRS. BENHAM & SONS, LTD, of 66 Wigmore Street, ask us to mention that all the kitchen fittings at the new Baltic Exchange have been supplied by them. Everything has been done in the most up-to-date style, and the fittings include a large central hot-plate for coal, steam-boiling pans and vegetable steamers, a coke grill, various hot plates and other fittings, extensive steam-carving tables for the serving-room, and various other fittings for still-room, sculleries, &c.

THE Yost Typewriter Company, Ltd., have recently taken in hand the task of providing the great ocean liners with capable shorthand writers and typists, whose labour-saving abilities are, for a reasonable fee, placed at the disposal of the saloon passengers. First the *Campania* was fitted in this way, then other vessels, and now the North-German Lloyd Company's fine new steamer, the *Kaiser Wilhelm II*, has been fitted with an expert shorthand linguist, with the most modern form of the Yost typewriter. The experiment will be watched with keen interest by all concerned.

BUILDING AND BUILDERS.

IT has been decided by the Margate Vestry to apply for a faculty for the enlargement of Holy Trinity Church and the provision of a peal of bells.

THE Macclesfield Town Council have called in Mr. R. E. W. Berrington, M.I.C.E., of Westminster and Wolverhampton, to advise in connection with the sewage disposal of the borough. Mr. Berrington has also been instructed to report as to the sewerage and sewage disposal of Littlehampton.

VARIETIES.

ON the 25th ult. the Bishop of Southwell dedicated the hamlet church at Cressbrook, in the parish of Tideswell. The new church is of the Early English style of architecture.

MR. WILLIAM E. FARRER, engineer and sanitary specialist, informs us that he has removed his offices and showroom from 36 Cannon Street, Birmingham, to Star Works, Cambridge Street, Birmingham.

THE new buildings for the Lichfield Grammar School, in the erection of which the present Dean of Lichfield and Mr.

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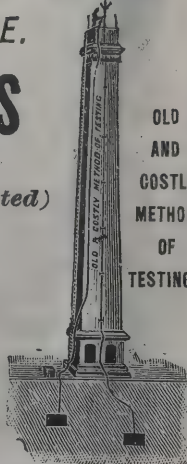
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For Index of Advertisers, see page x.

R. P. Cooper, of Shenstone Court, have been actively interested, and which cost between 9,000*l.* and 10,000*l.*, were opened on Tuesday.

THE annual meeting of the Liverpool Engineering Society was held on Wednesday evening at the Royal Institution, Colquitt Street, Liverpool. Mr. E. S. Wilson, the retiring president, occupied the chair. In presenting the report of the twenty-ninth session the committee had pleasure in announcing an increase of membership, forty-three having been added, as compared with thirty-eight in the previous session. This brings the total membership of the Society to 514, including 406 ordinary members. The accounts showed the Society to be in a flourishing condition, there being a substantial balance in hand. The report was adopted.

THE death occurred on the 21st ult. under painful circumstances of Sir Thomas Thornton, LL.D., town clerk of Dundee. Sir Thomas was seized suddenly with illness while in the High Street the previous afternoon, and losing consciousness, never recovered. He had had great influence in the affairs of the city for the past forty years, and was one of the best-known men in Scotland. Born in 1829, he was admitted a solicitor in 1851 and was knighted in 1894. He was a lawyer of eminence, and was as well known at Westminster as in Scotland.

MR. H. C. LONGSDON, managing director of Messrs. W. Summerscales & Sons, Ltd., the well-known laundry engineers, of Keighley, has just been the recipient of a handsome silver dessert service in recognition of his valuable services as Mayor for the past three years of Keighley, Yorks. It bears an inscription as follows:—"This service of silver plate was presented to Mr. Henry Crofts Longsdon, J.P., and his wife, Annie Longsdon, mayor and mayoress of Keighley in the three eventful years 1899-1902, by some of their many friends, in grateful recognition of the energy and hospitality by which their term of office was made memorable."

WE have received a copy of the thirty-third annual issue of the City of London Directory (W. H. & L. Collingridge), which as usual presents a mass of useful information. The section relating to the public buildings of the City contains details as to the history and structure of the bridges and the better known of the City churches, and a brief account of some of the halls of the Livery Companies. The street improvements of the year are indicated in the large coloured map. There have been many alterations in the streets of the City during the last twelve months. Among the principal additions

may be mentioned the opening of Broad Street Place, the erection of the New Baltic in St. Mary Axe, the new Birkbeck premises in Holborn, important buildings in Old Jewry, King William Street and Threadneedle Street, and the further extension of Lloyd's Avenue. In addition may be noted the demolition of Newgate Prison and Christ's Hospital, and the extension of the City boundary in the Ward of Farringdon Without.

THE executive of the British Fire Prevention Committee announce its arrangements for the impending session, which will comprise some fixtures of more than ordinary importance. The International Fire Exhibition at Earl's Court, which has been organised under the auspices of the British Fire Prevention Committee, will be opened by H.R.H. the Duke of Cambridge, K.G., on May 6 noon. The committee's testing operations will recommence at their private testing station on June 1, and will this year comprise several tests with floors and partitions. The International Fire Prevention Congress, convened by the committee, will be opened by the Right Hon. the Lord Mayor on July 7. The associations of the chief officers of professional fire brigades hold their annual meeting in London at the invitation of the British Fire Prevention Committee on July 9. The National Fire Brigades Union will arrange its annual competitions in connection with the International Fire Prevention Congress to commence on July 10. The International Fire Brigades Council will meet, at the invitation of the committee, on July 11.

AT the annual general meeting of the Institution of Civil Engineers, held on Tuesday evening, Mr. J. C. Hawkshaw, president, in the chair, the result of the ballot for the election of members of Council for the sessional year 1903-4 was declared as follows:—President, Sir William H. White, K.C.B., D.Sc., LL.D., F.R.S.; vice-presidents, Mr. Francis William Webb, Sir Guilford L. Molesworth, K.C.I.E., Sir Alexander R. Binnie and Dr. Alex. B. W. Kennedy, F.R.S. Other members of Council:—Mr. Cuthbert A. Brereton, Mr. John Brown, C.M.G. (Cape Town), Mr. R. Elliott Cooper, Lieut.-Col. R. E. B. Crompton, C.B., Mr. W. J. Cudworth (York), Mr. C. W. Darley, Mr. G. F. Deacon, Dr. Francis Elgar, F.R.S., Mr. W. R. Galbraith, Mr. G. H. Hill, Mr. J. C. Inglis, Mr. G. R. Jebb (Birmingham), Mr. T. C. Keefer, C.M.G. (Ottawa, Canada), Mr. J. A. McDonald (Derby), Mr. W. Matthews, C.M.G., the Hon. C. A. Parsons, F.R.S. (Wylam-on-Tyne), Mr. A. Ross, Mr. W. Shelford, C.M.G., Mr. Alexander Siemens, Mr. H. C. Stanley (Brisbane, Queensland), Mr. John Strain (Glasgow),

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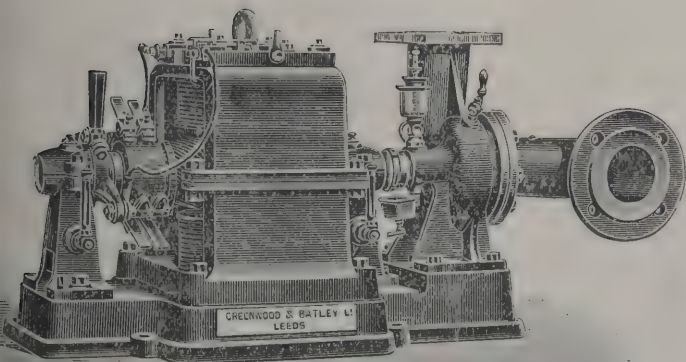
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No Vibration.
No Special Foundations Required.
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SEND FOR CATALOGUES.

Sir John I. Thornycroft, LL.D., F.R.S., Prof. W. C. Unwin, B.Sc., Mr. F. R. Upcott, C.S.I., Sir Leader Williams (Manchester) and Mr. A. F. Yarrow.

ROYAL SCHOOL OF ART NEEDLEWORK.

ON Wednesday afternoon their Royal Highnesses the Prince and Princess of Wales visited Kensington for the purpose of opening the new premises of the Royal School of Art Needlework, which have been erected on a corner site having a frontage to the Exhibition Road and another to the Imperial Institute Road. The opening ceremony took place in the large hall on the first floor, where there was a large gathering of notabilities, among those present being the Duchess of Somerset, the Marchioness of Winchester, the Countess of Derby, the Countess of Ancaster, Sir Henry Fowler, M.P., Sir Philip Magnus, Sir Henry Roscoe, the Hon. W. F. Danvers Smith, M.P., Sir Edward Poynter, Professor Herkomer, Mr. Val Prinsep, Mrs. George Alexander, Mrs. Edward Stern, the Hon. Alexander Yorke, and Captain Burmester, the secretary. The new building is erected from designs by Mr. F. R. Wade in late Renaissance style. From the entrance hall, which is pillared and vaulted in graceful style, a marble staircase leads up to the principal showroom on the first floor. This extends the whole length of the building, and has a south aspect, and above this is the principal workroom. Both rooms are lighted by large and numerous windows. The remainder of the building includes a number of convenient showrooms and classrooms and other necessary offices.

DECAY OF METALS.

AT the meeting of the session of the Institution of Civil Engineers held on Tuesday, April 21, Mr. J. C. Hawkshaw, M.A., president, in the chair, the paper read was "The Decay of Metals," by J. T. Milton and W. J. Larke.

The durability of metals under the conditions in which they were actually used was of great importance, and must always receive as careful consideration from engineers as questions of strength or cheapness. Copper, brass, gun-metal and other alloys were chosen for use on account of their durability, but even these metals were sometimes found to corrode or decay under seemingly obscure conditions. It was to cases of such decay and to a discussion on their probable causes that the paper was devoted.

- The following examples of the decay were adduced:—
1. The pitting of the tubes of marine surface condensers.
 2. The decay of brass or yellow-metal bolts in composite vessels, and in the under-water fittings of iron and steel ships.
 3. The decay of the brazing metal in copper steam-pipes.
 4. The deterioration, as distinguished from oxidation, of cast-iron used for parts of marine engines, and also for other appliances which were in frequent or continuous contact with sea-water.
 5. The decay of some propellers made of the patent bronzes when fitted to copper-bottomed vessels.

In the case of condenser tubes it was apparent that some of the metal became eaten away into holes, while in the other cases mentioned the metal appeared to retain its original form. The authors termed the former action "corrosion," and the latter "decay."

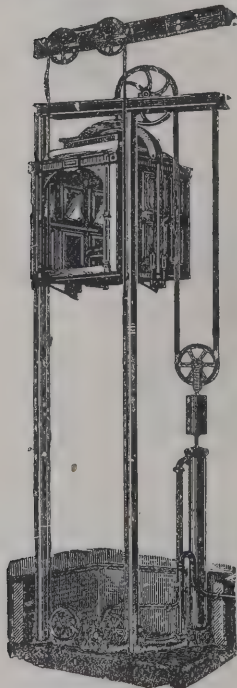
Chemical analysis of the decayed portions showed that a change had occurred in the composition of the metal, but did not explain why its strength and properties were so completely modified. It showed that in copper-zinc alloys the process had been mainly one of dezincification, or loss of zinc, while in cast-iron, part of the iron, and possibly also of the manganese, had disappeared, the whole of the graphitic carbon remaining.

Although the decay of copper-zinc alloys had been known for many years, the first published research into its cause appears to have been made by Professor Arnold, who in 1898 investigated the case of the failure of a marine boiler steam-pipe. He pointed out that the brazing-metal of the pipe, when microscopically examined, was seen to possess a duplex structure, similar to that of Muntz metal, both constituents being definite chemical compounds of copper and zinc, but one richer in copper than the other; and he attributed the decay to local galvanic action set up between these constituents, whereby in the first stage the one less rich in copper becomes dezincified, and subsequently that richer in copper also lost its zinc, the whole then becoming a spongy mass of copper.

Microscopic study showed that the Muntz metal tube-plates, rods, &c., illustrated in the paper had been subject to similar decay to that pointed out by Professor Arnold, and also that in the decay of cast-iron the complexity of structure doubtless led to the same result, the decay in this case advancing along the lines of the graphite plates and leaving the phosphide eutectic portions till the last.

This explanation of local galvanic action, however, did not account for the corrosion and decay of condenser-tubes which

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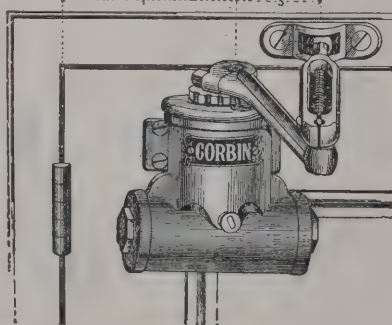
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made of an alloy not having a duplex structure; nor did explain why cast-iron in some cases did not decay, even though its composition and structure were the same as in other cases where decay took place.

Condenser-tubes were usually made of an alloy consisting nominally, 70 per cent. copper and 30 per cent. zinc. The Admiralty specification was, not less than 70 per cent. copper and 1 per cent. tin, the remainder being of zinc; while one of the large mail steamship companies, as the result of considerable experience, had the tubes made of 78 per cent. copper, 21 per cent. zinc and 1 per cent. tin.

These were nominal compositions, for commercial copper and zinc were rarely pure. If the impurities became uniformly distributed through the mass of the alloy it would still be homogeneous, but if they had a tendency to segregate, as it was well known some elements did in steel, there would still be such a lack of uniformity as might set up local galvanic action and lead to local pitting or corrosion. Segregation was not only possible during the solidification of the alloy in the original casting, but might also occur while the metal was at a high temperature during the operation of annealing, which was several times repeated in the course of the drawing process.

If segregation occurred during solidification only, the drawing process would cause the impure portions to be much elongated in the direction of the tube's length, and the resulting corrosion would be seamy, whereas if it occurred also to a marked degree during annealing, the corrosion would affect the rounded areas. Examination of the insides of condensers revealed cases of deep corrosion of both kinds; but in addition it was seen that the general surface of the inside of the tubes had become partially dezincified to an extent sufficient to cause it to crack when the tube is flattened.

In order to determine whether the various impurities which are commonly present in copper-zinc alloys do tend to segregate or diffuse during annealing, some experiments, detailed in appendix, were made. These experiments incidentally throw some light upon the changes of structure which Muntz metal, and also the 70-30 copper-zinc alloy underwent, due to changes of heat treatment.

It was pointed out that considerable protection was given to copper-zinc alloys, when exposed to the action of sea-water, by the practice, adopted by the Admiralty, of requiring the addition of at least 1 per cent. of tin to all such alloys.

The conclusions arrived at were:—

1. *Iron*.—Beyond the very small portion which doubtless

existed in a state of solid solution in the brass, iron occurred in combination with zinc as small isolated particles, which were neither diffusible nor liable to segregation. These particles were probably a zinc-iron alloy.

2. *Lead*.—A small portion of this metal would also exist in brass in a state of solid solution, but beyond the saturation point, lead did not diffuse into brass. A small proportion, however, in solid solution materially increased the liability to corrosion.

3. *Tin*.—This metal could exist in small proportions in solid solution in brass and in Muntz metal. In the latter it probably entered into both micro-constituents, but when present it certainly occurred in the one which was richest in zinc, as was shown by the protective effect it gave to this constituent against corrosion in sea-water. In larger quantities tin would also diffuse into brass, the extent of the diffusion depending upon the temperature to which it was raised.

4. *Zinc*.—Zinc alloyed with copper in all proportions, and if it was not uniformly distributed through the metal, it tended to become so by prolonged heating.

Some experiments, detailed in a second appendix, were also made to determine the galvanic action between copper, iron, brass, Muntz metal, &c., when in contact with sea-water; and other experiments showed that weak applied currents, when long continued, had a decided corrosive action upon copper and its alloys when immersed in sea-water, the amount of corrosion—with the same current—being greatest in those containing the highest proportion of copper.

With a current of 0.001 ampere acting on an immersed area of 40 square centimetres in the case of Muntz metal, the wasting produced was confined to the dezincification of the constituent poorest in copper; but the same current, acting upon 60 square centimetres of ordinary brass condenser-tubes, gave rise to a fairly uniform corrosion, both the copper and the zinc of the alloy being dissolved.

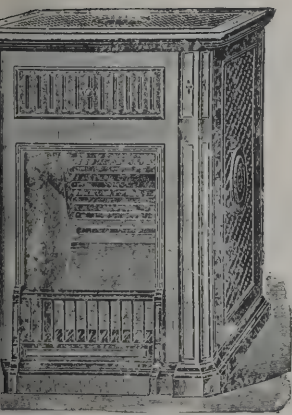
Summarising the results of the investigation it would appear that—

1. Decay was more frequent in metals which had a duplex or more complex structure than in those which were comparatively homogeneous.

2. Decay was due to a slower or less energetic action than that causing corrosion, and, moreover, it required an action which removed part only of the constituents of the metal, whereas corrosion removed all the material attacked.

3. Both decay and corrosion might result from chemical

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action alone, or from chemical and electrolytic action combined.

4. Pitting, or intense local corrosion, was probably often due to local segregation of impurities of the metal; but it might also in some cases be due to local irregularities of surface or structure producing local irregularities in the distribution of galvanic currents.

5. In the case of brass exposed to sea-water, tin was distinctly preservative, while lead and iron were both injurious, rendering the brass more readily corrodible. The percentage of the latter elements should therefore be kept as low as possible in the case of all metal intended for purposes where contact with sea-water was inevitable.

6. With a view to obtain a minimum of corrosion, the internal surfaces of condenser-tubes should be as smooth and uniform as possible, and in order to insure this the cast-pipe from which they were drawn should be smoothly bored inside, either before the drawing was commenced or in an early stage of the process, as was done in the manufacture of brass boiler-tubes.

7. The experiments with an applied current show that electrolytic action alone, even where exceedingly minute currents were in question, might result in very severe corrosion or decay. Every effort, therefore, should be made to prevent such action by careful insulation of all electric cables. Where galvanic action was inevitable through the proximity of different metals exposed to the same electrolyte, the currents resulting should be neutralised by the application of zinc plates in the circuit, so arranged that they would be negative to both of the other metals.

NEW OPERA HOUSE FOR BUXTON.

THE new opera house which has been built close to the entrance to the Pavilion Gardens at Buxton, is rapidly approaching completion, and, it is expected, will be quite ready for the opening which is fixed to take place at Whitsuntide. The old entrance and reading-rooms have been removed, and on the site has been erected a spacious and commanding building with a frontage of 73 feet to the Square, and a return front of 164 feet towards St. John's Road. The theatre is built on up to date lines, and with all the latest improvements. The floors, galleries, staircases and roof are all of concrete and iron, all passages and staircases are wide and commodious,

and patent exit doors provided. Large cloak-rooms and smoke-rooms are provided, and the comfort of the audience has had every consideration. The principal entrance is in the centre of the arcade. Polished mahogany doors filled with glass will open into a very handsome vestibule, where marble has been very extensively used. On either side of the grand staircase, which faces the entrance, are massive scrolls of polished alabaster supported on red marble bases, and at each end of these are white marble seats. The grand staircase, constructed of white marble, and to be covered with a rich Turkey carpet, leads to the cruciform room, panelled and filled in white silk tapestries. On each side are small lounges, from which the wide but short corridor conduct to the dress-circle seats and the private boxes. The walls are covered with white Carrara marble, with plinths and bases of Emperor red marble. The floors are inlaid mosaic. The ceiling is richly carved in raised plasterwork, with strikingly fine artistic panel in the centre, representing lyrical poetry, the side panels being treated with musical trophies and flowers. Over the entrance vestibule is the grand foyer, with bar for refreshments. Mirrors and old prints will adorn the walls, and luxurious lounges and settees help to furnish what will be a very delightful addition to the theatre. The upper circle is approached by a wide fireproof staircase. The ceiling is in the shape of an oval dome, formed into six painted panels representing music, painting, poetry, literature, dancing and comedy. The Buxton coat-of-arms, treated in monochrome on a gold background, will form a graceful feature over the proscenium arch. On each side of the proscenium are three private boxes. The drop scene, painted by Hemsley, has been painted to accord with the general design. The whole theatre will be brilliantly illuminated by the electric light, the fitting being specially designed to accord with the decorations. The cost will be about 20,000*l*.

THE LINOLEUM INDUSTRY AND CORK SUPPLY

THE British Consul at Naples, in his latest report, says that the linoleum industry is closely associated with the cork trade, the material being made of cork scraps and cuttings mixed with linseed oil. The first invention of it by Mr. Frederick Walton in England was brought out under the name of "Kamptulicon," but the improved product received the name of "Linoleum." There are some fifty establishments in all for

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manufacture, of which thirty are in the United Kingdom, employing 2,500 hands, with a capital of over 1,000,000£, ten in many, many in the United States, a few in France and Asia, and one in Italy. This last is at Narni, in Umbria. A Lombard company with large capital buys up cork groves and the soft cork which is taken from the younger trees which grow in the groves by the seashore. They make a gum which is about half cork, and consume about 150 tons annually. They would do better business but for the high rates, the rate from Milan to Narni being higher than from Milan to the centre of Germany.

With the exception of Portugal, which is the principal cork-producing country, the cork supply of the world is grown on the Mediterranean littoral, Spain, Algeria, France, Tunis and being the countries which produce it. None is grown in Asia or Asia Minor, and an inconsiderable quantity in Turkey and Greece. Several of the Mediterranean islands, and notably Corsica, produce it in considerable quantities, the Corsican being included in the French returns.

Statistics vary from 80,000 to 120,000 hectares in their estimate of the land under this cultivation in Italy, but if the figure is uncertain the value of the cork exported in 1900 is actually stated at 900,080 lire (36,000£) besides the home consumption, which, in a wine-growing country, must be large and important. This remark applies to all the other cork-growing countries, except Algeria and Tunis, where the quantity of wine exported is small as compared with that of France, Spain, Portugal and Italy.

The industry represented is therefore a very interesting one, might produce very sensible benefit to the Italian Exchequer if the matter were taken seriously in hand. In order to do this effectually the State will probably have to protect the cork trees by re-enacting the old forest laws, by exempting them from cork cultivation from taxation for a term of years, by creating nurseries from which private persons may have young plants at a reasonable price. Few owners are in a position to plant at their own cost, for it takes thirty years before the date of planting before the tree can be stripped for the first time, and even then the first crop of bark is too soft for many purposes, and is useful only for packing fruit or for making into linoleum. After the first stripping the trees may be renewed of their bark every five years, and they become a valuable property.

The want of statistics as to the cork production of Italy shows how much this valuable crop has been neglected.

Sardinia and Sicily alone produce the greater part of Italian cork. The Calabrian forests have been almost entirely destroyed, the trees having been burnt for charcoal, and even Sicily imports a considerable quantity of cork both at Trapani and Marsala, and exports it at Catani.

The trees may be reckoned to produce 13 lbs. at 30 years of age, 53 lbs. at 50 years, and at 90 years as much as a hundred-weight. If, therefore, a tree is stripped every seven years, a better interval than five years, there would be a crop of bark from the same tree ten times between the ages of 30 and 93—that is to say, on the average the tree would produce 6 cwt. of cork in 60 years. The trees will produce cork in continually increasing quantity until they are over 200 years old.

In the year 1835 nearly all the cork used in the United Kingdom came from Italy, but since then the destruction of the cork-woods has caused us to seek other markets. The two principal causes of the destruction have been the making of the trees into charcoal and their destruction by fire to produce potash, of which the wood contains a large proportion. A German traveller writing recently on certain woods states that a company is exploiting them and carrying on a work of absolute devastation merely to obtain the valuable ashes, and that no one thinks of replanting the ground, which naturally gets washed away owing to the absence of trees.

Large forests containing a majority of cork trees are continually being released from the forest laws, and there is a great risk that the production of cork in Italy will soon be a thing of the past. In these days, when vast quantities of cork are used in the making of linoleum and in shipbuilding, its supply is a matter of primary importance. The great desideratum for the trees is land which contains potash, and the volcanic soil of Italy contains this in large quantities; so that land if not otherwise suitable might readily be prepared at a small cost by manuring it with volcanic ash, which is easily obtainable in inexhaustible quantity.

EDUCATION OF ENGINEERS.

At the Institution of Mechanical Engineers, Professor W. E. Dalby read a paper describing the methods under which the education of engineers is pursued in America, Germany and Switzerland. Reference was first made to the fact that in England, with scientific progress, changing methods of manu-

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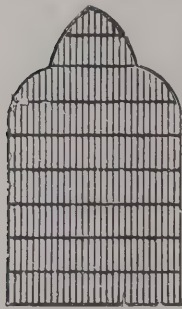
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facture, and the advent of electricity as a necessary part of the engineering equipment of every mechanical engineer, there has been scarcely any change in the recognised method of training engineers. In recent years, courses of instruction in the scientific principles of engineering have multiplied at the universities and at institutions of kindred types and equal standing from a purely engineering point of view. At the present time, therefore, there is no difficulty in obtaining a scientific training of a high character. The weak point in the system is the want of co-ordination between the workshops and colleges. Many employers look askance at a college-bred youth, and there is no doubt that many college youths quite deserve it. But not more so than many who are trained entirely in the works. It is too often forgotten that a college cannot give a youth ability. All that can be done is to train what abilities he happens to bring to the college with him. Both in the States and on the Continent many of the specialised lectures are given by men in the full practice of their profession, and who are not regular members of the teaching staff. The best courses in this country are arranged on practically the same basis, but the longest being three years there is no time to develop the instruction into the specialised branches of engineering. At Boston, Cornell, Berlin and Zurich a student can get special instruction in the scientific part of locomotive and railway work. Not an institution in this country can offer similar instruction. The locomotive comes in for scant notice in the general course on the steam-engine. The advantage to railway companies would have been great if even one course of instruction in locomotive engineering existed where a laboratory was arranged in which an actual locomotive could be tested; such an establishment, for instance, as exists at Purdue University, or in connection with some of the locomotive departments of the American railways. The course, said the lecturer, should be arranged for men who have already had an undergraduate course of study and have served two or three years at a locomotive establishment. There is an essential difference in the method of training in America and Germany. In America the course of instruction is very exactly laid down, and the student is compelled to follow it step by step. Slight variations are permitted in the form of options, to use their term, in the later periods of the course. But whatever option is taken the student must go through with it. He gets his degree from the gradually accumulating results of terminal and sessional examinations, ending finally with a thesis. He is, in fact, put through a

thoroughly well-organised species of educational drill, and must work or fall out. In Germany the students of the great technical high schools enjoy the "Academische Freiheit" peculiar to the university system of that country. No student is compelled to take any special course. For his convenience definite courses are arranged and laid down in the school calendar, but the sequence of lectures therein stated are not binding. There is in no sense a prescribed course. The courses are only recommendations, and students may follow them or not as they please. Degrees are not granted by examination, chiefly oral in character, by the professors of the schools. At Zurich the course is partly prescribed, partly selected. The American courses are more practical in character; they include more laboratory training than is recommended in the German course, and devote a large proportion of the course to the teaching of handicraft skill. In Charlottenburg and Zurich no attempt is made to teach handicraft skill, and the bulk of the training is given in the drawing office, though in addition a considerable amount of time may be given to engine-testing. In both Charlottenburg and Zurich a student finds himself at the end of his course with a degree or diploma, age twenty-three, and no workshop training except a year, which is insisted upon as a preliminary to entry for some students at Charlottenburg. In America a student finds himself with a degree or diploma, age twenty-one, with what handicraft skill and workshop practice he has picked up in his college workshops. With these assets he has no difficulty in getting further practical training in the large works of the country. Employers take him without premium, and pay a wage sufficient for maintenance straight away, recognising that his knowledge places him in a different position to ordinary apprentices. In this way they get highly trained men into their works, and by their own observation soon discover whether the youth possesses, in addition to intellectual acuteness, the qualities which go to make a successful business man or a good organiser, and recruit their staff accordingly. The American, German and Swiss student start his course with a far better education on which to build than the case with us. Much time is wasted at colleges here of teaching things which should have been taught at school. The general opinion seemed to be that a course arranged so that the winter months are spent at college and the summer months in the works is a desirable one, and one from which good results may be expected, but no system will be of any avail without the whole-hearted co-operation of the employers and

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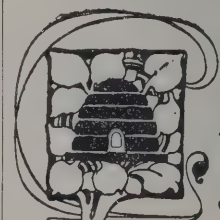
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EAST SUSSEX ASYLUM.

A new asylum erected by the East Sussex County Council approaching completion. The *Sussex Daily News* gives a description of the buildings, from which we take the following:—The estate lies about half a mile to the east of Hellingly station. The electric railway, which will connect the institution with the London, Brighton and South Coast Railway, will shortly be finished. The main block of the building is practically complete, and has only to be furnished to render it fit for occupation. So satisfactorily has the work progressed that the process of removing the patients to their new quarters will probably commence during July, and will proceed gradually until the whole of the patients chargeable to the administrative committee of East Sussex have been received. The numerous detached buildings are in a more or less advanced state of completion. Both the steward's and medical superintendent's residences, which are on the left of the drive, are almost ready for their tenants.

The church is probably the least advanced of any of the buildings. It is situate almost opposite the main entrance to the asylum proper, and will provide accommodation for several hundred patients. Some may be led to suppose that it is a place to send those mentally deranged to Divine service, but it must be remembered that the bulk of the patients are not condemned lunatics; their mental faculties are simply defective on certain subjects, and thus, generally, the large proportion are perfectly sane to all appearance. Among inmates of asylums it is quite possible to find men who are capable of discussing rationally every subject under the sun, and there is a marked and general tendency towards religious devotion.

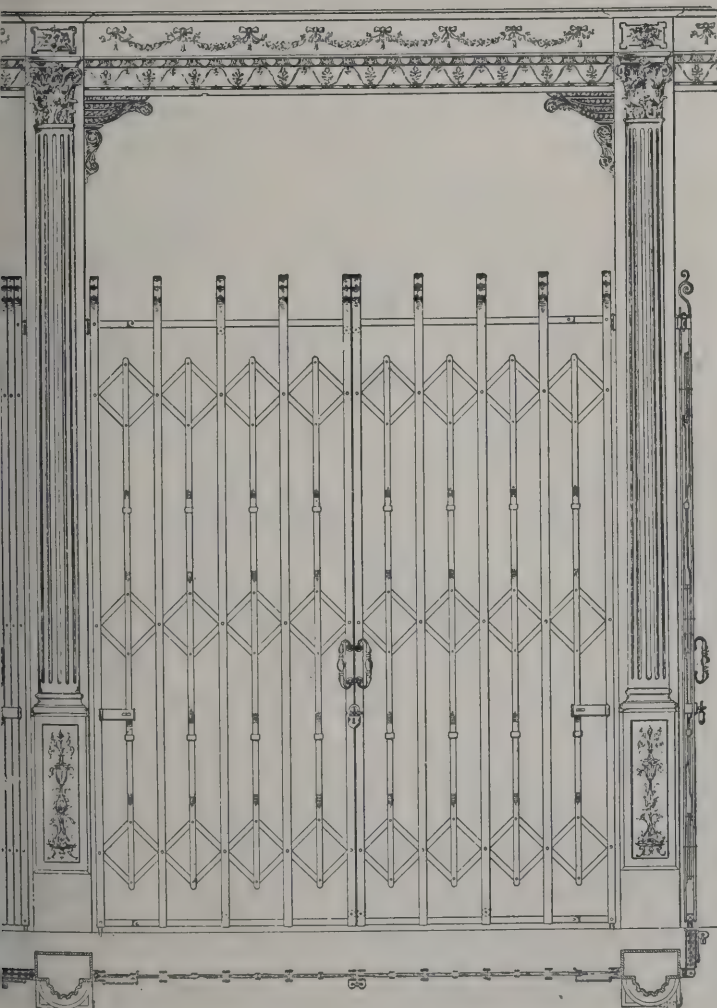
In the centre of a little copse is a small but perfectly equipped isolation hospital. The four "villas" which are dotted about the grounds for the use of the more useful and less affected or better-behaved patients, who work in the fields, workshops or laundry, are nearly finished. It must, however, be distinctly understood that there are to be no social distinctions. The "villa" system is employed for its curative value alone. Each of these will accommodate thirty patients. A larger "villa" is also in course of erection for the accommodation of sixty children, who will receive as much education

as possible in useful employments. A number of comfortable cottages have also been built on land immediately adjoining the estate for the use of married attendants.

The largest of the detached buildings is the receiving hospital, which is situate about 500 yards from the main building, and will form the first stopping-place for the electric railway. It will contain accommodation for thirty male and fifty female patients. This represents the average proportion of lunacy among the sexes, for mental disease is more prevalent among women than men. The receiving hospital is a feature of the asylum; it is the first institution built for the purpose in England, though at some other asylums detached buildings have been converted into receiving hospitals. The hospital is divided into small wards, and here patients will be first dealt with. Here each individual case will receive careful attention. If there is a prospect of a speedy cure, the patient will not be sent to the asylum proper, but will be retained in the hospital until complete cure is effected and then discharged. In those cases where the mental trouble is of a more serious character, the patient will be removed to the main building as soon as the work of classification has been accomplished. The masons have practically finished their work on this building, and workmen are at present engaged in placing in the windows and floors.

In the asylum proper it will be possible to accommodate 380 males and 460 females. The building is built on the broad-arrow principle. At the base are the workshops and offices; the administrative block forms the centre bar, and the wards, which are in the shape of an irregular bow, constitute the apex, which faces directly south. The principal entrance is in the centre of the base, and to the immediate right and left are the offices of the medical superintendent and his assistants, a committee-room and photographic room; all these apartments are commodious and well appointed. The medical superintendent's office is in telephonic communication with every part of the asylum, and here there is also placed an ingenious electric indicator by which the medical superintendent can ascertain whether the night attendants are regular in their duties. The indicator is worked by "tell-tale" clocks, which are placed in each ward.

A layman would naturally wonder if the photographic room is for the benefit of patients who are amateur photographers. Though patients are encouraged in healthy recreations, photography is not one; but nevertheless it plays a useful and important part in facilitating identification—which naturally is



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attended with considerable difficulties where there are so many patients—and in indicating what progress is being made in each individual case. The progress or cure of the disease, as the case may be, is accurately reflected in the face.

The floor of the corridor leading from the main entrance is of prettily designed mosaic, and there is a handsome dado of ornamental tile. All the other corridors are paved with a new composition called "papyrolith," the chief ingredient of which is wood pulp. It has a warm reddish colour, and as its surface is brightly polished the general effect is decidedly good. The advantages claimed for it are that it is practically noiseless, impervious to water; that being without cracks and joints, there is no opportunity for the secretion of dirt or disease germs, and that it is also fireproof. Whether it will stand the supreme test of wear has yet to be ascertained. The workshops running along the base are virtually finished, and the same remark applies to the administrative block which forms the centre of the "arrow."

The kitchen would be quite worthy an up-to-date London hotel. It is a large, well-lighted apartment, and splendidly equipped with ovens and ranges, steam-jacketed carving tables and pans for making tea, coffee, beef tea, &c. In an adjoining room are appliances for boiling vegetables, and a large steam cupboard for potatoes, while a third room is to be used for the cleaning of the vegetables. Every reasonable means will be taken to insure the patients receiving their meals hot, and when it is remembered that the main building alone will accommodate 840 patients it may be easily imagined that this task will be onerous indeed. The food will be conveyed to the different wards by a cleverly constructed trolley, and will be passed out of hutches at each end of the kitchen, opening on the male and female quarters respectively. The upper portion of the trolley is composed of hot-water compartments for the food, and these may be removed, and the trolley adopted for conveying linen to and from the laundry.

There is also a model bakehouse, fitted with two of Perkins' patent steam ovens and kneading machines. The laundry is likewise thoroughly up-to-date. There are really three distinct laundries under one roof. In the larger one the patients' ordinary linen will be prepared, and two smaller ones will be used for officers' linen and foul linen. Each laundry contains modern machinery, driven by electricity, for washing and mangling, and they are also fitted up with drying cupboards. There is a spacious drying-ground paved with asphalt.

The nurses and male attendants' quarters are situate at

each end of the base—the males to the right and the females to the left—each connected by a corridor. Each attendant and nurse is allotted a separate bedroom, and there are also two large apartments, which may be used as recreation or sitting rooms. The chief nurse has separate apartments, and a billiard table will be put up in the men's wing. The men's rooms will be well furnished and made as comfortable and homely as possible. At the time our representative paid his visit a number of women were engaged in the nurses' wing in making underclothing for the patients.

In the centre of the administrative block is the recreation hall, which is the largest and certainly the most handsome room in the building. The hall is lofty and well lighted, the windows being fitted with pretty-coloured glass, and is provided with a stage and dressing-rooms complete. It is easily approached from either wing, and here patients will be entertained with amateur theatricals, concerts, dances, &c., all of which have a marked tendency towards aiding the physician in his cure.

The building has been rendered fireproof as far as possible and every precaution has been taken against fire. Hydrants have been fixed at convenient places all over the building, and in case of an outbreak it would be only necessary to connect a hose, so that several jets of water might be directed to a fire in the space of a very few minutes. A fire-brigade will probably be formed among the attendants in due course, but a steam-engine will not be necessary, as there is sufficient pressure to send water over the highest portion of the building.

The County Council met with a great disappointment in failing to obtain water on the estate, although boring operations were carried to a great depth. Consequently the asylum has been connected with the Hailsham waterworks, which are working an inexhaustible supply of pure water. The tanks are placed in a tower which rises to a height of 120 feet. The three tanks each have a holding capacity of 25,000 gallons, and the elevation is sufficient to carry to all parts of the building by gravitation.

The whole of the buildings are lighted by electricity, and the light is produced on the premises. The electric works are fitted with absolutely modern plant, and the power for driving the electric cars will also be generated here. Although there are fireplaces in most of the wards the heating will be by low-pressure steam in large gilled radiators. The boiler-house is fitted with two large Galloway boilers, which is considered to be the best boiler on the market.



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The Architect.

THE WEEK.

FEW weeks back we published an illustration of Newspaper Buildings in Gilbert Street, close to the Strand. An action by the lessees has given occasion for a declaration of Mr. Justice BYRNE respecting an implied grant to light, a claim which is generally difficult to determine, and this case (*Financial Times v. BELL*) has led to a suspension of building operations for a year and a half. In 1896 an agreement was entered into by a Mr. MACRAE for the erection of printing works and offices, and on the completion of the buildings he or his nominee was to be granted a long lease. As the site was close to King's College Hospital he was threatened with an action for interference with light and air by the trustees. To avoid litigation he purchased from them an adjoining plot of ground. The buildings were subsequently demised by him to the company who were plaintiffs. Their contention was that the adjoining plot, part of which had been sold to the defendants by Mr. MACRAE's executors, was to be kept as vacant land, in order that there might be no interference with the light and air of Newspaper Buildings. The plaintiffs' claim was based on an implied obligation. Mr. Justice BYRNE held that when Mr. MACRAE purchased the vacant ground from the trustees he was not acting as agent for the plaintiffs, although no doubt he was director of the company and held a large number of shares. Nor was there any evidence of an intention to keep ground vacant for which he paid 10,000%. He had not entered into any agreement to that effect. There could be no implied grant of right to light or lightless at the time of the transfer of his interest in the dominant tenement the grantor was in a position to make an express grant of the easement over the servient tenement. In the present case the grantor of the dominant tenement had no such right over the servient tenement as to entitle him to make such an express grant or to create a right to light. His lordship therefore dismissed the action with costs against plaintiffs. An inquiry was also made as to the amount of damages due to defendants by suspension of their building operations. The case is of great importance in the laying out of building estates. It is too often taken for granted that certain plots which for the occasion may be laid out as attractive open spaces will always remain in that condition, as if the owner of an estate should have no thought beyond the interest of those who buy building sites. Unless there is a clause guaranteeing that the land is to be reserved and remain vacant the Courts are bound to hesitate before accepting implied grants, even when more is claimed than an easement.

THE recent litigation between Brighton and Hove has made it clear that in arrangements about drainage, drainage and other authorities are disposed to make general orders without having any definite idea of what is contemplated, as if sewers were elastic and could be easily adapted to meet all contingencies. Another case which did not rest on private Acts, but on the Public Health Act, has been heard before Mr. Justice SWINFEN EADY, but only partially, for all that was claimed was a declaration that the owners on a private estate could be connected with the sewer of an urban council. Section 22 of the Act says:—"The owner or occupier of any premises without the jurisdiction of a local authority may cause any sewer or drain in such premises to communicate with any sewer of the local authority on such terms and conditions as may be agreed on between such owner or occupier and such local authority, or as in case of dispute may be settled at the discretion of the owner or occupier, by a court of summary jurisdiction or by arbitration in manner provided by this Act." It is probable when the Act was drawn it was expected that the "premises" would only consist of a house or two, but there is no limit about the number. The owners of a large estate in Northumberland, which was to be laid out for building, claimed the right to use the Gosforth sewer. The Urban Council were advised that such a series of sewers as was contemplated would be outside the scope of Section 22. An action was brought by the owners in the case above stated. Mr. Justice SWINFEN EADY said a

large system of sewers was shown on the plan, and if carried out a large volume of sewage would have to pass through the Gosforth sewer, which might be of insufficient capacity. Having no facts before him his lordship declined to make a declaration, or to deal with the legal points. From his lordship's resolve it is evident that the right of the owner or occupier of any premises to drain into public sewers on complying with the regulations of the local authority has some limitation. The owners can have recourse to arbitration or to a court of summary jurisdiction, and it will be well to have so important a subject thoroughly considered.

A MEETING will be held at the Mansion House on June 29 to inaugurate the fund for commemorating the services of the late Sir HENRY BESSEMER, whose process for the manufacture of steel has led to the cheapening of the material and its employment in building construction. It is proposed to erect, and if necessary to endow, a department for metallurgical teaching and research work in connection with the University of London, equipped for the testing of ores and metallurgical products by modern methods, and for the investigation of new methods and processes. If possible it will also be arranged to have international scholarships for post-graduate courses in practical work in connection with proposals now under the consideration of the Board of Education. If sufficient funds are obtained it will be seen that much more will be accomplished than the raising of a memorial to BESSEMER alone. Indeed, it would be an advantage if by scholarships or in some other way the services of other men in connection with the steel industry could be commemorated.

THE Glasgow Dean of Guild Court has been able to assert its authority over no less a potentate than the Postmaster-General. It was proposed to erect a parcel post-office in Waterloo Street, but the postal authorities believed it was not necessary to comply with the usual regulations incumbent on ordinary citizens. Accordingly, no application was made for authority to build, and no plans were lodged in the Dean of Guild Court. All that was done was to seek authority to enclose and occupy parts of the streets adjoining the site. Some owners of property objected on the ground that there was no information about the length of time during which the streets would be occupied or closed. The Glasgow Master of Works also objected, for the closing of streets, he held, was only allowable in connection with a license to build, which had not been granted in this instance. The Lord Dean of Guild, having considered the subject, says that the Postmaster-General claims that he is not subject to the jurisdiction of the Dean of Guild or bound to apply to him for a warrant to build, but admits that the Dean has a common law jurisdiction in regard to the occupation of streets. It is new to the Dean of Guild to hear that he has a jurisdiction in regard to the public streets of the city apart from and without reference to any warrant for the erection of buildings. The Lord Dean, therefore, dismissed the petition of the Postmaster-General, and allowed costs to those who opposed the petition. The point is interesting, for in England it is generally understood that "any building, structure or work, vested in and in the occupation of any part of HIS MAJESTY'S Government" is exempted from the customary regulations for building.

A NEW street was recently constructed in High Wycombe by Lord CARRINGTON and presented to the borough as a memorial of the late QUEEN. It was decided that the new municipal buildings should be erected in Queen Victoria Road. Premiums of 100 guineas and 25 guineas were offered for designs. Mr. T. E. COLLCUTT was appointed assessor. By his award the first premium goes to Messrs. JOHN J. BATEMAN, CHARLES E. BATEMAN & ALFRED HALE, of 81 Edmund Street, Birmingham. The second premium was awarded to a design sent by "F. H.," of 10 Cheyne Row, Chelsea. The third position was assigned to Mr. J. EDWIN FORBES, 21 Waterloo Street, Birmingham, and the fourth to Messrs. WILLES & ANDERSON, of Adam Street, Adelphi, London.



TYPES OF COSTUME: ENGLISH, SIXTEENTH AND SEVENTEENTH CENTURIES.

PAINTING AT THE ROYAL ACADEMY.—I.

THE Archbishop of CANTERBURY must have surprised many of the guests at the Royal Academy Banquet on Saturday when he said:—"I should rejoice to see the painter's skill again at work more freely within our church's walls. Nay, I look forward hopefully to the time when that noblest and most inspiring form of bright adornment may be again so widely used that our churches shall once more be aglow with colour, and shall contain, as churches did in days gone by, some of the greatest pictures of our greatest men." Last year there were a few paintings which could be used for the adornment of ecclesiastical buildings, but this year, no doubt owing to the absence of all encouragement, the number is diminished to one, and this is likely to be passed over, for it bears the title *The Traitor*. It is a representation of the Last Supper, by Mr. G. E. HICKS, and is inspired by the words, "Lord, who is it? . . . He it is to whom I shall give a sop, when I have dipped it." The picture is small in size. Instead of following the precedents of Italian and other old masters, the subject is treated realistically, or, in other words, it is suggested that the disciples and their Master were reclining at the simple meal. There is no nimbus, and the SAVIOUR's head is covered by the hood of His mantle. It might be an ordinary supper of poor men but for the alarm on the face of JUDAS and the small money-bag before him. That so small a work should alone exemplify Christian art amidst so large an assemblage of paintings is a commentary on the Archbishop's speech.

The liberal use of old myths of pagan origin is an indication of the tendency of public taste at the present time. Greece rather than Palestine is gaining ascendancy. The influence of Lord LEIGHTON has not ceased to be effectual, for there are other artists who endeavour to follow his example. It must be acknowledged it is no freak of our day to regard mythology with affection. Mr. DRAPER's *Prospero Summoning Nymphs and Deities*, which is a design for a ceiling painting, suggests the Elizabethan precedents for such subjects. IRIS, CERES and the imperial JUNO herself were at the call of the magician. Mr. DRAPER's work, if carried out as indicated, will be an ornament to the building containing it, but it is odd to find the Drapers' Company preferring nude figures to draped. The *Iris* of Mr. J. M. SWAN, who is clad in yellow gauze and white, is, we suppose, the many-coloured messenger of PROSPERO, who with saffron wings diffused honey-drops and refreshing showers. Sir W. B. RICHMOND, in his *Phaeton: Sunrise*, shows how a myth could have originated. When viewed from a distance the sun-god in his chariot drawn by upspringing horses might be taken for the outline of a golden cloud. That is a concession to modern scepticism, but a Greek would prefer the old arrangement of GUIDO as seen in his *Aurora*, as being more in keeping with his thought. The *Echo and Narcissus* and *Psyche Opening the Golden Box*, by Mr. J. W. WATERHOUSE, possess rather more of the antique spirit. The artist's little women have a simplicity recalling the antique, but there is a risk of their becoming insipid through continual repetition. We may suppose that PSYCHE was more curious than wise, and that ECHO was foolishly enamoured of a shepherd. There are, how-

ever, mythic beings less languid and more worthy of representation. The *Sirens*, by Mrs. E. NORMAN, are evidence that in ancient as in modern times cannibalism was a cause of vigour. The women are in excellent condition. They vary in flesh tones from ETTA's sirens, for they seem to belong to a sunny clime, but they also are accompanied by relics in the form of bones from a recent meal. Would not details of that kind be better omitted from both pictures? Mr. ARTHUR HACKER's *Leaf-drift* might be sirens or nymphs lying asleep amidst leaves, but while the lady artist is careful to have rounded contours Mr. HACKER is not afraid to be anatomically true. The *Pyrrha* of HORACE, which Mr. J. W. GODWARD depicts, must have been related to the sirens, for the poet's votive offering after his escape from her was dedicated to the sea-god. In the picture we have no suggestion of the cave near the sea, for this graceful figure prepares herself for victory in Rome. It is well to have an illustration of HORACE, whose limited collection of poems abounds in subjects that might with advantage be utilised.

There are legends of a later sort which have been employed this year. Mr. JOY's *Flower of Wifely Patience* is the GRISELDA of CHAUCER, whose history was told to him by PETRARCH, who may have taken it from BOCCACCIO. But evidently it relates to a remoter age when more wilful princes lived. Mr. JOY's princess belongs to the same family as Mr. WATERHOUSE's mythic beings. She seems so much of a child, we are not surprised at the meekness with which she abdicates her position as a wife, and made preparations like the meanest servant for her successor. She is represented in the act of stripping herself, and there is a simplicity about the scene which adds to its pathos. We suppose there never was and never will be a time without people eager to drink of the water of Lethe. Mr. T. B. KENNINGTON has presented the legend with good effect, but his picture with its semi-nude figures was not sufficiently valued by the hangers, for it is placed too high. The President, in his *Cave of the Storm Nymphs*, has another version of the subject he used last year. His beings may not be Greeks, but they are of the same species:—

Fair as their mother foam, and all as cold,
Untouched alike by pity, love or hate;
Without a thought for scattered pearl or gold,
And neither laugh nor tear for human fate.

The light is strong upon the figures, and they are painted with unquestionable accuracy. Every trinket or bit of débris has also photographic fidelity; but the picture is academic although on a small scale, and we think more will be thought of the treatment than of the subject. We may also mention the *Nymph of the Pool*, by Mr. PERCY GIBBS, and *The Music of Pipe and Brook*, by Mr. WETHERBEE, as examples in which imagination is exercised.

Ancient history would likewise appear to be growing obsolete. People do not believe in the veracity of the records, and the incidents narrated have rarely the charm of the myths. Mr. T. R. SPENCE has had the courage to show *The Surrender of Capua, 210 B.C.: Passing Round the Poisoned Cup*. It recalls the scene of the white-robed senators of Rome, seated immovable as statues and await-

ing the arrival of the barbarians. But at Capua, or rather aserta, the invaders were Romans, and the Campanians were likely to have preferred richly-coloured raiment. It is not an heroic deed they were engaged in, for death at the hand of the lictors was inevitable. It is well to find the artist who is not afraid or ashamed to be considered an historical painter. The care taken with the architecture merits recognition; so noble a building is rarely seen on canvas. Mr. MATTHEW HALE'S *The Conqueror's Horses* is really an important historical picture, for it depicts the Norman cavalry leading their horses through the sea at Pevensey on December 28, 1066. According to the chronicles the archers landed first, then the cavalry in boats of mail with helmets of polished iron, and bearing long and heavy lances and two-edged swords; they were followed by the pioneers, carpenters and smiths, who on land erected three wooden castles; and last of all came Duke WILLIAM. The spectator is supposed to view the scene from the English coast. There is a good deal of shortening required in representing the horses, but the tinting is so dexterous that difficulties which had to be overcome are likely to be ignored. If informal it is spirited in action, and the instinctive gaze of the horses on the strand before them has a realism which merits recognition. The cavalry incident which took place some seven centuries afterwards is observed in Mr. JOHN CHARLTON'S *Rosbach*. The charge in question is memorable, for, as the Baron DE MONTMIRAIL says, "un pouce de terrain, un instant perdu," could have enabled the Allies to form their line; but FREDERICK THE GREAT'S instructions were precise. The movement was directed by SEIDLITZ, and was so sudden that Mr. CHARLTON is justified in showing the majority of the squadrons as impulsively shouting.

Records of some modern historic events are to be observed on the walls. Mr. ERNEST CROFTS portrays the funeral of Queen VICTORIA, and has vividly realised the impressive spectacle as it passed along Piccadilly. A part of the procession on Coronation Day has been selected by Mr. J. B. BEADLE. Mr. BACON'S subject is the *Homage-paying, Westminster Abbey*, when the late Archbishop of CANTERBURY succumbed to the excitement of the occasion. The three pictures possess qualities in common, and it would be well if they could be placed together.

We presume the painting, *Mrs. Siddons in the Studio of Sir Joshua Reynolds*, by Mr. ORCHARDSON, should be considered as an historical work. The first President of the Academy was an admirer of the actress, and it is not unreasonable to believe that she might vary the tedium of a sitting by a little declamation, especially as nearly all those present were in some way connected with the stage. Mrs. SIDDONS cast off the heavy robe worn when she was painted, in which Sir JOSHUA'S name was to appear. She stands clad in a simple, tight-fitting gown of white, and yet becomes impressive, for, with her arms extended above her head, she looks like a priestess proclaiming the wrath of the gods against some evildoer. As a contrast with her tragic figure, we see Mrs. JORDAN seated—not the comédienne of later years, but the actress who was perfect in Ophelia, Helena and Viola, and who, as CHARLES LAMB says, spoke the words of her parts as if they were watered by tears. Another portrait-painter's work is commemorated in Mr. C. HINDLEY'S *Rembrandt*. We see the painter, in splendid costume, before one of those old ladies who seemed to be favourite sitters with him, but who do not seem to enjoy her position. Did some actress pose for Mr. BOUGHTON'S *Imogen*? It is not the princess that most readers of the play create for themselves and to whose youth and beauty so many of the *dramatis personæ* are made to testify, but the attitude is easy, if suggestive of the age, and although the Roman chiton is more fresh than is to be expected when worn by one who for two nights together made the ground her bed, yet that also recalls the age. But we must not be hypercritical when artists appear to consider that SHAKESPEARE spells bankruptcy to them.

Mr. VAL PRINSEP is one of the few painters in whose works there is no iteration; he does not care to remain in the same groove two years in succession. Last year he painted *The Virgin at Bethlehem*; this year, *Venetian Women after their Day's Work*. He professes to have drawn inspiration from DE MUSSET'S expression, "Dans Venise rouge," but THÉOPHILE GAUTIER was more conformable

to local colour when he said, "notre appartement faisait partie d'une simple maison crépie de rose, comme la plupart des maisons de Venise." We find a group of Venetian women, some of whom are clad in red or red and black, harmonising with the walls. Two or three are asleep, and there is a general air of content at the day's toil being over, although it was no doubt short. It is not often that so large a picture in which red is the prevailing colour is equally reposeful. Instead of diminishing the effect of the pictures around they appear to be more garish. There is, however, a risk that so masterly a work from its simplicity may be undervalued. The Venetian labourers look dignified if compared with the *Nomads*, a group of gipsies with their horses and waggons which Mr. STANHOPE FORBES has contributed. It is also quiet in treatment, and all the figures are modelled with power; it is, however, true to nature, and the unclean wanderers can never be considered picturesque unless by the aid of accessories which do not belong to them. Another incident of country life is Mr. MACBETH'S *Lunch at a Coursing Meet*. It is rarely of late we see a picture which wholly satisfies by this artist. Parts approach perfection, but there is always something counteracting. The luncheon is merely an accessory, as it were, for it is seen in a barn in the background. The prominent figure is a handsome girl with a basket of sandwiches, on which a splendid hound is pouncing. There are colours in the girl's dress which are trying to the sight. The figures are not well combined, and yet many portions are excellent. Admirers of the artist will probably prefer the etching by him of the picture which is in the Black and White Room. A single figure by Mr. MACBETH, *In the Smugglers' Mist*, is found amidst strong rivals in the third gallery, and is worthy of the position. We see a dark-haired woman in a scarlet jacket on a cliff surrounded by mist and engaged in drawing up small kegs of brandy. Modelling, colour and finesse are united. It has for neighbours a brilliant view of the Venice canal by Mr. HENRY WOODS, a *Pot-Pourri* by Mr. ABBEY, in which we see an abundance of rose leaves heaped on white clothes on the floor, as well as on the table in a room that was once a crypt and has been lately whitewashed, an act of vandalism which we hope is imaginative and required only for pictorial purposes. Sir ALMA-TADEMA in *Silver Favourites* proves by his dainty girls in ancient Roman costume, his fine marble piscina with its graceful curves, and his dark blue sea, that his hand is as dexterous as ever. Mr. E. J. GREGORY is again exasperating in his *Rediviva: Great-Grandmother's Wedding Dress*, a girl not remarkable for beauty, wearing a big bonnet and a white embroidered dress to her own satisfaction. Mr. G. D. LESLIE is, as usual, without any enterprise, for *The Lily Pond* seems to be a part of a series with which we are long familiar. There is a boat lying close to steps and children wearing the white, grey and blue dresses we have seen before. The masonry, bank and water are old acquaintances. If groups of spectators are to be taken as a test, *The Prodigal Daughter*, by JOHN COLLIER, should be considered as one of the prominent pictures of the exhibition. Last year the artist showed a plague-stricken woman made more ghastly by the faint light in which she was seen. This year we have a humble room, illumined by a small paraffin lamp, invaded by a brigandish young woman who stands with her back against the closed door. The entrance we suppose was so sudden, neither the father nor the mother knows how to act, and whether she is to be welcomed or rejected. The significance of the picture is perhaps enhanced by the suspense, but the effect is also increased by the strongly-marked light and shade due to the lamp. Mechanical results produced in that way please certain observers from their definiteness, but they are generally followed by a reaction, and Mr. COLLIER is too able an artist to depend upon them. Another picture which will excite attention is Mr. BYAM SHAW'S *The Fool who would please Every Man*—an illustration of ÆSOP'S fable. The rustic who was so amenable to advice carries the beast that should carry him in what appears to be a market-place, thronged with men, women, children, soldiers and civilians. Every figure is painted with care and has a distinct characterisation. The colours have to be varied, but the effect is not disagreeable. It may not exemplify pictorial composition in the usual acceptance of the phrase, but there is no doubt

of its thoroughness and spirit. Another work no less remarkable is Mr. J. C. DOLLMAN'S *Mowgli made Leader of the Bandar Log*. His *Kismet* of last year was a revelation of unexpected power, and this year's picture is still more remarkable evidence of development. The monkey has often appeared in paintings, but in this picture we have a host of them engaged in the important duty of selecting a leader. The legend may have been familiar for generations in India, for we cannot suppose it is a sarcasm on elective assemblies. Mr. DOLLMAN has, at least, gone through his work seriously, and not one of the little beings can be considered ridiculous. MOWGLI, the boy familiar with elephants, realises his helplessness, but no look or act leads his observers to imagine he is unworthy of the onerous post, and he deserved the honours he received from the elephants for his bravery. The picture is undoubtedly the most original in the exhibition, and the lighting recalls the scene of the conference. Strong light of another kind is exhibited by Mr. LA THANGUE in his *Mowing Bracken*, which is presumably a Sussex incident. But three of his four pictures are derived from Provence. *The Provençal Winter* will make many people desirous to escape to a land where roses and fuschias grow, oranges abound, and the seasons appear to be reversed.

ENCYCLOPÆDIA BRITANNICA.*

AMONG the auxiliaries of literature the index-maker was always one of the least appreciated. This is easily explained. A great many, if not the majority, of books are at most read through once and are rarely referred to afterwards. When a work was to be carefully studied the reader was advised to prepare his own index to it. Knowing how little value was set upon his labours, and the poor price paid for it in most cases, the index-maker often scamped his abstracting. Indeed, it was an opinion among publishers as well as some classes of readers that the shorter the index the more it was efficient. Many of the most important English books are not even provided with a brief index. STUART MILL'S "Political Economy" is one, his father's "Analysis of the Human Mind" is another. There is only an insufficient index to the "Logic," and, in consequence, summaries have been brought out to serve instead. In some instances it may be said that inefficiency arose from independent thinking, as in that of MILL, but writers who have had to depend upon the authority of books have suffered so much from the absence of indexes, or through those which are imperfect, they have been careful to provide against similar charges being made against themselves. CARLYLE often used very strong language on the subject, and he not only attached an index to each of his works, but they were all collected and rearranged in a separate volume. Without an index, remarks FULLER, "a large author is but a labyrinth without a clue to direct the reader therein. I confess there is a lazy kind of learning which is only indical, when scholars (like adders which only bite the horse's heels) nibble but at tables which are *calces librorum*, neglecting the body of the book." There is no class of book which does not gain by a clue of the kind. Dr. JOHNSON, who probably performed a good deal of unknown drudgery over indexing, wrote to RICHARDSON, the novelist, suggesting one for "Clarissa." As he said:—"I wish you would add an *index rerum*, that when the reader recollects any incident he may easily find it, which at present he cannot do, unless he knows in which volume it is told; for 'Clarissa' is not a performance to be read with eagerness and laid aside for ever, but will be occasionally consulted by the busy, the aged and the studious." RICHARDSON is still without his index, in common with all his successors, except CHARLES DICKENS, to whose writings there is an index-dictionary which is an invaluable aid.

With a work so comprehensive as the "Encyclopædia Britannica" an index is indispensable. It was objected that by adopting the alphabetical arrangement for a work of that class a treatise on any subject had to be broken

into fragments. The index, however, gives some compensation, for it collects the parts and thus enables a reader to co-ordinate them into a whole. The advantage is also gained of being directed at once to the particular matter about which one may be seeking knowledge without undergoing the labour of reading through a long article. It may be said that, apart from its utility as a guide, an index to an encyclopædia enables a reader to be impressed with the extent of knowable things in the world, and although he may not be able to take all knowledge as his province, he can conceive its vastness and diversity. In such indexes, as SHAKESPEARE foresaw, "there is seen the baby figure of the giant man." It is difficult to explain how this is done in the multiplex volume before us without reprinting at least a page. But it may be indicated in an imperfect way by a comparison of a few items of the index of the ninth and tenth edition of the "Encyclopædia Britannica" with that of the eighth edition, which was prepared by the Rev. J. DUNCAN. The more modern work consists of 1,058 closely printed pages. As there are five columns in each we have 5,290 columns of small type. In the index to the eighth edition there are only 928 columns. If we regard the different sizes of the type we may calculate that the latest index contains at least six times as much matter as its immediate predecessor. The increase is partly owing to the more systematic and exhaustive manner of showing respect for details; but we must also remember that in the years which have elapsed between the publication of the two indices knowledge has grown from more to more to an unprecedented extent, and that all the advances are recorded in the "Encyclopædia." It would be a profitable task for any student to compare the two carefully, for in that way he would come to understand what modern omniscience involves. But a slight effort may be made by glancing at some of the headings relating to architecture and building to suggest the character of the work. The test, no doubt, is as inadequate as the old pedant's brick was to represent his house, for it cannot be asserted that architecture as a fine art has made extraordinary progress, and in building the old ways are still respected. In the index to the eighth edition architecture is treated under the following heads; we omit the references to volumes and pages:—

Architecture—French Academy of; Mexican; Peruvian; Chinese; Egyptian; Nubian; Hindu; Grecian; Roman; Italian; Gothic or Pointed; principles of architectural composition; glossary of terms; Assyrian; of Pompeii; Spain; America; Alison on the beauty of Grecian; Coulomb's statical problems relating to; improved by the Crusades; its position among the arts; Lombard style; garden architecture; in the reign of Queen Elizabeth, &c. See Arch, Building, Carpentry, Chimney, Dome, Free Masonry, Roof, Stone Masonry.

In the new edition the following articles are given:—

Architecture—Anglo-Saxon; Arabesque; archæological discoveries; Assyrian; Babylonian; bibliography; Byzantine; Chinese; on coins; colour in; of Coptic churches; Cyclopean; Egyptian; Elizabethan; and ethnology; Etruscan; French; Georgian; German; glossary; grotesque in; Indian; iron work; Jewish; Mediæval societies; megalithic; modern English; modern European; and music; Norman; orders; Palmyrene monuments; Persian; Phœnician; prehistoric; pyramids; Raphael; Renaissance; Ruskin's works; Saracenic; societies; street; Tudor; Vitruvius's work; Zodiacal symbols.—American; ancient; sky-scrapers.—Gothic; England; France; Germany; Italy; Spain; transitional style.—Greek; Corinthian; Doric; early; Ionic.—Roman; Colosseum; columns; domestic; orders.

On building in the eighth edition the following articles appeared:—

Building—Transmission of sound by stone; deadening of sounds in rooms; calc-tuff as a building stone; Purbeck and Portland stones; expansion of building materials by heat; strength of different kinds of wood; and of stone.

It should be remembered that men like THOMAS YOUNG, TREDGOLD and ASHPITEL contributed articles on construction, some of which were found in the earlier editions as well. But what different proportions does building assume in the index to the latest edition:—

Building—and architecture; beams; brickwork; cabinet-making; carpentry; casements; cements; clubs; architecture;

* An Index to the complete *Encyclopædia Britannica*, being the eleventh of the new volumes which constitute in conjunction with the existing volumes of the ninth edition the tenth edition of that work. (Published by the *Times*, London.)

cost of, in London; floors; gasfitting; gilding; glazing; house-painting; joinery; joints in carpentry; legislation concerning, U.K.; masonwork; materials in Rome; method in Paris; modelling; mouldings; mural decorations; paving and draining; plasterwork; plumberwork; protection against fire; railway cuttings; sawyerwork; slatework; smithwork; stairs; steel construction, N. York; stone joints; ventilation; in United States. Building stones:—Dartmoor granite; Haute Savoie, France; classification of.

A single article sufficed for archæology in former editions. Now there are special articles on various periods as well as on remains in several countries, or in other words, the science has attained twenty times the former magnitude.

It is, however, when we consider topics of a different kind that progress is more manifest. Electricity, for example, needs three columns of the index. Steel, for which ten lines sufficed, has now nearly a column. The importance of sanitary science in our time, as compared with that of Dr. LETHABY and Dr. LANKESTER, is revealed by the index. Even in subjects belonging to metaphysics, psychology, logic and philosophy in general we realise how the intellect has been active. Political science, if not as certain in its conclusions as physical science, demands almost as much attention. McCULLOCH would have thought the world was near its end if he saw the number of articles which relate to socialism and communism, as if he had not repeatedly denounced them in former editions of the "Encyclopædia." Theology also could not resist the forces which have been at work. If not a progressive science, it is shown to be a widely related one, and is expected to be submitted to evolution, development, symbolism, philanthropy, system, and to stand on a philosophical basis. There is, in fact, nothing in which men take an interest which is not found in the volumes, which are universal in their aims, and beyond all the preceding efforts come nearest to the ideal of ALSTEDIUS, the Saxon, when he wrote:—"Encyclopædia est systema omnium systematum, quibus res, homine dignæ, methodo certâ explicantur."

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER XI.

SYMBOLIC ART.

AMONGST the numerous resources possessed by a designer for giving variety to architectural façades, the introduction of symbolic emblems and figures is second to none in value.

By this means the intention of the building can be aptly expressed, even where it may be difficult to do so by the general lines of the façade, and without having to resort to the use of inscriptions as the sole means of interpretation.

To mention two concrete examples—the first called to mind—the Trinity Almshouses in the Mile End Road, London, express their purpose in any case, and, aided by the symbols at the entrance, &c., convey the impression that the inmates have been associated with the sea—similarly with the sea-horse effigy at the Admiralty, London.

Again, where on the façade of a building, a series of medallion portraits of artists is displayed, the natural inference is that the structure is an art gallery.

But the use of symbols and symbolism (*συμβάλλω*—to throw or take with), has a much wider significance, and the subject is as interesting as it is ancient—almost archaic. Most names of people and places transmitted to us from thousands of years ago bear a hidden meaning—sometimes discoverable and in other cases lost. Whilst a journey over this ground would be very attractive, it is not appropriate for this series, and must therefore be relegated to some other occasion.

Symbols admit of the following classification:—

Those expressed in (a) names; (b) digital numbers; (c) animal forms; (d) colours; (e) geometrical diagrams; (f) common objects; (g) mythological forms; (h) vegetable forms.

The first two classes will not be enlarged upon in this

series; but, in passing, the following examples may be given:—Derivatively, the name *Abraham* means *the father of nations*; the word *Hebrew* refers to descendants of *him who passed over* into Canaan; *Mesopotamia* refers to the district *between the waters*. Respecting digital numbers, each one in turn has probably at some time or other been represented as of symbolic value. In fact, the *sans-culottes* and their fellow-citizens at the time of the great French Revolution went further, and would designate one individual as "the man of 28th February"—or of 1st April, as the case might be.

These two classes of symbolic possibilities do not, however, come within the architect's professional ken; but when the succeeding classes are considered, a close connection with the designer's opportunities is at once observable; the use of symbols—from an architectural standpoint—being to embody ideas or to suggest ideas which the building itself should develop.

But care must be taken that the symbol is neither involved nor too far-fetched, except in cases where a prescriptive use is attached; for if a symbol is to act as an index to a building, it is useless to write it in a language that may not be understood. To give examples—everyone recognises the sign of the three golden balls as representing pawnbroking, simply on account of its prescriptive force, for otherwise it is not at all self-explanatory; the fact that it is a reminiscence of the Lombards, who were the prototypical money-lenders, is not universally known, and even then this is only an intermediate stage in the explanation of the symbol, which, pursued to its reputed origin, is to be found on the armorial bearings of the MEDICI family, who included some of the wealthiest of the Lombard merchants; the three golden balls on the coat of arms are said to be a punning device on the family name, for three golden pills. This is more than probable, as puns and acrostics have the complete sanction of antiquity to recommend them.

If, on the other hand, a blindfolded figure holding a balance is seen on a public building, it requires but little perspicacity to understand it as symbolising Justice. The cat as an emblem of Liberty is not as apparent, though it is so recognised, and its position erstwhile in a niche in the wall of Newgate Gaol had a peculiar inappropriateness, tinged, perhaps, with malicious humour.

There is one quality in art that has not been enlarged upon in this series, and, as a matter of fact, scarcely admits of diffuse treatment, and that is the quality of *mystery*; nor is there any intention to do more than refer to it here to emphasise the objection to its use in connection with symbols; the latter, as above remarked, cannot be too luminous. Mystery has a value of its own in pictorial design generally, and in architectural design when concerned with religious and memorial buildings, as it creates or fosters a feeling of transcendentalism, which, under such circumstances, is appropriate.

The art of obtaining an effect of mystery is considerably more negative than positive in its nature. Mystery is obtained by the suggestion of hidden possibilities, and the "dim religious light," of which so much is made, is a powerful factor in perfecting a scheme where mystery is to play an important part. In Westminster Abbey there are vistas and passages as full of mystery as of beauty; and though there may be some who will disagree on the next point, yet the writer is free to confess that, for his part, numerous as his visits to St. Paul's Cathedral have been, he cannot discover the slightest suggestion of mystery from any standpoint in the body of the building, except when gazing upwards into the dome.

And it may be stated here that age is not a necessary attribute of mystery; that it occupies a prominent place in relation to it may be granted, but that is all. In the case either of the Assyrian winged man-bull or of the Egyptian sphinx, if these were created afresh to-day, but line for line in full agreement with those in existence, the air of mystery would still be perfect.

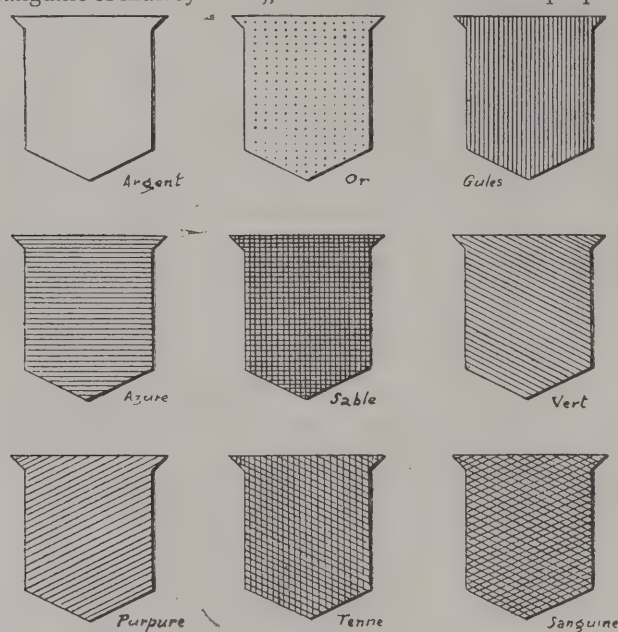
Colours have symbolic meanings, when used either independently of, or in connection with, common objects; and as Heraldry has provided a method for representing the several colours, irrespective of actual pigments, architects are able to make full use of them as symbols, if desired.

Briefly noted, the heraldic names and representation of colours are:—

Red	blazoned as	gules.
Blue	"	azure.
Black	"	sable.
Green	"	vert.
Purple	"	purpure.
Gold	"	or.
Silver	"	argent.
Orange	"	tenne.
Blood-red,	"	sanguine or murrey.

Since the sixteenth century these colours have been engraved on a system of lines and dots, said to be the idea of a certain Signor PETRASANCTA. Thus (see fig. 74)—

Gules (red)	is represented by	vertical lines.
Azure (blue)	"	horizontal lines.
Sable (black)	"	cross-hatching of the above.
Vert (green)	"	diagonal lines from right to left.
Purple (purple)	"	do. from left to right.
Or (gold)	"	the use of small dots.
Argent (silver)	"	a blank shield.
Tenne (orange)	"	cross hatching of vert and gules.
Sanguine or murrey	"	do. vert and purple.



Heraldic Colours

FIG. 74.

It is sufficient, in concluding these remarks on the engraving of heraldic colours, to call attention to the fact that directions are read as from the position of the shield when borne by the owner and blazoned personally.

A reference was made before in this chapter to the early use of acrostics. These have not any particular architectural bearing, but "rebus" have been not infrequently used as a variety of decorative sculpture. The famous one of Prior BOLTON in the church of St. Bartholomew the Great, London, may be instanced. This fine old Norman structure is situated in West Smithfield; in the south triforium is Prior BOLTON's window, a simple, shallow oriel, with stone-carved panels beneath the lights; the central panel bears the semblance of a *bolt* driven through a *tun*. Another rebus called to mind is that of Friar ISLIP, where a man is portrayed *slipping* down a tree.

In the succeeding pages are given two alphabetical lists of symbols; the first indexing the symbols used, and the second indexing the characters and characteristics symbolised. In many cases the emblems that are used bear reference to one or other of the Saints, who, however, are but slightly dealt with in this series, though their symbols are used. Since preparing these lists, the writer has become cognisant of a book by Mr. E. A. GODWIN ("Saints and their Symbols"), which enters with some degree of minuteness into that branch of symbolism, and which will prove a valuable work of reference for the purpose. For the present work, it is considered adequate to give a generally useful list, without trenching on the ground so ably covered by Mr. GODWIN.

(To be continued.)

IRISH ARCHÆOLOGY.

A SERIES of lectures has been given in Dublin by Mr. George Coffey, M.R.I.A., Keeper of the Irish Antiquities, National Museum, Dublin, on "Pre-Christian Civilisation in Ireland." The lectures are in connection with the memorial of the late Miss Margaret Stokes. In his opening lecture, Mr. Coffey said that within such a narrow limit of time as was at his disposal he could only give them a mere view of the fringe of this subject, and in commencing he would try to give them a general sketch of the Stone Age in Ireland. They had up to the present no definite facts as to when man first appeared in Ireland, but they had evidence of the association of man with the great Irish deer or elk. In a cave in Waterford a large number of bones of the elk had been found, and these bones had been split down—evenly, and in the same cave sharpened stone implements had also been found abraded at the ends, thus proving that human agency had been at work. They had another portion of evidence as to the presence of man at this remote period—the configuration of the coast as they went north from Dublin. Beneath the raised beaches in many places were peat beds containing the roots of old trees—yew and oak. In Down and Londonderry, the great flint counties of Ireland, there were many places covered with splinters of flint and the remnants of what were almost beyond doubt implements in the Stone Age. Since that time they would find something of the arts when man gradually changed his habits from being only a hunter and raised crops and reared domestic animals. Mr. Coffey then caused to be shown on the screen a number of ancient stone axes, arrow-heads and various implements which were greatly admired, as were also the lecturer's interesting description of the various stages in the chipping, grinding, sharpening and polishing of these primitive tools and weapons. Proceeding to deal with the cromlechs, or ancient burial-places in Ireland and elsewhere, Mr. Coffey pointed out that these peculiar structures were, without almost an exception, erected either on the coast or a very short distance inland, more particularly where a river renders access from the sea an easy accomplishment. It was evident, he said, that the central parts of Ireland were covered with dense forests of yew and oak at that period. The lecturer also referred to several coast settlements of ancient people in the Stone Age, which had been definitely located, notably that at Whitepark Bay, where many valuable relics had been discovered. The lecture also included an account of primitive milling, and quite a number of fine photographs were shown, with pictures of early pottery.

In his second lecture Mr. Coffey dealt principally with what is distinguished as the Bronze Age, a cycle supplanting the more ancient and primitive Stone Age, when most of the weapons of war and chase and implements of industry, circumscribed so much as the latter branch of life undoubtedly was, were fashioned out of the nearest and most crude substances. The lecturer expressed the opinion that the Stone Age, as calculated by all available evidence, might be said to have come to an end in Southern Europe between 2500 and 2000 B.C. A remarkable thing with regard to the appearance of metal was that metal was found in a state which marked a transition stage from the Stone Age culture to the Metal Age culture, practically, over the whole of prehistoric Europe. With regard to the beginning of metal in Europe they could no longer say that it was derived from the East. The evidence was just as strong for the origin of metal in Europe as in the East; but whether it originated in the East or in Europe they could not really say. It might perhaps have had two or three centres of origin. The first appearance of metal was found in the form of copper. It was quite possible that man had discovered the use of copper at different periods in Europe, and that that might account for the fact that they had at these different centres, as it were, a story of progress all to itself. A large number of interesting pictures of axes and other implements were thrown on the screen representing the copper "interregnum," and the lecturer stated that Ireland and Hungary were the two countries in Europe which had the largest collections of copper implements. The copper picks in Ireland had never been found with handles, but specimens of the same implement had been found in Spain with wooden handles, preserved to an extent which gave a thorough illustration of the manner in which such articles were fashioned. Mr. Coffey proceeded to sketch with much attractive vividness, illustrating his remarks with many instructive pictures, the merging of the "copper" period into the Bronze Age. The copper axe preserved all the distinctive features of the stone axe, and these features were maintained in the implement of bronze and gradually developed and improved upon. It was almost impossible to say when tin was introduced, but in the development of the bronze period they found that the "amalgam" was in the proportion of 90 per cent. copper and 10 per cent. tin. It was also very difficult to get the exact stage when the wood was inserted and secured in the socket of the axe or spear, instead of the axe or spear blade or haft being inserted in the wooden handle. From this point Mr. Coffey

gave some interesting details as to the development of the axe and spear, and the arrival and improvements in form of the dagger and sword. Taking all the evidence into consideration, he thought the centre of the Bronze Age might be placed at between 1000 and 800 B.C. The moulds for these weapons were first of all cut out in stone—sandstone for preference, but from the formation and finish of later weapons they could safely say that the use of clay moulds came to be recognised and generally used. Stone moulds and the remains of clay moulds had been discovered in various places. Referring briefly to the question of gold ornaments which had been discovered in Ireland and some handsome specimens of which were thrown upon the screen, the lecturer said the question had been asked, Was this Irish gold? Most people were sceptical, but he always replied that if it was not Irish gold they had a much more difficult question to face.

The third lecture dealt with the ancient Celtic views concerning the soul and their influence on the burial customs of the people. We know from Lucan's *Pharsalia* and other sources that a belief in personal immortality was an essential element in the old Druid faith—one so prominent that it seemed to have impressed all the writers of antiquity who have touched upon the Celtic peoples. This lecture further described the wonderful subterranean structure known anciently as *Brugh-na-Boinne* (the palace on the Boyne), at Newgrange, in county Louth, a memorial of Druid times which dates back many centuries before the Christian era, and is as unique and interesting in its way as the far better known relics at Stonehenge, though, probably, the majority of educated Irish people have scarcely heard of, much less visited, it. The last lecture dealt with the remains of the Iron Age, which followed on that of bronze, bringing us down to much later times, and also with the distinctive features of Celtic decorative art before as yet it was influenced by the introduction of Christianity, and, consequently, of new motives in art.

PAINTING IN IRELAND.

AT the annual drawing of prizes of the Art Union of Ireland the following address by the president, Lord Powerscourt, was read:—Among the events of the artistic year here in Dublin have been the first of what we hope will be a series of winter exhibitions of pictures by Old Masters. There were collected examples of Gainsborough, Sir Joshua Reynolds and Romney, the three portrait-painters whose works are the most appreciated in the present day, and specimens of whose talent command the highest prices when they come to the hammer. Romney especially, with his light and graceful touch, is a master whose paintings are eagerly sought after by the millionaire, who pays twenty to thirty times or even more than what the artist received for them from his easel. It was to most people who saw the collection which had been got together to adorn these walls a great surprise to find that even now, when it was thought that from adverse circumstances much of the art which formerly existed in Ireland had disappeared, there was still to be found a number of gems of the highest merit which were still preserved in Ireland. I imagine that this winter show, especially as it was accompanied with afternoon tea and music, must have helped the finances of the Academy to a considerable extent. With respect to the present exhibition, it seems to me that there is a decided improvement over former years in the quality of the works exhibited by our native artists. But there are a few pictures lent from over the water which must first claim our attention. Perhaps the most remarkable is the powerful portrait of Lord Russell of Killowen, by Mr. Sargent. It shines like a gem across the room, and you can almost think you hear the great lawyer addressing you. There is also near it a fine portrait of Lady Ulrica Duncombe, by Mr. Shannon. These two are well worth the careful study of our native students; in this latter picture the flesh tints are extremely delicate. One of Mr. Hayes's breezy seapieces, perhaps his masterpiece, occupies the centre of the wall. On the same wall is a fine picture by Mr. Alfred Grey, "The Home of the Red Deer." The sun shining through the mist is very well portrayed; it is the best work I have seen from his pencil. There is a striking likeness of the late Marquis of Dufferin, full of truth and strong colour. Among the pictures most worthy of remark are the two works of Mr. Orpen, "A Window in London Street" and "A Mere Fracture," in the former of which the composition and the fine finish is worthy of all praise, and the latter is also a most careful and conscientious piece of work. Mr. Orpen is making a name for himself, and will go far. Mr. Shore has progressed very much in his representations of shipping. I think his work of this year is the best we have seen; in marine painting Mr. Pearsall shows also some beautiful examples. Mr. Orpen's work, with its accurate delineation of all the detail and truth in form and colour, reminds me much of the pictures of Zoffany, a painter of the last century, whose

works command high prices at public sales. Mr. Harry Scully has also a very nice picture, No. 97, "The Cloister and the World;" the architecture is extremely well done and the figure of the monk tells its tale most graphically. He has also another work of merit in a different style, "The Lowing Herd Winds Slowly o'er the Lea." Mr. Nassua Blair Browne also shows some clever works, especially "The Winter's Store;" the horses feeding on the haystack are well drawn and the foreshortening very good. For winners of small prizes I admired No. 19, "Calves," by Miss Thompson; No. 24, "The Wood of Annagh Ross;" No. 146, in the outer room, "Sir John Rogerson's Quay," a familiar scene in Dublin; No. 194, "A Golden Harvest," by Mr. Gregor Grey; a strong portrait, No. 204, by Mr. Allan, and many others. Mr. Walter Osborne's portraits need no praise from me; they speak for themselves as good likenesses and work of a facile brush. Mr. Alexander Williams also has faithful representations of Killarney, and many studies of Irish scenery which he exhibits in London and elsewhere. The other important event in art in Dublin is the recent reopening of our National Gallery. Under the direction of Sir Walter Armstrong and the genius of the architect, Mr. Manly Deane, a member of our Academy, the Gallery has been almost entirely reconstructed, with the exception of the great hall and the adjacent rooms, and series of galleries have been added which give opportunity for the placing of pictures of different schools of art, Italian, Dutch, English and others in such positions as that the visitor can now see every work in the best manner and in good light. I think that we have now got a gallery which will vie both in excellence of arrangement and in the merit of the works which it contains, even with a good many of the continental galleries, and certainly with those of such cities as Liverpool, Manchester, Edinburgh and others in the United Kingdom. Dublin may now really be proud or possessing a home for art, and a collection in it which is worthy of any city in the Three Kingdoms, and will hold no mean place even in the museums of art of Europe. This ought to be an encouragement to Irish artists to go on and emulate the fame of those who have gone before them, and although I hear many say that art is going down in this country, I think that the Academicians and others who have contributed to the show in these rooms prove that there is still the artistic spirit in Ireland which has always been attributed to the natives of this island. Since writing the above I have been shocked and grieved beyond measure by hearing of Mr. Walter Osborne's untimely death. It is most sad, and the more so as his reputation as an artist was rising every day, and his works were appreciated not only here but in London also as being of a very high class. Besides having lost one of our most distinguished painters, those, like myself, who knew him, have lost a dear and good friend. He was marked out for distinction, and I deplore more than I can say the sudden termination of a successful career.

PLAYING CARD DESIGNS.

THE Worshipful Company of Makers of Playing Cards announce their annual competition in designs. The "H. D. Phillips Prize" of 10*l.* 10*s.* is offered for the best design for backs of playing cards intended for presentation by the company to its guests at the inauguration banquet of the master and wardens. Three other prizes, of 5*l.* 5*s.*, 3*l.* 3*s.* and 2*l.* 2*s.* respectively, are offered by the company for the three next best of such designs. Novelty of idea will be regarded as an important element in the competition. To enable competitors to avoid repetition in design, they may inspect the cards issued by the company since 1882 in the Guildhall Library, or a photograph of those cards may be obtained, on payment of 1*s.*, from Mr. W. Hayes, the clerk of the company, Guildhall, London, E.C., to whom applications for any further information may be made.

The British Government have decided that a sum of 30,000*l.* shall be included in the Estimates for the year 1903-4 for the purpose of the St. Louis Exhibition. A decision as to what further amount shall be provided is deferred until it is ascertained to what extent a larger sum may be required. The office of the Commission is at 47 Victoria Street, S.W.

Sir Henry Lawrence, sub-treasurer of the Inner Temple, has stated that the Temple Church has been examined by an architect, and the matter is under consideration of the Benchers of the two Inns. The carving and decorations of the porch were considerably decayed, and would, sooner or later, have to be renewed. It was a question whether this would have to be done now or ten years hence. There was, however, no structural damage, and nothing to imperil the safety of the building. All the decayed work only dated back about sixty years, when there was considerable restoration of the church and unsuitable stone was used.

NOTES AND COMMENTS.

THE last number of *L'Art* suggests the aristocratic character of its upholders. There is an etching of a farmhouse in Normandy by Her Royal Highness the Countess of FLANDERS. There is a reproduction of a painting of a bull-dog by the Princess WALDEMAR OF DENMARK, and a pastel portrait of Colonel BURNELL by the Baroness LAMBERT. But the most important in an artistic sense is a scene from "Cinq-Mars," by Prince JACQUES DE BROGLIE. It shows a dining-room in the Château of Chaumont, which belonged to CATHERINE DE MEDICIS. The architectural part is represented with the utmost exactitude, and the numerous figures would do credit to any water-colour artist of the day. In addition to the plates in the number, an additional etching of a lion "Au Désert" is presented to subscribers. An article on HORACE VERNET as a caricaturist comprises memoirs of the French architects FONTAINE, HUYOT, VAUDOYER and LE BAS, who were subjects of his humour. The number is a remarkable one, and testifies to the undiminished spirit and tact of the editor, M. PAUL LEROI.

THE English visitor to Verona generally turns to the chapel, with its rough red sarcophagus, which is assumed to be the tomb of JULIET. There is continual disappointment, but as long as the old horse-trough remains it will be an irresistible attraction. Of infinitely more importance, in an historical and architectural sense, is the arena, which is supposed to date from the end of the third century. It could accommodate about 20,000 spectators on its seats or steps, and an equal number could watch the performances standing. Visitors from this country are annoyed when they find they have to pay half a lira for admission. The reason is the ruins are private property, belonging to the MONGA family. The municipal council are desirous of putting an end to the present state of affairs, and it is believed negotiations have been concluded which will make the old amphitheatre, which is next to the Colosseum in importance, the property of the city, and it will be open to all without any fee. The arena measures 242 by 146 feet, but the outer dimensions are 500 by 404 feet, the plan being elliptical. From the four bays remaining of the outer enclosure it is possible to form an idea of the appearance of the great structure.

IN 1885, when the late ACHILLE HERMANT was added to the roll of foreign members of the Royal Institute of British Architects, we published the house in the Rue Legendre which he designed for his residence and office. It adjoined the dwelling of BASTIEN LEPAGE, the painter. As we said, "M. HERMANT departed from the usual practice, and, instead of a very tall building, he erected a house of a size that would be sufficient for his own requirements. Compared with many in the neighbourhood it could be called a cottage. It might be said that the key to the arrangement of the elevation was found in the initial letter of his surname. As the letter H is made up of straight lines, so the house was made to exemplify lintel architecture. With the exception of the basement, arched openings are absent." Modest as was the mansion, M. HERMANT conducted an important business within it. He was one of the best-known and respected architects in all Paris, and as such was often consulted during lawsuits. He had reached, however, his eightieth year, and though hale and hearty, he succumbed under a brief illness. He had obtained various medals from the Salon and other exhibitions, and designed several private as well as public buildings in Paris. He wrote many essays and papers, especially upon the legal responsibility of French architects. One of his sons, M. ABEL HERMANT, has already won a distinguished position among French writers by his novels and plays. M. JACQUES HERMANT co-operated with his father and will carry on the practice, and M. PIERRE HERMANT is a composer.

ILLUSTRATIONS.

SHALDON CHURCH, DEVON.

THIS new building was consecrated by Bishop RHYL last July, being the first church that was newly consecrated in the reign of EDWARD VII. It is built of

five different kinds of stone, which give colour to the walls, and no plaster has been used in the building. The church consists of chancel and nave, measuring 130 feet in length, the width across the aisles being 45 feet. There is a south lady chapel that is separated from the chancel and aisle by wrought-iron grilles.

All the ceilings in the church are simply vaulted in stone of two colours. The vault of the aisle ceilings is in the form of a half-arch, formed into panels by ribs and purlins of Bere stone. The barrel vault of both nave and chancel is divided up by wide ribs and purlins, these being nearly 2 feet in width. The vaults are constructed so that the thrust is self-supporting, but flying buttresses give additional security to the structure. The west window is 23 feet wide, and is supported on a segmental arch across the nave, under which the font is placed. An alabaster figure of St. JOHN as a youth holding a shell forms the font. The chancel screen is of stone, the upper portion of which is to be rearranged. The central figure is of bronze. The figures of stone and alabaster were executed by Mr. HITCH, of London. The cost of the building in its present stage has been about 10,000/. Mr. EDMUND SEDDING, F.R.I.B.A., is the architect.

REDGARTH, CORK: GARDEN FRONT. THE HALL. DRAWING-ROOM. DINING-ROOM.

THIS building has been erected by Mr. ARTHUR HILL for his own residence, and the views suggest that a modern type is not unacceptable in Ireland. As the scenery about Cork is picturesque, there is an advantage in having a satisfactory house in one of the desirable positions.

RAVENSLEA, NIGHTINGALE LANE, WANDSWORTH COMMON.

THE materials of which this dwelling-house is built consist of red brick and Bath stone facings, with red Aberdeen granite columns supporting the porch. The roof is tiled and there is an oak verandah at the rear. There are four reception-rooms and a billiard-room, all having 2-inch six-panelled mahogany doors on the ground-floor, with all necessary offices. The bedrooms are eight in number besides two attics. The whole of the apartments are plainly but tastefully decorated, and the building, which stands in about an acre of ground, cost altogether about 5,500/. The architect is Mr. HERBERT BIGNOLD, and the builder, Mr. A. BOON, who is also the freeholder of all the adjoining property, resides in the old mansion belonging to the estate, which is known as the "Furze."

GRAND HOTEL, CHARING CROSS: THE BRIDGE.

BY an oversight this work has been overlooked, although arrangements were made for its illustration soon after it was set up. The bridge continues to be unique, although many structures to serve as means of communication across streets are to be seen in the Metropolis.

THE LESLIE ARMS HOTEL, CROYDON.

THE WHITE BEAR HOTEL, PORTSEA.

IN the ground floor of this building, including the name-fascia, BURMANTOFT'S faience has been employed with advantage. There is not only an attractive appearance, but cleanliness is easily obtained. The adoption of the material imparts a variety in a district in which there is an excess of sameness.

THIRKLEBY CHURCH.

THIS little church, of which an illustration appeared last week, was built by Lady FRANKLAND RUSSELL, in memory of the late Sir ROBERT FRANKLAND RUSSELL, Bart. It stands upon the site of a former church, which was erected some time during the last century—a poor design in the Italian style. The present church has accommodation for about two hundred worshippers. It is built entirely of stone, arcaded inside, and has a lady chapel on the south side of the chancel.

THE ARCHITECTURAL ASSOCIATION.

THE concluding meeting of the session of the Association was held on Friday evening last at 9 Conduit Street, W., Mr. H. T. Hare, president, in the chair.

The following were elected as members:—Messrs. R. Laensler, C. R. B. Murphy, J. P. White, Geo. Hornblower. Mr. A. Dicken was reinstated a member.

On the motion of the President votes of thanks were accorded to the Royal Institute of British Architects for the velfth grant of 100*l.* and for the use of the meeting-rooms, to the School of Design visitors and to the Technical Education board for the facilities afforded to members in workshop demonstrations.

It was announced that the members' supper would be held at the Hôtel Great Central on Friday, May 15.

Mr. A. NEEDHAM WILSON read the following paper, entitled

Architecture and the Public.

It may be considered that in selecting such a subject as "Architecture and the Public" I may be travelling over well-worn ground. I hope to avoid the charge, for a threadbare fabric is scarcely improved by further embroidery of the old pattern, but may present new aspects if held in differing lights. It will be my endeavour to offer for your consideration these differing lights, in the hope that the aspects may occasion some opening for useful discussion. As I look back over the period during which I have dwelt in the architectural world (a longer period than I like to contemplate sometimes) it appears to me that I have witnessed a remarkable change. The old order of things has passed away, and the architectural era I now live in is a very different one to that which witnessed my architectural birth. I do not intend to emulate either the keen insight or the eloquence of Professor Pite's review, read before the Institute recently, and that masterly *résumé* is probably too fresh in your minds to require any enlargement from me. We have passed through many stirring influences. We underwent the ordeal of the *Æsthetic* era in emerging from the Victorian—we had a severe attack of the "Queen Anne"—and recently we have suffered more or less from a strange disease now as the "New Art," from which we are scarcely convalescent. We have fortified our constitutions with the school of Norman Shaw. We have trembled in the throes of the Gothic Revival and the influences of the Oxford Movement, and we have seen as the outcome a new and, I venture to think, a sturdy development of Ecclesiastical architecture. And a greater appreciation of the Renaissance stock has encouraged the grafting of some vigorous shoots on that fine old tree.

New methods of training have been established, and the powers that be have been more or less alive to the necessity of keeping abreast of the rapid changes of this strenuous age and he demands thereby created. It is pleasant to feel that our Association has been and is anxious to meet those demands and to furnish the rising young architect with the equipment necessary to encounter them. Is it too picturesque or overdrawn to imagine English architecture as a giant awaked from sleep, and ready and anxious to battle successfully under the new conditions amidst which he finds himself, still stretching his powerful limbs and yawning a little? I believe, by the way, architecture is generally represented as a lady—but let that pass.

If it be granted that we are living in a transitional age, and that the old order of things has passed away, that as a nation we are awaking to the knowledge that we can no longer plod along in our old stubborn way, but must bestir ourselves unless we would be left behind and unheeded in life's race, are we architects fully alive to the fact?

New inventions, new ideas, new demands, new conditions, new uses for materials crowd upon us and increase daily. We have a differently constituted public to cater for, with an education which makes them infinitely more difficult to please than formerly, and yet have we succeeded in awakening generally a greater appreciation of the beautiful in art as far as we are concerned? Have we succeeded in more than meeting the demands of sanitary and constructional enlightenment? Are we leading or being led? Is architecture to-day an educational force calculated to elevate and teach and brighten the existence of the masses, or to relieve the dull grind and monotony of the great middle classes, or the sordid and deadly dull existence of the workers? Are we as fully equipped for this position as we ought to be, or even alive to the necessity, or is it all the idle Utopian idea of the dreamer, and shall we meet it with the reply that it cannot be done at 5 per cent.?

Further, has the status of the architect at all improved, or is he still considered a visionary, an unpleasant necessity, or an unmitigated nuisance, whose services may be dispensed with if possible? Can he command, any more than before, the tribute of brains and genius ungrudgingly given to the successful painter or sculptor, or can he appeal to the popular imagination with the expression of those brains and genius as can the

engineer? It may not be the ambition of all to appear in the illustrated papers or the cheap sensational dailies, or to be the cause of a torrent of dull statistics served up in attractive form for popular consumption in cheap magazines. But every architect in his soul must hanker even modestly for that deference, that indefinable bowing down, as it were, to the great ideals (which he often feels he so unworthily represents) from an appreciative public. But have we an appreciative public—one that can recognise genius when it exists?

It can scarcely be claimed that we are artistic as a nation. Art with us is not spontaneously produced, it is rather the result of forced effort; it is not the natural outcome of inherent liking—which will evolve art unconsciously without knowing that it is art. As a nation we do not produce art unconsciously, and as a nation we are not aware of the fact. The painter appeals more directly to the public than either the architect, sculptor or craftsman; not because the public appreciate painting as an art, but because it presents subjects which they like to see pictured in a way they understand. They are probably equally pleased with coloured photographs. In spite of our schools of art and all the machinery for inculcating a true and natural appreciation of painting as a means of representing the beautiful, how many of the vast crowds who throng the galleries of Burlington House are capable of judging whether a picture is good or bad either in drawing or colour? If they take any interest at all, it is only a languid sense that the subject pleases them in some undefined manner. And if this may be said of painting, wherein a serious effort has been made to train the public mind, how does it apply to the work of the sculptor and the craftsman, and still less the architect?

Yet I think even I can detect a growing appreciation of art for art's sake, as expressed by the painter, the sculptor and the craftsman, an appreciation that is gradually spreading, and even now with the public is supplanting what I may term the oleographic epoch. I hope I can detect signs of an appreciation of better things in domestic decoration, furniture and ornaments. Is it too optimistic to trust that the era of hideous flowered wall-papers, marble mantelpieces, grained woodwork, ugly mahogany, glass lustres, dyed grasses and wool mats, and their deadly dull atmosphere of sordid respectability is giving way to a craving for something better? The dull monotony of the struggle for existence is leading to a yearning for that which will brighten the grey and leaden hue of the lives of the great mass of the people. In their ignorance it may have taken a trend which we frequently deplore. It may be too often found expressed in tinted glass of an assertive nature, circular stone columns with real carving at the angles of the everlasting bay window, cast-iron monstrosities of various forms, and the weird introduction of so-called "half-timber." But we have not as yet succeeded in abolishing the deadly dreariness of the interminable streets of "villas"—long, wearisome vistas of endless monotony—the drab of which must be reflected in the lives of the unfortunates who dwell therein. Yet even the speculative builder caters for tenants with some approach to what he fondly imagines is art, finding that the "half-timber" is worth an additional 5*l.* on the rent. Shall we see the day when these interminable rows of dwellings, ground out of the speculative builder's mill, will give place to cheery and well-designed groups of houses facing their common green quadrangle?

Well, I venture to assert, not until we architects have a hand in the matter. Not until we have succeeded in moulding the popular mind into a far greater appreciation of the beautiful as expressed in architecture; not until we have suppressed the prejudices against us, and created such a demand that it will be as natural to employ an architect as it is now for the builder to draw himself one set of plans for a hundred houses. For any building of importance, and for many a private house, the services of the architect are felt to be a necessity, though this feeling has scarcely reached the stage when the architect will co-operate with the engineer and the contractor as a natural thing, when the public will insist that its engineering works must no longer be blots and eyesores, but possess a definite beauty.

I venture to think that as architects we hardly grasp the importance of the influence of our work upon the social well-being of the people. Do we not design too much for ourselves and our self-gratification? I suggest that we count too much upon the solid insular reserve of the Briton, and too little upon the emotional side, which it is our national characteristic to repress. As a case in point, may not the indefinable religious atmosphere of a church stir the emotions, or fail to do so, according to its sense of fitness for its sacred purpose? The man who can evolve deep devotional feeling in a cold, bald surrounding must be a devotee, and how few modern churches impress the worshipper with that sense of almost reverential awe which surely a church should create? If the emotions may be stirred by music, why not by architecture? However dull, however hardened a man may be, surely he must be unconsciously influenced by his environments and

may I suggest in this we have a means of educating our fellow men to a fuller and healthy appreciation of our work? It seems to me that this is a great responsibility, and one far greater than that hinging on questions of stability. This sense that the work of one's brain is an educating power for good or ill, to be handed down to future generations, and either held up to public derision or pointed at as something to be admired, or else utterly ignored. I think I would prefer to have my work held up as a something to be avoided than not have it noticed at all. And yet how many buildings in this unwieldy Metropolis attract even a passing glance from the hurrying thousands? Whose fault is it? It is easy to rail against the supineness of the public, but is that the true explanation?

And yet I suggest that there are signs that the public are slowly awaking to the fact that there is such a thing as beauty in building. They may not as yet have the trained appreciation which teaches them what should constitute beauty, but I think most architects will be prepared to endorse the opinion that they have to cater for much more critical clients than was formerly the case. Further, I will go so far as to maintain that the public are beginning to realise that a building may actually be ugly. Their ideas of beauty and ugliness may not coincide with either yours or mine, but the fact that they are not always prepared to accept the architect's dictum, though adding to one's difficulties, may surely be welcomed as a distinct advance and one that offers a fine educational field.

Some may not consider this "a consummation devoutly to be wished," and may hold that a new terror is added to the profession when every man who believes he can edit a newspaper or write a play better than anyone else will add a little dabbling in architecture and a dangerous knowledge of construction and sanitation. Picture the time when the egg-and-tongue wall-paper border will no longer be fixed upside down, or when it will no longer be held that warm carbonic-acid gas lies on the floor. I fear our profession will be robbed of its humours. But do we not see on every hand this awakening knowledge and keener interest in our work? If only it all can be turned in the right direction, I venture to prophesy that no registration of architects will be necessary to protect the public against incompetent or unqualified men, but that the public will no more employ such men than they would an incompetent or unqualified lawyer.

Why, even the Press—not a bad barometer, by the way—has been reflecting the movement, and, when reporting upon the opening of a new building, has even illustrated it occasionally, and actually in some instances mentioned the name of the obscure individual who has conceived it and carried the work of his brain into concrete form. Through what anxiety, what difficulties, what exacting labour, weary days and weary nights, obstacles innumerable, it matters not; but the public are actually aware that a brain has conceived the building, that it has not developed spontaneously under the hands of the builder, and so the name is given, as subsidiary to the builder perhaps, but still it is given.

I do not wish it to be thought that the aim and end of an architect's career is to be mentioned in the papers. I merely mention the matter as a sign of the increasing interest of the public in the creations of our brains.

We are perhaps too ready to dwell on our grievances against the public—sometimes real, sometimes imaginary—and into these I do not, as I said, propose to enter. But what I would ask is, Have the public any legitimate grievances against us? Personally I hear of them constantly. "Oh, you architects are so impracticable. You allow matters of convenience and common sense to become a secondary consideration in your over anxiety to give undue prominence to your beauty. You always insist on having what you want, not what we want. You know nothing of ventilation; you never consider the domestic working of a household; and you can never carry out your work for the price named, and your fees are most exorbitant; the next time I am fool enough to build I will get a builder to work on my own ideas;" and so on.

I dare say all of us have heard something of the kind, and beyond a momentary feeling of irritation have put it aside as something utterly irrational. Probably it is in most cases, but may there not be a sufficient substratum of truth to require consideration?

The many-sided character of the profession shows no tendency to diminish, but rather to increase, and the exigencies of a modern architect's practice call for a dozen experts merged into one. He never knows what the scope of that practice may demand; anything between the designing of an altar-cloth or chalice-veil to the settling of some intricate legal difficulty or the cure of a smoky chimney. He must be a sanitary specialist, a ventilation specialist and a constructional specialist; capable of supervising or arranging the installation of electric power or light, acetylene gas, heating apparatus or laundry machinery, lifts or cooking plant.

He must be *au courant* with the latest fad; must advise on all forms of decoration; be an artist in colour schemes; under-

stand the stoking of a kitchen range, or laying out a garden. He must have an all-embracing knowledge of the nature and properties of materials, and, if we are to judge by the advertisements for assistants in the professional journals, must be quantity surveyor as well. Small wonder if, in his anxiety to find scope for a little design and comply with the innumerable by-laws, building Acts and vexatious regulations, he occasionally puts drawing-room handles on a classroom door, passes Swedish timber as Russian or omits to specify a sti for the scullery copper. I am not quite sure that we are up to the full demands of the age, or that we are taking steps to keep ourselves fully abreast of it, or that not only ourselves, but those who will take up our pencils in the time to come, are efficiently equipped for the modern architect's career.

I do not think as yet we fully recognise the changing conditions under which we practise, and unless we do, soon foundation will continue to exist for the charges levied against us.

(To be concluded.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE annual report of the Council which was submitted at the meeting on Monday stated that the losses by death have been as follows:—Fellows: Edward Birchall, Francis Edwards, Charles France, Thomas Oliver, John Bond Pearce, Francis Cranmer Penrose, William Salway, Thomas Rogers Smith, Coutts Stone, William Wimble. Associates: Young Bolton, Albert Charles Breden, Richard Philip Day, Henry Dunkin Shepard, James Foster Wadmore. Retired Fellows: Samuel Stenton Markham, George Truefitt. Hon. Associate: Colonel John Davis. Hon. Corr. Members: Eugène Müntz, Emerich Steindl. By the death of Mr. Penrose the Institute has lost one of its most distinguished and venerated members. The first paper of the present session was read by him with unimpaired vigour and enthusiasm; now the Council with sorrow have to record his death. In Professor Roger Smith the Institute has lost a familiar friend, a loyal supporter, and a wise counsellor.

The present subscribing membership of the Institute consists of 627 fellows, 1,117 associates, 43 hon. associates—total of 1,787. During the official year since the last annual general meeting 30 fellows have been elected, 68 associates and 2 honorary associates. One hon. corr. member has been elected—Constant Moyaux (Paris). The number of candidates for the progressive examinations continues to increase.

The Council desire to point out the new category of "Exempted" under the "Intermediate" heading. An arrangement has been made with University College, Liverpool, whereby any probationer of the Institute who, having been through the full two years' course in architecture, has obtained the professor's final first-class certificate, and whose work done during his course at the college is found satisfactory by the Board of Examiners, may be exempted from the intermediate examination; the Institute being represented by a member of the Board of Examiners at the examination held for the purpose of granting certificates by the authorities of University College, Liverpool.

The statutory examinations, qualifying for candidature as district surveyor in London and for candidature as building surveyor under local authorities, were held in October. Certificates of competency to act as district surveyors in London have been granted to William George Perkins and Arthur Halcrow Verstage (A.). The Council, with the approval of the London County Council, have decided to hold these statutory examinations for the future only once a year, *i.e.* in October.

The Council sent an address of congratulation to His Majesty the King on the occasion of his Coronation. A scheme for decorating the front of the Institute for the Coronation on June 23, designed by Mr. G. F. Bodley, R.A., was being put into execution when the unhappy news of the King's illness was made public. The scheme was, however, carried out in order that Mr. Bodley's artistic design might be realised. A portion of the materials were utilised as decorations for the Coronation on August 9. On the occasion of the Coronation the King honoured the Institute and the profession at large by conferring a knighthood upon the retiring President, Sir William Emerson.

During the official year the Edinburgh Architectural Association has been admitted into alliance with the Royal Institute. The Council have much pleasure in recording the fact, as now there is no non-metropolitan architectural society of any importance which is not constitutionally associated with the Institute, and thus have been furthered the unity of organisation and the centralisation of architectural influence which have been the aims and policy of the Institute since 1889.

In the last annual report the Council stated that the committee of the Architectural Association and themselves had adopted the recommendation of a joint committee of the two bodies, that the Institute and the Association should combine

in a building scheme to house both bodies under one roof. The Architectural Association, however, having decided to take over the premises of the Royal Architectural Museum, consideration of this joint building scheme has been abandoned. The question of new premises for the Institute is one which the Council have always before them; but they feel that it is wiser to wait for a favourable opportunity of securing a site that meets with all the requirements of the Institute than to commit themselves to any undertaking to inaugurate a building scheme within a definite period. As a favourable opportunity may not occur in the immediate future, the Council have made certain improvements in the meeting-room which they hope tend to the comfort of members as well as to the convenience of the working of the Institute. The Council have decided to issue an album of photogravure reproductions of portraits of past Presidents, with spaces for future plates.

The practice committee, as will be seen from their report, have done excellent work this session for the Institute. To them is due the book on dilapidations published this year. The Council especially tender their thanks to the chairman, Mr. Douglass Mathews, and to the sub-committee, consisting of Messrs S. Flint Clarkson, Sydney Perks and C. H. Brodie, upon whose shoulders the labour of preparation chiefly fell. A form of contract, for use where quantities form a part of the contract, prepared by the practice committee, has been issued as an Institute publication.

With regard to the point raised on the discussion of the last annual report as to the possible effect of the decision given in the case of *Hobbs v Turner* upon the validity of the Institute form of contract, the Council have been advised by the Institute's solicitors that it is unnecessary to alter the present form in view of that decision.

The Ancient Lights Bill, approved by the Council of the Institute and the Council of the Surveyors' Institution, is now in the hands of Mr J. Fletcher Moulton, K.C., M.P., who has kindly undertaken to be responsible for its introduction into Parliament.

At the general meeting of March 2 the President made an announcement with regard to the question of registration, to the effect that the Council were still opposed to any such scheme of registration as that set forth in a previous Bill dealing with the same subject.

The operation of part of the proviso of by-law 9 lapses this year on May 18, viz.:—"Provided always that when the Council of the Institute receive a unanimous recommendation formally submitted by the Council of any allied society that a practising member of the profession is eligible and worthy of being elected as a fellow, the Council shall, during the five years from the date of approval of this provision by the Privy Council, have power to elect him if in their opinion his work be of sufficient merit." The second clause, "The Council shall also have the power to elect annually to the fellowship without ballot the President or President-elect of any of the allied societies who may be eligible or apply for admission," is not subject to the five years limit.

In the last annual report reference was made to the question of the appointment of assessors in competitions, and it was stated that a select committee of the Council were considering the various matters referred to them. The Council duly received the report of their committee, and were brought to the conclusion that the appointment of assessors was best left entirely in the hands of the President of the Institute, and that, even were it desirable, there was little chance of success in trying to establish the jury system in this country. A practical result of these deliberations was (1) a revised edition of the "Suggestions for the Conduct of Architectural Competitions," and (2) a confidential set of suggestions for the guidance of assessors. A copy of the "Suggestions for the Conduct of Architectural Competitions," with a circular letter, was sent during the summer to every town council, urban district council and rural district council in the United Kingdom.

The Council have empowered the competitions committee, so as to avoid delay, to take independent action where necessary in respect of any competition within the scope of the "Suggestions." To prevent possible misconception among members, the Council desire to state that in the great majority of cases the unsatisfactory points in conditions are of so obvious and simple a nature as to be adequately dealt with in the routine of the Secretary's office without troubling the committee to meet.

The Council also desire to refer to the Competition Reform Society, with whose aims they are quite in sympathy. The Society reports to the Secretary of the Institute any competition matter that may need investigation. The matter being thus placed in the Secretary's hands becomes an entirely Institute question, and in furnishing such material for Institute action—material which it would be often impossible to obtain officially—the Competition Reform Society is doing exceedingly useful work.

Mr. E. T. Hall and Mr. Thos. W. Cutler have been

appointed by the Council to represent the Institute at the annual congress of the Sanitary Institute to be held in Bradford in July.

Mr. Alfred Culshaw has been appointed by the Council to represent the Institute at the annual congress of the Royal Institute of Public Health to be held in Liverpool in July.

The President's first "At home" on January 12 was largely attended, nearly 400 members being present. The feature of the evening was a collection of drawings by the late Mr. J. F. Bentley. The second "At home" will be held on Monday, May 11, when a collection of drawings by the late W. Eden Nesfield will be exhibited.

In presenting the statement of income and expenditure and the balance-sheet for the year ending December 31, 1902, and the estimate of income and expenditure for the current year, the Council have again the pleasure to draw attention to the continued financial prosperity of the Institute. The balance of income over expenditure of 1,028*l.* 15*s.* falls somewhat short of the estimated balance, but the unforeseen expenditure for the Coronation decorations accounts for the difference.

Owing to the many additions made in recent years the property of the Institute was found by the Council to be considerably under-insured. The Council at Michaelmas therefore took out a fresh policy with the Westminster Fire Office to the total value of 22,700*l.*

DISCOVERIES IN CRETE.

A CORRESPONDENT of the *Times* in the Balkan Peninsula writes from Sofia, April 22:—The excavations begun towards the close of last season at Hagia Trias, near Phæstos, on the southern coast of Crete, by Professor Halbherr, have been resumed this spring under the direction of M. Hatzidakis, the ephor of antiquities at Candia. It will be remembered that at this spot Professor Halbherr made the very interesting discovery of another Mycenaean palace similar to those at Knossos and Phæstos. The palace is conjectured to have been the maritime residence of the kings of Phæstos, for the sea, which is now some two kilometres from the site, has probably receded considerably since Homeric times. The recent excavations have revealed a large structure containing the usual "megaron," or hall for men, another "megaron" for women, baths and "apothekoi," or storerooms. No cisterns or water-pipes have yet come to light. The principal movable objects discovered by Professor Halbherr last year have already been described in the *Times*. In addition to these a large number of clay seals have been found here, as in other Cretan dwellings of this period, and some dozen inscribed tablets exhibiting the mysterious linear or pictographic signs, which as yet have defied interpretation. Among the bronze objects recovered are several statuettes, votive effigies of oxen and goats, a spearhead and ten double axes of the usual Cretan type, together with two small votive double axes. Nineteen tablets of bronze, in the shape of rectangular plaques, have also been found; these apparently served as standard weights, or were employed in commercial transactions. A large amount of pottery has also been recovered. The excavations, which have been suspended during the Easter holidays, will shortly be resumed.

THE ROYAL ACADEMY.

IN responding for "The Royal Academy" at the banquet on Saturday, Sir E. J. Poynter, president, said:—After having spent the evening in making heavy demands on so many of our guests, beginning with His Royal Highness the Prince of Wales, all of whom I thank most unfeignedly for the cheerful readiness with which they took upon themselves the onerous task involved in making an after-dinner speech, it falls to my turn to speak in response to the toast which His Grace the Primate of England has proposed in such kind words, and to thank him in the name of my colleagues and myself, and also for the most interesting and valuable speech with which he accompanied the proposal. The inevitable changes have taken place in our body since last year, and we have to mourn the loss of two of our members, whose names will be absent from our summer exhibitions henceforth. Early in this year our respected member, Mr. Wells, succumbed to a failure of the heart, with which he had recently been threatened. Beginning his career with miniature painting, an art which, on the introduction of photography, declined to almost total extinction, he lived to see it revive and grow to a flourishing condition which, as our exhibition shows, gives promise of rivalling this exquisite art in its palmiest days. Meantime Mr. Wells took to oil-painting and gained a high position as a portrait-painter, numbering among his sitters many of the most distinguished men and women of the time. Of an extraordinarily clear and logical mind, he had mastered all the details which go to make the history and status of this institution with an exactness which rendered him a most valuable and at

the same time a most formidable debater at our councils and assemblies, and the Academy will miss his guiding counsel on many an occasion. Our other loss is an especially sad one, inasmuch as it is of a much younger man, Matthew Ridley Corbet, who had been but just elected an Associate of this Academy. In the selection of his works, which were to be seen with those of three other of our recently-deceased members at the last winter exhibition, he shone out as one of the most poetic of our landscape-painters, with a rare sense of style. With a highly artistic nature, not given to discouragement indeed, but peculiarly sensitive to sympathy from his brother artists, his election to this body gave him the highest gratification and encouragement, and he was, I believe, destined to become one of its chief ornaments. We have suffered a further loss in the death of one of our honorary members, the venerable Mr. Penrose, who was "antiquary" to the Academy. He was distinguished as an architect who in his early days had by his survey and exhaustive measurement of the Parthenon developed a theory which established the extreme subtlety of Greek methods of construction. Later in life he was for many years architect to St Paul's Cathedral. His death made a vacancy among our honorary members, and it is a great gratification to me to announce that Lord Dillon, the president of the Society of Antiquaries, has honoured us by consenting to become our "antiquary." Another honorary membership, that of "Professor of Ancient Literature," has been vacant since the lamented death of the late Bishop of London. I am sure that every one in this room will congratulate the Academy on the distinction which has been conferred on it by the consent of the Right Hon. John Morley to fill this vacant but, like the other, purely honorary post. These honorary memberships are an ancient institution of the Royal Academy, and were established, the first one—that of Secretary for Foreign Correspondence—in the year after the Academy was founded in 1768, and Mr. Baretti was appointed to it. Three others were founded in the succeeding year. Dr. Johnson was made Professor of Ancient Literature, Oliver Goldsmith, of Ancient History, and Richard Dalton was the Antiquary. In 1784 the Rev. William Peters, an original member of the Academy, was made chaplain, an office now held by His Grace the Archbishop of York. As may be supposed, these offices are now purely honorary in every sense of the word; they have been held in succession by some of the most distinguished men of their time. I have spoken of but one feature of our late winter exhibition. The invariable kindness shown to the Royal Academy by owners of valuable pictures enabled us to put before the public a display which was found, I believe, more than usually interesting, and of which, besides the works referred to above, the important features were a series of landscapes of the older English schools and a choice collection of works by Albert Cuyp. His Majesty the King, by lending to our exhibition the two magnificent pictures by Tintoretto from Hampton Court, gave students and the public a better opportunity of knowing these great works than could be acquired in the galleries of that noble palace, where their great size prevents their being placed to advantage. In thus enabling our students to study at their leisure the masterpieces of past times the owners of our great historical collections confer a real benefit by putting before them a high standard of example, for this rather than the opportunity for historical or comparative criticism is the true object of these exhibitions, and the Royal Academy is proportionately grateful to those who so liberally consent to part with these treasures. In connection with the winter exhibition I must not forget that most interesting room filled through the kindness of Mr. Arthur Evans with the records of his recent discoveries in the island of Crete, discoveries which take us back to the origin of Hellenic civilisation and justify the poetic myth of the Cretan Dædalus as the fountain-head from which the unsurpassable art of the Greeks originally sprang. We regret that Mr. Evans is not with us to-night, but he is absent in Crete, pursuing his remarkable discoveries with the help of public subscriptions, on which he is wholly dependent. An object of more surpassing interest to the cultivated public and more worthy of their support can hardly be conceived. The disastrous event which occurred in Venice last summer—the fall of their ancient landmark, that Campanile which we all knew so well—awakened the sympathy of the whole civilised world. The Venetians, I think, have shown their appreciation of the English feeling towards themselves by accepting a contribution towards its reconstruction which was initiated by this Academy, and subscribed to by many artists and lovers of the beautiful; a contribution which was intended as a tribute from us to that beautiful City of the Sea—mother of the most superbly decorative school of painting which ever existed, and in itself a gem of art and in the infinite beauty and variety of its aspects a never-ending source of attraction to the painters of all countries. I will keep you but a short time on another subject. I have already alluded to the forthcoming St. Louis Exhibition, and the active part which H.R.H. the Prince of Wales is taking in its promotion

in this country. Our cousins in the United States are most desirous of making the arts a leading feature of the exhibition, and are most ambitious of success. I know also as a fact that they have a most sympathetic desire that England should take a leading part in the art section, and they have allotted ample space to our country in the splendid building which they are erecting for the purpose. My hope is that our artists will make every effort to help them to realise this friendly intention, and, further, that our long-suffering patrons of art will once more listen to our appeal and not hesitate to spare some of their most valued treasures. It will be the business of the fine art committee to make our collection as representative of the best, and only the best, side of British art as possible, and it is only by the generous help of the owners of such pictures that we can hope for success. The fine art committee has been promised a liberal grant by the general committee, and I will conclude in the words of His Royal Highness by "expressing the hope that the representation of this country may be worthy of the British Empire." Your Royal Highnesses, my lords and gentlemen, I thank you for the kind attention you have given to my words.

CUMBERLAND AND WESTMORLAND ANTIQUARIAN SOCIETY.

A MEETING of the members of the Cumberland and Westmorland Antiquarian and Archaeological Society for the reading of papers was held in the Art Gallery at Tullie House, Carlisle. The president, the Bishop of Barrow, was present during the latter part of the meeting, and presided for a short time, but prior to his arrival the chair was occupied by Mr. T. Hesketh Hodgson, of Newby Grange, chairman of the Council of the Society.

The papers read included, says the *Carlisle Journal*, one on Cleator Church by Mr. J. H. Martindale; Askham Registers, by Miss Noble, Beckfoot; a paper by Mr. Collingwood with reference to recent diggings at Keswick in search of Derwent-water Castle, conducted under the superintendence of himself and Mr. T. H. Hodgson, but with unsuccessful results; the Danish Camp at Gosforth, by Dr. Parker; some notes on mound opening, with a description of one recently opened on Siziergh Fell, by Professor T. McKenny Hughes; and Lammerside Castle, by Mr. H. S. Cowper, F.S.A. Bishop Nicolson's Diaries, Part IV., was submitted by the Bishop of Barrow, but not read. He stated that they dealt with the great row which took place between Dean Atterbury and the Rev. Dr. Todd, vicar of Penrith, with regard to the Cathedral Statutes of Henry VIII, the validity of which Dr. Todd denied.

Memorials in Churches.

Canon Bower read a paper on "Portrait Medallions, Busts and Modern Effigies in the Churches of the Diocese." He said at the ninth annual congress of archaeological societies held in London in December, 1897, it was resolved to recommend to the committee appointed to prepare a catalogue of effigies to include in their lists effigies of all dates, all busts and portrait medallions. A paper on the old effigies had been printed in Vol. XV. of the Society's Transactions, and he was now attempting to catalogue all modern effigies, busts and portrait medallions. Canon Bower then explained the steps which he had taken to obtain the list, and said effigies were to be found at Bromfield, Cartmel, Carlisle Cathedral, Crotthwaite, Heversham, Lowther, Wetheral, Wreay, Ulverston and Lanercost. Busts at Allhallows, Bampton, Cartmel, Carlisle Cathedral; St. Cuthbert's, Carlisle; and Lowther. Medallions at Allonby, Dalston, Holme Cultram, the Cathedral, St. Cuthbert's, Carlisle; Grasmere, Lanercost, Keswick (St. John's), Wreay, and Whitehaven (Holy Trinity). He gave a description of all these effigies, busts and medallions, and intimated that he would be glad to hear of any others.

Local Worthies Buried in Westminster Abbey.

Mr. J. P. Hinds read a paper on "Local Worthies Buried in Westminster Abbey." He said it seemed to have been generally understood for some years that George Graham, the watchmaker and clockmaker, was the only Cumbrian who had been buried in Westminster Abbey, but search in a copy of Colonel Chester's edition of the registers of Westminster Abbey had yielded a certain number of names connected, nearly or remotely, with Cumberland. There were also names connected with Westmorland and Lancashire North of the Sands, which it had seemed worth while to include in the notes for his paper. The most appropriate name to begin with was that of the undoubted Cumbrian George Graham, the clockmaker, who was born at the Rigg, Kirklington, July 20, 1673, and who died in London November 16, 1751. His grave was almost exactly in the centre of the Abbey nave, next to that of David Livingstone. Another man who might safely be reckoned as a Cumbrian was Sir Joseph Williamson. He was

born at Bridekirk, of which place his father, Joseph Williamson, was vicar about the year 1625. After being amanuensis to a Mr. Tolson, who at a later date represented Cockermouth in Parliament, Williamson was admitted by Tolson's influence into Westminster School. Thence he went to Queen's College, Oxford, and obtained his B.A. degree in 1653 and his M.A. in 1657. Soon after the Restoration he became secretary to Sir Edward Nicholas, Secretary of State. A few years later he became Clerk to the Council, and in 1671 or 1672 he was knighted. He was one of the plenipotentiaries at the Treaty of Cologne in 1673, at the Treaty of Nimeguen in 1679, and again at Ryswick in 1696 or 1697. In 1674 he became principal Secretary of State, and continued in that office till February 1678-79. In 1677 he had been elected President of the Royal Society. He was in Parliament for some years, though not for a northern constituency. In 1679 he married Catherine Stuart, daughter of George, Lord D'Aubigny, and sister of Charles, third Duke of Richmond and sixth of Lennox. She was the widow of Henry O'Brien, Lord Ibrackan, and was Baroness Clifton in her own right. By this marriage he acquired considerable wealth in addition to what he previously possessed. There were several persons who held, or had held, official positions in the diocese whom it might be convenient to group. The first in order of date was Sir Christopher Perkins, Dean of Carlisle from 1596 until his death in 1622. James Usher, Archbishop of Armagh, held the bishopric of Carlisle *in commendam*, and was buried April 17, 1656. On May 22, 1731, was buried Dr. Samuel Bradford, Bishop of Rochester and Dean of Westminster. He had been Bishop of Carlisle from 1718 to 1723. The next name in the group was one much more widely known, that of Francis Atterbury, who had been Bishop of Rochester and Dean of Westminster, but who died in exile after having been deprived of his preferments. He had been Dean of Carlisle from 1704 to 1711. He was buried on May 12, 1732. The last of the group was Samuel Goodenough, Bishop of Carlisle, who was buried on August 18, 1827. Two of his grandchildren were also buried in the Abbey. Perhaps this was the best place to insert the name of Thomas Greateorex, organist of the abbey, who was buried on July 25, 1831. When a young man Greateorex was ordered to a northern climate for his health, and obtained the position of organist of Carlisle Cathedral, which he held from 1780 to 1784. The next series of names consisted of members of county families, but he did not pretend to assert that every individual mentioned was a resident in the district. There were several of the Howards. Two sons of Sir William Howard, of Naworth, brothers of Charles, first Earl of Carlisle, were buried, Colonel Thomas Howard on July 21, 1678, and Sir Philip Howard on April 15, 1686. Thomas was noted for his duels, and Philip was M.P. for Carlisle from 1661 to 1681. Mary, Duchess of Richmond, Colonel Thomas Howard's widow, was buried November 28, 1685. Three children of Charles, the first earl, were buried, viz. Charles, an infant, April 4, 1670; Katherine, March 23, 1681-82, and Frederick on October 11, 1684. Three children of Edward, second Earl of Carlisle, were also buried, viz. Anne on August 26, 1685; Mary on November 3, 1694; and William, who was M.P. for Carlisle in 1695 and 1698, on July 24, 1701. There were two members of the Lowther family. Mrs. Mary Lowther was buried on October 23, 1724. She was the daughter of Colonel John Lowther, of Lowther, and sister of John, first Viscount Lonsdale, and she married, as her second husband, her relative John Lowther, son of Robert, of London. Her son, Major-General Anthony Lowther, was buried on January 22, 1745-46. There were several members of the Tufton family, but only one Musgrave. Christopher Musgrave was buried on September 16, 1718. He was the youngest son of Sir Christopher Musgrave, of Edenhall, the fourth baronet. Christopher Musgrave was born in Carlisle and was M.P. for the city in the second Parliament of William III and the first of Anne. He succeeded his elder brother Philip as Clerk of the Council, and was for twenty-five years one of the officers of the ordnance. There were two of the name of Graham, one of Westmorland and one of Cumberland. Dorothy, the wife of Colonel James Graham, of Levens, and the daughter of William Howard, fourth son of Thomas, first Earl of Berkshire, was buried on December 17, 1701. Charles Graham was buried on June 17, 1685. He was the eldest son of Sir Richard Graham, third baronet of Esk and Netherby, who had been created in 1681 Baron Graham and Viscount Preston. There were three Aglionby names, but it was not much more than conjecture which allowed one to connect them with Cumberland. William Aglionby was buried on December 1, 1705. He had been envoy to Spain (twice), to Savoy and to Switzerland, in the reigns of William III. and of Anne. The only authority he could find for considering him to be of a Cumberland family was Cox's "Magna Britannia." His daughter Sybilla was buried on June 11, 1706, and a conjectural brother of his, Henry, had been buried on April 6, 1643. There was one very eminent name which belonged to one or other of the counties of Cumberland or Westmorland, that of Joseph

Addison. His father Lancelot, Dean of Lichfield, was born in Westmorland, and his ancestors had been settled at Meaburn Town Head, Maulds Meaburn, sixty years or more before his birth. But Mr. Jackson, in his "Papers and Pedigrees," and perhaps elsewhere, expressed the belief that the family was previously Cumbrian, belonging to Low Wood Nook, near Bothel. Joseph Addison was buried on June 26, 1719. His sister, Mrs. Dorothy Combes, was buried on March 10, 1749-50. The next four names might safely be claimed as those of persons belonging to the district. The Rev. Henry Wharton was buried on March 8, 1694-95; Ephraim Chambers, the author of the "Cyclopædia" and a fellow of the Royal Society, was buried on May 21, 1740. He was born at Kendal, where his father owned and occupied a small farm, and was educated at Kendal Grammar School. John Leake, M.D., was buried on August 16, 1792. He was born at Ainstable, the son of a clergyman, and studied medicine abroad. William Dobson was buried on March 13, 1813. He was the son of Christopher Dobson, of Edenhall, and was spoken of at the time of his death as a man of mechanical ingenuity and a classical scholar. There were four other names about which more or less doubt might be expressed. John Fox, Prebendary of Westminster, was buried on September 27, 1623. He was a son of John Fox, goldsmith, London, who founded the Grammar School at Dean, near Cockermouth. He had the authority of Archdeacon Sherwen for saying that, although there was no legal proof, Fox's Cumbrian descent might be looked upon as morally certain. Mrs. Mary Trohear was buried on July 21, 1775. Her will was proved by Raisley Calvert, of Greystoke, to whom and to his heirs, without naming any relationship, she bequeathed her personalty, except a legacy, and all her freehold estates in Bassenthwaite and Underskiddaw, or elsewhere in the county of Cumberland. Agnes Marton was buried on January 27, 1787, and her sister Jane on October 15, 1798. They were daughters of Oliver Marton, of Capernwray Hall, Lancashire, by his second wife Jane, daughter of Roger Wilson, of Casterton Hall, Westmorland. Since the publication of the book from which he had extracted the names, the Rev. John Troutbeck, D.D., one of the minor canons of the Abbey, had been buried there. He was born at Blencowe on November 12, 1832, and died on October 11, 1899. Dr. Troutbeck was for more than twenty years a member of this Society. The existing burial registers only began in January, 1606-7, and on consulting Dart's work he found two more names which might be added. Sir Thomas Wharton, second Baron Wharton, was buried in the chapel of St. Michael in 1572. He had formerly been M.P. for Cumberland, and in 1547 had been Sheriff. Margaret Clifford, described as "daughter to Henry, Earl of Cumberland," was buried in 1596 in St. Edmund's Chapel. A Cumberland man had a monument in the Abbey, but was not buried there. Dr. John Thomas, Dean of Westminster, and afterwards Bishop of Rochester. He was born in Carlisle in 1712, and his father, the Rev. John Thomas, afterwards became vicar of Brampton. Bishop Thomas's mother was the daughter of Richard Kelsick, of Whitehaven. He was educated at Carlisle Grammar School, died in 1793, and was buried at Bletchingley. The bust in the Abbey had a lifelike appearance, and the countenance bore a resemblance to the first Lord Brougham. In conclusion he said if his paper had done nothing else it might be held to have shown that George Graham was not the only Cumbrian buried in Westminster Abbey.

The Roman Vallum.

Mr. T. H. Hodgson submitted a report with reference to further explorations of the Roman vallum between Newtown and Headswood. The result was that they had traced the vallum to the cliff overhanging the valley of the Cambeck, but there seemed to be no prospect of being able to trace it across this valley. The steep banks had been evidently subject to much erosion, and the low-lying holms were subject to such frequent and heavy floods that all traces must have been long since washed away, and the site buried under the alluvium brought down by the river.

Find at Thirlmere.

The most interesting of the exhibits was a pair of bronze armlets recently found at Thirlmere, and shown by Mr. Marshall, Castlerigg Manor. The story of their discovery was told by Mr. Collingwood, who stated that they had been found at the foot of Rough Crag by Joseph and Solomon Crisedale, while getting material for repairing the roads. Mr. Marshall acquired the armlets from the road surveyor for the district, Mr. W. Hodgson, and they had been pronounced to be Late Celtic, which practically meant that they belonged to a period over a thousand years ago. At the place where the armlets were found, under an almost perpendicular crag, 400 feet high, there could never have been a burial-place, and the presumption was that the armlets must have been worn by some person who had fallen from the crag above and perished on the spot. In order to find an explanation he had examined the summit of the crag. High up on the face of Rough Crag a niche in the

rocks could be seen, and it could be reached by a curious path traversing the cliff from a ledge high up on the eastern side, and apparently artificial. The path led up to a platform, from which rude steps led to a grass slope, whence the summit of the crag could be reached. Any person falling from this platform would have alighted at the spot where the armlets were found, and as the armlets must have been worn by a lady they had all kinds of romantic possibilities presented which some ingenious novelist might make good use of.

Other exhibits were a stone celt from Walney and various prehistoric objects shown by Mr. H. Gaythorpe, F.S.A., Scot.; a stone implement from Moresby, shown by Dr. Parker; an ancient sword recently found on the shore near Workington, shown by the Rev. C. T. Phillips; a sculptured head from Ormside, belonging to the late Rev. J. Brunskill, and an earthenware urn found between Great Salkeld and Lazonby, shown by the Rev. A. G. Loftie.

The Bishop of Barrow, as president, was requested to forward to the family of the late Mr. J. A. Wheatley an expression of the Society's sympathy with them in their loss, Mr. Wheatley having been one of the original members of the Society. The Bishop was also asked to forward a similar expression of sympathy to the family of the late rector of Ormside, who was also one of the original members. It was intimated that the first summer excursion would be to the Alston district on June 25 and 26.

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.

THE annual meeting of the Great Yarmouth committee of the Norfolk and Norwich Archæological Society was held on May 1 at the town hall, Great Yarmouth, under the chairmanship of Mr. R. H. Inglis Palgrave, F.R.S.

Mr. G. H. L. Blake, joint hon. secretary, having read the report of the Society's operations during 1902,

Mr. E. M. Beloe, jun., of King's Lynn, read an interesting paper upon "Norfolk Norman Fonts," illustrated by lantern slides.

Mr. F. R. B. Haward, architect (Messrs. Olley & Haward) also read a paper on "The ancient oak hammer-beam roof recently brought to light by the pulling-down of, and alterations to, the Duke's Head hotel, Hall Quay, Great Yarmouth." He said:—In making a survey of the premises known as the Duke's Head hotel prior to pulling-down, and upon examining the roof, which must have originally covered a large hall, attention was at once drawn to a series of octagonal columns and caps, which a further inspection proved to be the upper members of the principals, or supports, of an old hammer-beam roof. When pulling-down operations commenced, it was hoped that the roof would be sufficiently intact to be capable of restoration, but on clearing away the two storeys of bedrooms which had been built in the roof, it was found that this plan was impossible to carry out, as only one of the principals was at all complete. This principal owed its preservation to the fact that it had been used as the basis for a partition, and had been cased in on either side. The remaining four principals had been cut away right up to the tie-beam. Remains of a fine old moulded brick arch were discovered at the east end of the hall, also indications of a spiral stair, which might originally have led to a gallery. Before removing the roof a record of it was taken by photograph and measurements, and the interesting parts of the roof have been erected and thus preserved in the bottling store at Messrs. E. Lacon & Co.'s brewery, this firm being the owners of the property of the Duke's Head hotel. The roof appears to have covered an extensive hall, 40 feet long by 24 feet wide, 21 feet high in the walls, and 40 feet to apex or top of roof. The use that the hall was originally intended for is uncertain, though the general character is civic. The apparent argument in favour of its having been constructed for ecclesiastical use is that it stands east and west. The possibility is that the hall was either attached to a private house or has been a guildhall of some company, and this would be illustrative of the prosperity of the town at an early date. This last assumption is based on a paragraph in Palmer's "Perlustration of Great Yarmouth," which reads as follows:—"Adjoining and to the south of the Barge hotel is an Elizabethan house long occupied as an inn called the Duke's Head. It has a cut flint front with stone dressings. The rooms are wainscotted in panels divided by pilasters, with ornamental chimneypiece from the ceiling to the floor. The woodwork has been painted, but the rooms are otherwise in good preservation. In one of the rooms there is a chimneypiece elaborately carved. On the front of this house there is a stone tablet inserted, bearing the date 1609. The King's Head was, in the last century, the property of the Eldridge family. In the latter part of the last century the Ship Masters' Society held their meetings at the Duke's Head. From this inn, more than a century ago, the London stage-

coach, when first established, set out on its journey." The mouldings of the roof are of a very interesting nature, and clearly show the roof to be of late Decorated work. Those on the curved struts are very elaborate, and it is interesting to note the way these mouldings have been carried on and cut into the tie-beam. The posts, like those of the Tolhouse roofs, are octagonal, having moulded caps, but no bases. The stone corbels at the feet of the principals were too mutilated to discover their original shape, but traces of carving were visible. Other remains of window and door jambs in stone were found; these were moulded, and of the same period as the roof. The construction of the roof is curious, having a double principal rafter; thus the hammer-beam had a great weight placed upon it, being only supported by the curved strut, which rested upon a stone corbel, and although tension was preserved by a wall-piece spiked to the hammer-beam, yet this hammer-beam did not appear to enter into the wall far enough to take the foot of the principal rafter, as is usual. The second, or inner principal rafter was probably an after-thought to strengthen the roof and keep it from spreading; as the joints between it and the hammer-beam, the beam and top collar, are all halved and oak-pinned. The probable date of the roof is about 1450, although the mouldings are of an earlier character.

The reading of the foregoing paper was accompanied by the exhibition of two lantern-slides, which had been prepared by Mr. F. H. Sayers.

ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

THE conversazione of the Royal Institute of Architects of Ireland took place on the 30th ult in the buildings of the Royal Hibernian Academy of Arts, and was (says the *Irish Times*) a brilliant success. His Excellency the Lord Lieutenant honoured the Institute with his presence, and there was a numerous company of guests representing every social and professional class in Dublin. The idea of holding the conversazione in the Royal Hibernian Academy buildings was a singularly happy one, and the readiness with which the Governors of the Academy agreed to it is a proof of the cordial relations that subsist between the representatives of various arts in Ireland. The doors opened at 8.30 P.M., and soon the several halls of the Academy were gay with an assembly representing every interest, social and professional, in Dublin. The picture was an animated one, revealing great wealth and variety of colour, and the many handsome works hung in the galleries formed a framework which set off the picture to the best advantage. The connection between the painter and the architect is both historical and close, and the association of the two was as appropriate as it was happy. During the evening the guests enjoyed the many pictures to the full. The conversazione, therefore, served the double purpose of a pleasant social evening and an object lesson in the development of modern Irish art. It will no doubt do something to increase that growing interest in native work of which we have recently had so many indications equally in painting and in literature. His Excellency the Lord Lieutenant, who arrived shortly before 9 o'clock, was attended by Captain the Hon. Gerald Cadogan, A.D.C. He was received by the president of the Irish Institute of Architects, Mr. George C. Ashlin; Mr. W. Kaye Parry, hon. secretary; Mr. Charles A. Owen, hon. treasurer; and the following members of the Council:—Messrs. J. Rawson Carroll, Charles J. MacCarthy, Albert E. Murray, William M. Mitchell, J. Howard Pentland and George P. Sheridan. His Excellency went through the salons and examined the various paintings with much interest, spending a considerable time before a clever picture by the late Walter Osborne, R.H.A.—No. 70, "On the Sands—Evening." In common with all who were present, Earl Dudley expressed admiration for this work of one of the most eminent Irish artists who have exhibited in the rooms in Lower Abbey Street. A silent, but none the less impressive, tribute of regret for the departed painter was the crêpe rosette attached to the picture by his brother academicians. His Excellency remained for over an hour, and was cordially greeted both on his arrival and departure. During the evening the fine string band of the 21st (Empress of India's) Lancers played very tastefully the following selections under the direction of Mr. Edmund Hinton (bandmaster):—March, "Prodana Nevesta" (Smetana); serenade, "Italienne" (Czibulka); selection, "The Country Girl" (Monckton); intermezzo, "Sunset" (Matt); selection, "Dorothy" (Cellier); valse, "Mon Rêve" (Waldteufel).

The band selections were interspersed with harp solos and vocal contributions by several young ladies. Miss Florence Kerin, a charming performer on the Irish harp, played several solos, and Miss Madeleine Macken sang an old Irish folk song with effect. A vocal trio, "Go where glory waits thee," was tastefully rendered by Miss Kerin, Miss M. Macken and Miss

J. Macken, and Miss A. Magrath played the pianoforte with marked ability. Refreshments were served in one of the salons, the Trocadéro Company being entrusted with the catering.

HOLLINGBURY CAMP, BRIGHTON.

A LECTURE was delivered at the meeting of the Brighton and Hove Natural History and Philosophical Society last week by Mr. Herbert S. Toms, sub-curator of the Brighton Museum, on "Hollingbury Camp." Having, in a few introductory remarks, recalled to the minds of his hearers that Hollingbury Camp had lately become part and parcel of the municipal property of Brighton, Mr. Toms, says the *Sussex Daily News*, gave a brief description of the camp. It is situate about 400 yards east of the Ditchling Road, and about a mile N.N.E. of the spot where the Corporation tramway branches into the Drove. It consists of a comparatively shallow ditch with a rampart standing some 3 or 4 feet above the level of the surrounding hill crest, and enclosing an area of about six acres. Its shape roughly approximates a square with the corners rounded off and the sides bulging outwards. There are four entrances, and near the centre of the gorse-covered interior are the remains of pits and a small mound, closely resembling the burial-mounds of the Bronze Age. The period to which the camp belongs is still in the realm of conjecture, but all authorities who had grappled with the subject agreed in relegating the camp to an antiquity ranging from the Stone Age to the Roman occupation of Britain, and in regarding it, together with similar entrenchments capping the South Downs, viz. Cissbury, Chanctonbury and the Dyke Camp, as having been thrown up for the purposes of fortification. General Pitt-Rivers strongly maintained that these Sussex earthworks, including Hollingbury, are not of Roman but prehistoric origin. He observed that the whole hill-top, or the whole available portion of it, appeared to have been fortified by a line of ramparts drawn along the brow, in the position best suited for defence, and with but little regard to the amount of space enclosed, whereas the Roman practice was to regulate the outline and arrangement of the camps in accordance with the strength of the force intended to occupy them, and with a chief regard to the considerations of discipline and interior economy. Considerations of the supply of water and fuel were, in these camps, invariably sacrificed to the necessity the people appeared to have been under of occupying the strongest features of the country. He did not meet with a single example in Sussex of a fort having a supply of water within the enclosure, and the majority, like Cissbury, were at a considerable distance from a spring. Nor could fuel have been obtainable anywhere in the immediate vicinity. This, according to Vegetius, was a primary requisite in the selection of a Roman camp, and among camps of undoubted Roman construction no instance of a neglect of these principles had been found. The strength of the ramparts in the Sussex forts corresponded inversely to the natural strength of the position. In some places where a steep declivity presented itself, there was no rampart, implying that the defence of those places must have been confined to a stockade. The ditch, generally on the outside, was sometimes in the interior of the work. Outworks were thrown up upon commanding sites within 200 or 300 yards of the main work. The ramparts at the gateways were increased in height and were sometimes thrown back upon the causeway over the ditch. This was not a characteristic of a Roman gateway. The occupants of these works frequently dwelt in pits, which was not the Roman practice. These entrenchments were, moreover, in an especial manner associated with evidence of the manufacture of flint implements, found scattered in great abundance upon the surface, whereas the Romans did not use flint for their tools and weapons. Mr. Toms went on to refer to General Pitt-Rivers's subsequent excavations at Cissbury, Highdown, Mount Caburn and Seaford Cliff, indicating them to be of pre-Roman origin, after which he compared Hollingbury with the Bronze Age camps of Wilts and Dorset in order to disprove the belief that Hollingbury was of Roman origin. Like Hollingbury, these Wilts and Dorset camps were thought to be Roman because of their rectangular shape, but the excavations which he (Mr. Toms) had the honour of personally conducting at those camps conclusively proved them to be the work of the Bronze Age. Passing on, Mr. Toms, with the aid of several diagrams, proceeded to show that Hollingbury owed its present aspect to the action of the weather, which caused the sides of the trench and rampart to fall into the trench, the bottom of which would very soon be covered with chalk rubble, and the sides partly so. Then a finer mixture, washed and drifted into the trench, would accumulate, and over all turf would grow and mould accumulate by vegetable decay, the tendency of all this being ever in the direction of softening and reducing the outlines of the earthwork, and eventually almost their obliteration. Coming to the question of how to determine the age of a camp, he showed that this could be done by careful excavation and analysis of the deposit with which the trench had become

filled during the lapse of ages. Relics in the bottom of the trench or in the body of the rampart would obviously belong to the period of the first construction of the entrenchment, and the objects found would naturally be of more and more recent date in the later and latest deposits. The relics in the trench would, in fact, be found to be arranged, so to speak, in chronological order. Dealing next with the best method of excavation by means of which to determine the age of Hollingbury, he showed the importance of first preparing a carefully contoured plan, and then pointed out the right and wrong ways of excavating sections of the earthworks. The proper way was to take the turf off first and then work down layer by layer, removing and recording the depth and position of the pottery, &c., found in the upper layers before digging into the lower layers. If necessary the whole of the ditch and rampart should be explored in a similar manner, and after the earthworks had been explored the interior area of the camp should be similarly trenched for traces of occupation. As the evidence bearing upon Hollingbury's age still lay hidden beneath the soil, they could only conjecture the nature of the objects forming the clue, but from a comparison of the results of excavations made elsewhere they might safely say that this question would be mainly solved by the shards of broken pottery invariably found in great numbers in earthworks of this kind. Pottery alone, however, was not a safe criterion by which to determine the age of an earthwork. Other evidence, however slight, of the metallic or non-metallic periods was required to confirm the conclusion to which the pottery pointed. Finishing his paper with a consideration of the connection which it was supposed that the earthworks of the South Downs had with each other in the defence of the country, Mr. Toms inclined towards the views of General Pitt-Rivers, which were opposed to the hypothesis of older archaeologists that these entrenchments formed part of a triple series of forts. Confirmation of this view they imagined could be found in the position of the gateways of these forts; but General Pitt-Rivers thought there was nothing in the position of the gateways or works themselves incompatible with the hypothesis of their having been isolated works, erected by several distinct tribes, as a protection against the incursions of their neighbours. The earthworks of the South of England, General Pitt-Rivers believed, led us rather to infer the existence of frequent intestine wars, in which each section of the community fortified itself against its immediate neighbours, than of any extensive and combined system of national defence. Another weak point in the evidence of connection supposed to be afforded by the position of the gateways, which had hitherto been overlooked, was that sometimes a footpath or road led into, across and out of the camp, the points of entrance and exit being through a depression in the rampart which looked so uncommonly like one of the old gateways as to raise a question whether these entrances formed part of the original design of the earthwork. The only way to settle the difficulty was by excavation at these points, but as none of the Sussex forts had been thoroughly and systematically investigated, the question of the original number of entrances and their hypothetical bearing upon the relation of the camps must remain in abeyance until such had been done.

ST. BARTHOLOMEW'S HOSPITAL.

THE Lord Mayor's committee of inquiry into the affairs of St. Bartholomew's Hospital met on Tuesday at the Mansion House, the Lord Mayor presiding. The meeting was held for the purpose of receiving the report of the sub-committee on administration and finance, of which Sir Thomas Jackson was the chairman. After a lengthened consideration of the report the following resolution was unanimously agreed to:—"That this committee, having carefully considered the report of the sub-committee on the financial and administrative management of the hospital (which is summarised in the 'conclusions' given below), are of opinion that the governors have completely vindicated the reputation, character and administration of the hospital, and are fully justified in appealing to the public for funds to enable them to utilise the land acquired from Christ's Hospital, and to provide the new buildings urgently necessary to bring the hospital up to modern requirements in all respects." The conclusions at which the sub-committee had unanimously arrived were summarised in the report as follows:—"(1) That the hospital is properly and economically administered, and that an increase rather than a reduction of expenditure must be looked for; (2) that any prospective increase of rental will be more than absorbed by the deficit caused by the purchase of land from Christ's Hospital, and consequently (3) that no part of the outlay that will have to be incurred for new buildings can be provided out of the hospital's funds except by additional borrowing that would entail a further loss of income." It will be remembered that on March 2 last the Lord Mayor's committee passed a resolution to the effect that it was desirable in the public interest to retain St. Bartholomew's Hospital on its present site. The building sub-committee has yet to consider the plans for the new buildings.

ART GIFTS TO BIRMINGHAM.

A MEETING of the Birmingham City Council was held on Tuesday, when the Lord Mayor announced important gifts of pictures to the Corporation Art Gallery. The offers were made in the following letters:—

101 Harborne Road, Edgbaston.

My dear Lord Mayor,—On behalf of the Right Hon. W. Kenrick, Mr. C. A. Smith Ryland, Mr. John Feeney and Mr. Cregoe Colmore, as well as for myself, I wish to offer for presentation to the Corporation as a gift to the Art Gallery a collection of drawings and studies which will be acquired for that purpose. The collection comprises about 260 drawings, studies and sketches by Dante Gabriel Rossetti, 226 by Sir Edward Burne-Jones, a portrait in pastel by Ford Madox Brown, a portrait by Frederick Sandys and a water-colour drawing by G. P. Boyce. A large number of the drawings and studies require to be mounted and framed. This work is being proceeded with, but it will be some little time before the collection will be ready for exhibition. It is thought best, however, not to defer the offer which we have the pleasure to make.—I am, yours very truly,

J. R. HOLLIDAY.

Brookfield, Belbroughton, near Stourbridge.

My dear Lord Mayor,—I understand that several of my fellow-citizens are proposing to give to Birmingham a unique and invaluable collection of drawings by Rossetti and Burne-Jones. Although my own offer of certain pictures to Birmingham, which remained open for two or three years, has been finally withdrawn, I wish to use the present occasion for asking you to do me the honour of accepting, on behalf of the city, and without being subject to any conditions at all, the series of four pictures by Sir Edward Burne-Jones entitled "The Pygmalion Series." They are at present on loan to the Nottingham Art Gallery, but they can be brought to Birmingham, where they have already been exhibited, in the course of a very few months.—I am, my dear Lord Mayor, yours very faithfully,

J. T. MIDDLEMORE

The Council passed a cordial vote of thanks to the donors for their valuable gifts.

Mr. Whitworth Wallis, the keeper of the Art Gallery, states that the collection of gifts consists of 280 drawings, in pen and ink, pencil, charcoal and colour, by Dante Gabriel Rossetti. They form studies for many of his well-known pictures and designs for stained-glass windows, together with finished water-colour drawings, and it would be quite impossible, even at enormous cost, to form such a collection at the present day. There are in addition 226 studies in chalk, pencil and colour, by Sir Edward Burne-Jones. These are studies for many of his important works, together with studies of the nude, draperies, &c. Further drawings are by Frederick Sandys, Ford Madox Brown, and others who are followers of the pre-Raphaelite movement. The collection is absolutely unique, and its formation has been the work of years. To emphasise the great importance of this gift, Mr. J. T. Middlemore, M.P., presents Sir Edward Burne-Jones's famous series of "Pygmalion and the Image." Mr. Middlemore has already presented William Holman Hunt's masterpiece, "The Finding of the Saviour in the Temple," together with designs for stained-glass windows by Sir Edward Burne-Jones.

STRATFORD-ON-AVON LIBRARY.

AT the annual meeting of the Shakespeare's Birthplace Trustees at Stratford-on-Avon on Tuesday, the chairman of the executive committee, Mr. Edgar Flower, referred to the reported intention of the trustees to destroy Shakespearean relics. The trustees, he said, were charged with the intention to pull down ancient cottages adjoining Shakespeare's house to make room for a Carnegie library. Nothing could be further from the fact. It never for one moment entered the minds of the trustees that the library was to be on the site of the cottages given to the birthplace. They were given for the sole purpose of extending the garden and so isolating the precious building, and they were, as everyone could see, mere modern cottages of no historic or sentimental value. Mr. Carnegie's gift of a free library was quite a distinct matter, unconnected with the Birthplace Trustees, but one in which they naturally took a lively interest, as the site was adjacent. It had been persistently stated that a palatial modern structure was to be erected. All that was intended was the careful restoration of an ancient, but dilapidated and wretchedly modernised house, and the filling up of a vacant piece of ground adjoining the School of Art (a space caused by a fire) with a building suitable for its purpose and situation. He asked what would be the position of the trustees if they had not accepted Mr. Carnegie's generous gift and had let the cottages remain, if a fire were to break out in the adjacent buildings, especially after the warning they had had when a neighbouring shop was burned to the ground? On that occasion, if the wind had been in another direction, the birthplace would have been in imminent danger. Sir

Theodore Martin, one of the trustees, writing on the subject, said:—"The first duty of the trustees I hold to be to obtain as complete isolation as possible of the Shakespeare House, and I am delighted to hear that by the generosity of Mr. Carnegie it has been made possible to secure that isolation. If this cannot be effected without removing existing buildings, well, let them be removed. Where is the vandalism of pulling down such houses?" Nothing, however, would be done without careful and earnest consideration. Mr. Flower added that the trustees were as anxious as any one to preserve Shakespeare relics in the town.

It was reported that 27,802 persons had visited the birthplace during the past year. A number of valuable gifts were reported.

GENERAL.

Mr. E. J. Physick, sculptor, has been commissioned to execute the memorial of Dr. Parker for erection in the City Temple. The design will be executed in white marble, with a polished granite background.

The Academic Council of Venice have unanimously passed a vote of thanks to the British Royal Academy for its generous contribution towards the expense of rebuilding the Campanile of St. Mark.

Mr. Thomas M. Rooke was elected on Monday a full member of the Royal Society of Painters in Water-Colours.

Mr. T. R. Shervinton, M.Inst.C.E., aged seventy-six, late consulting engineer to the Japanese Government and Companion of the Imperial Japanese Orders, The Rising Sun and The Sacred Treasure, died on the 30th ult.

The Chantry Trustees have made four purchases from this year's Academy. The paintings are Mr. David Murray's "In the Country of Constable," 600 guineas, and Mr. Adrian Stokes's Alpine landscape, "Autumn in the Mountain," 300*l*. The sculpture is a female figure, "Remorse," by Mr. H. H. Armstead, R.A., 900*l*, and a group of children by Mr. Colton, A.R.A., called "The Springtide of Life." Last year the Chantry Trustees bought no pictures.

At the Annual General Meeting of the members of the Manchester Society of Architects on April 30, the following officers and members of council were elected:—*President*.—J. W. Beaumont, F.R.I.B.A. *Vice-Presidents*.—John Ely, F.R.I.B.A.; W. A. Royle, F.R.I.B.A. *Hon Secretary and Treasurer*.—Paul Ogden, F.R.I.B.A. *Assistant Hon. Secretary*.—George Brown. *Members of Council*.—*Fellows*—Alfred Darbyshire, F.R.I.B.A., F.S.A.; J. B. Gass, F.R.I.B.A.; Edward Hewitt, F.R.I.B.A.; Jesse Horsfall, F.R.I.B.A.; J. D. Mould, F.R.I.B.A.; A. J. Murgatroyd; Isaac Taylor; John H. Woodhouse, F.R.I.B.A.; P. S. Worthington, M.A., A.R.I.B.A. *Associates*.—A. E. Corbett, A.R.I.B.A.; L. H. Dutch, A.R.I.B.A.; A. H. Mills, A.R.I.B.A.

A Portrait by Beechey has been sold by auction in Paris for 33,000 francs. It formed part of the Lelong collection.

The Court of Common Council have given authority for the erection, at an estimated cost of about 7,000*l*., of a crematorium at the City of London cemetery at Little Ilford, in accordance with plans approved by the Home Secretary.

Mr. J. J. Burnet, A.R.S.A., has been appointed assessor for the selection of ten or twelve architects who are to prepare plans for the Manchester Infirmary. He has had practice in hospital planning, and among his buildings are the Western Infirmary extensions, the Pathological Institute, erected partly by the Western Infirmary and Glasgow University; the University buildings for the Professors of Practical Surgery and Anatomy; and the proposed extension of the Kilmarnock Infirmary. Mr. Burnet is also acting as arbiter, in conjunction with Dr. Donald Macintosh, M.V.O., for the Stobhill Hospital.

Professor Hans Bohrdt has been entrusted by the German Emperor with the execution of the wall-paintings in the officers' casino at Wilhelmshaven.

The Representatives of the University of California who are engaged in exploration in Egypt have adopted the plan of photographing each tomb when it is opened before any of the remains are dispersed.

A Memorial of Gustav Freytag, the novelist, who wrote "Debit and Credit," "The Lost Manuscript," "Pictures from the German Past" and other works, is to be erected in Wiesbaden, where he died in 1895. The statue is to be the work of Professor Schapers. It was intended to have a fountain as part of the memorial, but the municipality refused to grant a water-supply.

The Late Mr. Charles William Mitchell, of Jesmond Towers, Newcastle-on-Tyne, an artist in figure painting and portraits, and a director of Sir W. G. Armstrong, Whitworth & Co., of the Elswick Ordnance Works, has left property valued at 922,542*l*.

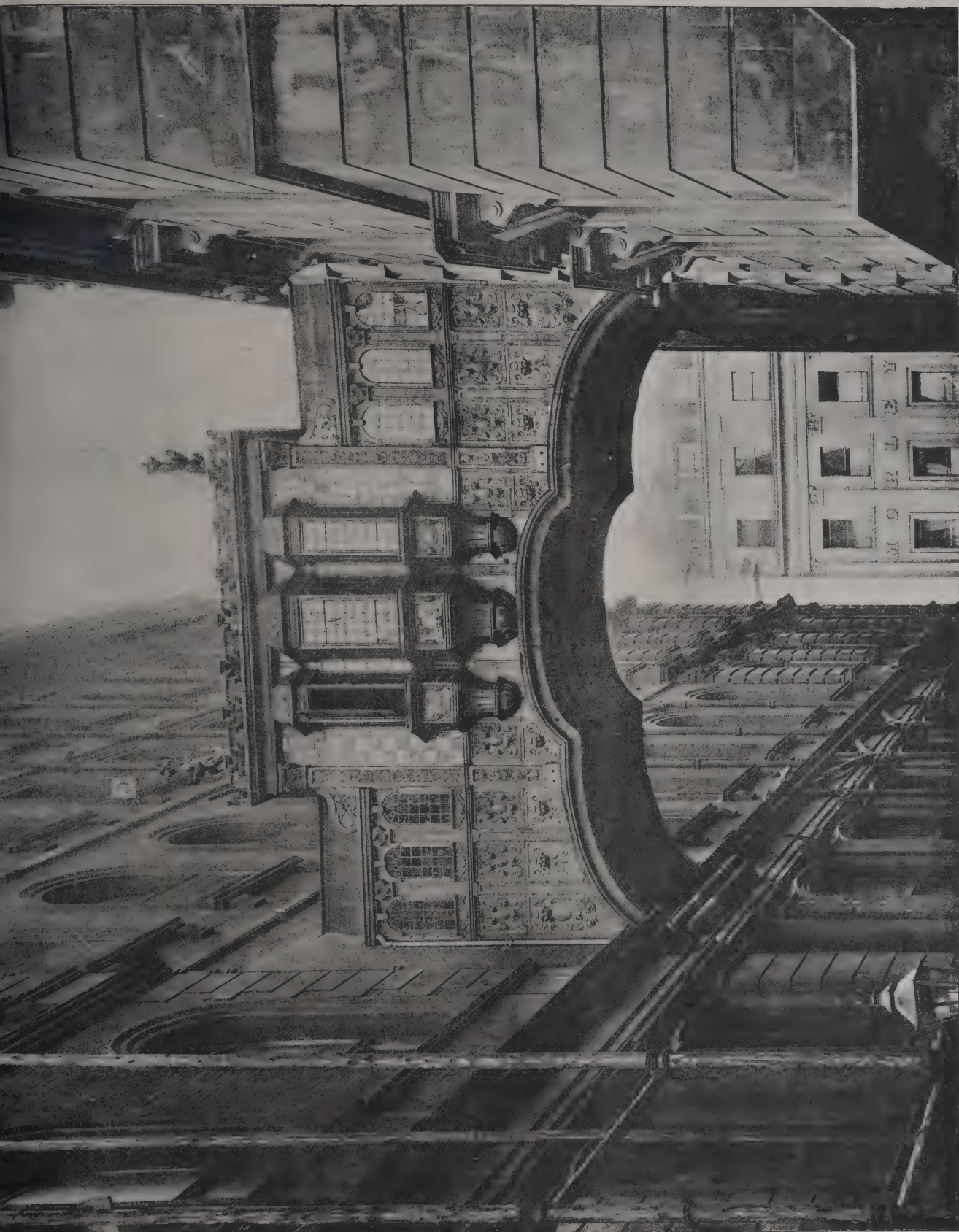
Mr. F. J. Dick, assistant engineer to the Commissioners of Public Works in Ireland, has been appointed engineer.





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IN A PHOTO. SPRAGUE & CO. L^{td} 4 & 5 EAST HARDING STREET FETTER LANE E.C.

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"GRAND" HOTEL, CHARING CROSS: THE BRIDGE.

WM. WOODWARD, Architect

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THE "WHITE BEAR" HOTEL PORTSEA.

ALFRED H. BONE, Architect.

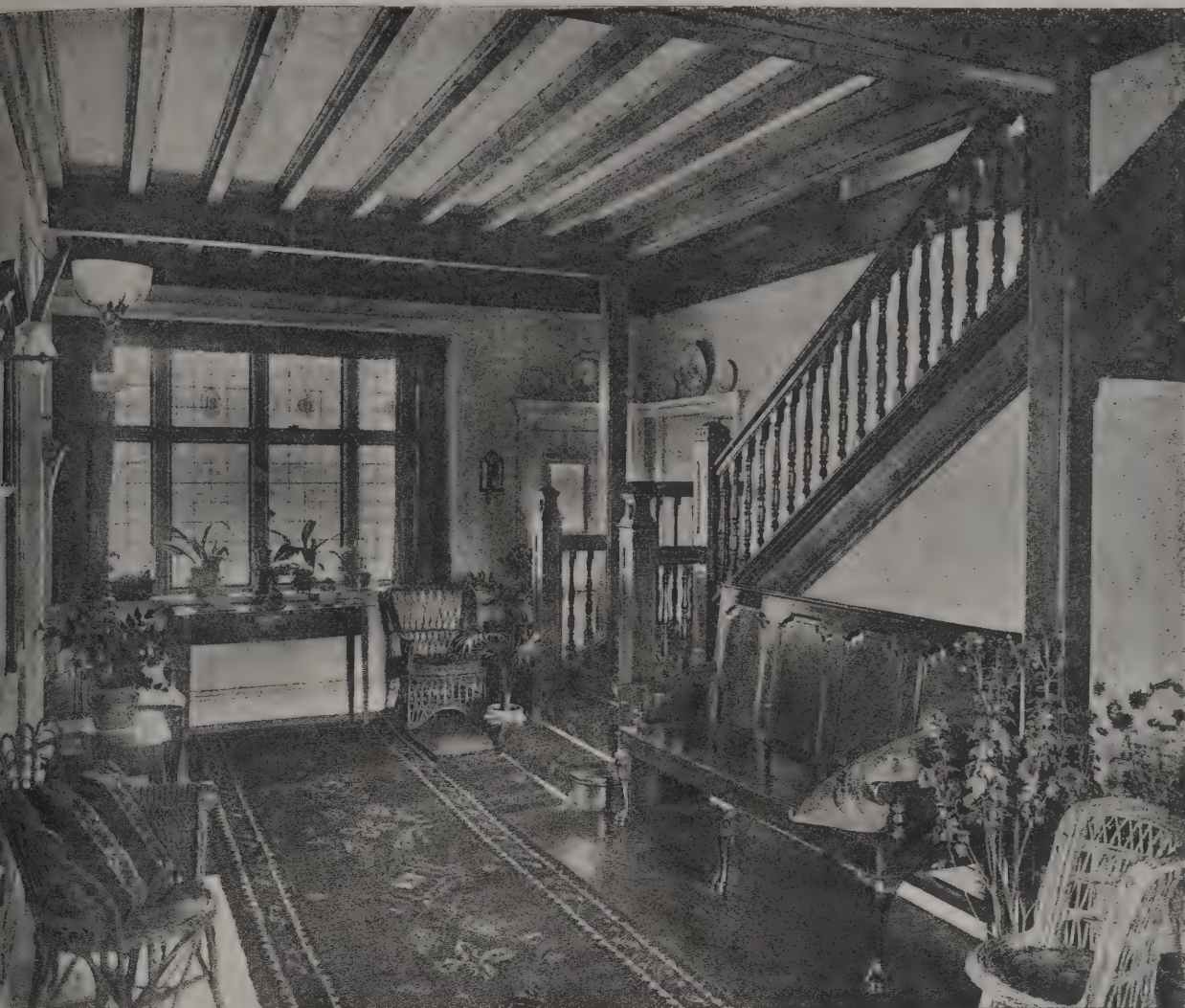
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GARDEN FRONT.



DRAWING ROOM.



THE HALL.



DINING ROOM.

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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

COMPETITIONS OPEN.

THE Worshipful Company of Paviers offer premiums of 100 guineas, 30 guineas and 20 guineas respectively for essays as to the best means of preventing the inconvenience and loss at present occasioned by the disruption of carriage and footways in cities and boroughs arising from the operations of gas, water, electric-light and other companies. Conditions of the competition can be obtained on application to Mr. William P. Neal, C.C., clerk to the Company, Pinner's Hall, Old Broad Street, E.C.

IRELAND.—June 18.—The Trustees of the Limerick free library and museum invite designs from architects in independent practice for the proposed Carnegie library and museum to be built in the People's Park, Limerick. Prizes of 75*l.* and 5*l.* respectively will be awarded to the designs placed first and second in the competition. Mr. W. M. Nolan, town clerk, Town Hall, Limerick.

NEW BROMPTON (KENT).—May 30.—Designs and plans are invited in competition for public swimming and slipper baths to be erected in Windsor Road, New Brompton. Three premiums are offered, one of 20*l.* to the author of the design which is considered to be the first in order of merit, one of 10*l.* and one of 5*l.* respectively for the second and third. Mr. F. C.oucher, clerk, New Brompton, Kent.

STOCKTON-ON-TEES.—May 13.—Designs are invited for a girls' high school to be erected as a memorial of Her late Majesty Queen Victoria, at a cost not exceeding 5,000*l.* Premiums of 25*l.*, 15*l.* and 10*l.* respectively will be awarded. Mr. C. J. Archer, 77 High Street, Stockton-on-Tees.

CONTRACTS OPEN.

ALNWICK.—May 13.—For the erection of twelve houses at Alnwick, for the North-Eastern Railway Company. Mr. William Bell, architect, Central Station, Newcastle-on-Tyne.

ASHTON-UNDER-LYNE.—For the erection of a workshop. Mr. A. Turner, architect, 26 Clegg Street, Oldham.

ATHERSTONE.—May 19.—For additions and alterations at the Atherstone workhouse. Mr. J. W. Godderidge, architect, 4 Bolebridge Street, Tamworth.

BARNESLEY.—May 15.—For the erection of a Wesleyan church at Dodworth. Mr. George Moxon, architect, Central Chambers, 26 Church Street, Barnsley.

BARNES.—May 11.—For taking-down premises known as 32, 33, 33A and 34 High Street, Barnes, with outbuildings, sheds and walls appurtenant thereto, and for the clearing of the site. Mr. G. Bruce Tomes, surveyor, Council Offices, High Street, Mortlake.

BARNET.—May 13.—For alterations to the workhouse. Messrs. White, Son & Pitt, architects, High Street, Barnet.

BARROW-IN-FURNESS.—May 22.—For the erection of Wesleyan chapel, Walney Island, Barrow-in-Furness. Mr. John F. Curwen, architect, 26 Highgate, Kendal.

BIDEFORD.—May 12.—For erection of free library and municipal offices. Mr. Alfred J. Dunn, architect, 86 Colmore Row, Birmingham.

BIRMINGHAM.—May 12.—For extension of Sparkbrook culvert and reconstruction of sewer in Stoney Lane, with man-holes, &c. Mr. John Price, city surveyor, Council House, Birmingham.

BIRMINGHAM.—May 14.—For erection of two lodges, stables and loco. sheds, &c., on the site of the Frankley reservoir, near Birmingham. Mr. Edward Orford Smith, town clerk, Council House, Birmingham.

BIRMINGHAM.—May 18.—For additions to the kitchen and sculleries at the workhouse infirmary, Dudley Road, Birmingham. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

BOSTON.—May 16.—For alterations and additions to the Shodfriars' school. Mr. James Rowell, Borough Surveyor's Office, Boston.

BRADFORD.—May 11.—For the erection of a doctor's house Barker End Road, Bradford. Mr. W. H. Herbert Marten, Cheapside Chambers, Bradford.

BRADFORD.—May 19.—For widening Church Bank, Bradford. Mr. J. H. Cox, city surveyor, Town Hall, Bradford.

BRENTFORD.—May 19.—For the erection of a free library building in Clifden House grounds, Boston Road, Brentford. Mr. Nowell Parr, architect, Clifden House, Boston Road, Brentford.

BRISTOL.—May 12.—For the erection of stabling accommodation in Portwall Lane, Bristol, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington station, London.

CAMBERWELL.—May 12.—For the erection of public baths and washhouses in Old Kent Road. Mr. E. Harding Payne, architect, 28 John Street, Bedford Row, W.C.

CASTLEFORD.—For about 1,300 yards of Welsh slating at Castleford, Yorks. Mr. Arthur Hartley, architect, County Chambers, Castleford.

CUMBERLAND.—May 14.—For rebuilding farm buildings at Craika Hall, Dearham. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

DIPTON.—May 18.—For the erection of one self-contained and two tenemented houses at Dipton, Durham. Mr. George Nicholson, contractor, Dipton.

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DURHAM.—May 13.—For the erection of presbytery, &c. at Westwood. Mr. Geo. Thos. Wilson, architect, 21 Durham Road, Blackhill.

DURHAM.—For the erection of twelve four-roomed houses at Oakenshaw Colliery, near Willington. Plans and specifications can be seen at the Engineer's Office, Brancepeth Colliery, Willington, co. Durham.

FAILSWORTH.—For taking-down and rebuilding St. John's No. 1 School, Failsworth, Lancs. Mr. Charles T. Taylor, 10 Clegg Street, Oldham.

FLIMBY.—May 14.—For the erection of six dwelling-houses at Flimby, Cumberland. Mr. C. Eaglesfield, architect, Maryport.

GILLINGHAM.—May 14.—For the erection of a chapel, lodge, &c., at the Gillingham (Kent) Burial Board. Mr. Fredk. Smith, architect, 10 Gardiner Street, New Brompton.

GLASS HOUGHTON.—May 18.—For extensions and alterations to Board school, Glass Houghton, Yorks. Mr. R. M. McDowall, architect, Carlton Street, Castleford.

HALIFAX.—May 12.—For the erection of a dwelling-house at Far Butterworth End Farm, Norland. Mr. Lister Coates, architect, Waterhouse Street, Halifax.

HAMPTON-ON-THAMES.—For the erection of a detached house at Marling Park. Mr. Fredk. G. Hughes, architect, The Estate Office, Hampton, Middlesex.

HANDSWORTH.—May 12.—For the erection and completion of buildings now being built on the Council's land at Normanton Hill, in the parish of Handsworth, Yorks. Mr. Bernard Powell, C.E., surveyor, Council Offices, Woodhouse.

HASTINGS.—May 11.—For the erection of a lock-up division, &c., at the fish-packing station, Rock-a-Nore, Hastings. Mr. Ben. F. Meadows, town clerk, Town Hall, Hastings.

HEANOR.—May 16.—For the erection of Wesleyan schools at Heanor. Mr. Arthur Marshall, architect, King Street, Nottingham.

HOYLAKE.—May 11.—For the erection of a mortuary at Hoylake, Cheshire. Mr. Thomas Foster, surveyor, District Council Offices, Hoylake.

HUDDERSFIELD.—May 13.—For the erection of a hotel, to be called the Black Horse inn, in Briggate, Dalton. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HULL.—May 22.—For the erection of the superstructure of buildings to be erected on the west side of Victoria Square. Mr. Joseph H. Hirst, city architect, Town Hall, Hull.

ILKESTON.—For the erection of a Congregational chapel, Ilkeston. Mr. H. Tatham Sudbury, architect, 18 Market Place, Ilkeston.

IRELAND.—May 11.—For extension to the electric-light station, Londonderry. Mr. Daniel Conroy, architect, 21 Shipquay Street, Londonderry.

IRELAND.—May 11.—For the erection of three dwelling-houses at new street off Creggan Rd., Rosemount, Londonderry. Mr. R. E. Buchanan, architect, Castle Street, Londonderry.

IRELAND.—May 12.—For the erection of a Masonic hall at Arklow. Mr. Samuel Stuart, Ferrybank, Arklow.

IRELAND.—May 13.—For the erection of a coastguard station and signal station at Fanad Head (about eighteen miles from Milford), in the county of Donegal. Particulars may be obtained at the Office of Public Works, Dublin, and the District Office of Works, Londonderry.

IRELAND.—May 13.—For alterations and additions to the asylum premises at Down District lunatic asylum, Downpatrick. Messrs. Graeme-Watt & Tulloch, architects, 77A Victoria Street, Belfast.

IRELAND.—May 13.—For the erection of a gentleman's residence at Queenstown. Messrs. W. H. Hill & Son, architects, 23 South Mall, Cork.

IRELAND.—May 13.—For the erection of six workers' cottages at Lisahally. Mr. Daniel Conroy, architect, 21 Shipquay Street, Londonderry.

IRELAND.—May 14.—For the erection and fitting-up of two sanitary annexes at the workhouse, Kilkenny. Mr. Kieran Comerford, clerk of union, Kilkenny.

IRELAND.—May 14.—For rebuilding and enlarging business premises, Ferryquay Street, Londonderry. Mr. R. E. Buchanan, architect, Castle Street, Londonderry.

KEIGHLEY.—May 19.—For the erection of ten dwelling-houses, Bradford Road. Messrs. Barber, Hopkinson & Co., architects, Craven Bank Chambers, North Street, Keighley.

LEEDS.—For the erection of Wesleyan minister's residence in Upper Wortley Road. Mr. John Ed. Gaunt, secretary to trustees, The Cottage, Upper Wortley.

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LEEDS.—May 11.—For rebuilding the Jubilee hotel and adjoining office premises, Victoria Square, Leeds. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

LEEDS.—May 16.—For extensions to the nurses' homes and the erection of new stables, &c., at the workhouse, Beckett Street. Messrs. Thomas Winn & Sons, architects, 92 Albion Street, Leeds.

LINDAL-IN-FURNESS.—May 12.—For rebuilding the Anchor hotel, Lindal-in-Furness. Messrs. J. W. Grundy & Son, architects, Brogden Street, Ulverston.

LONDON, N.—May 12.—For the erection of (a) conveniences, &c., at Highbury Fields, N.; (b) bothy, potting-shed, &c., at Meath Gardens, N.E., for the London County Council. Particulars at the General Section, Architect's Department, 18 Pall Mall East, S.W.

LONDON.—May 19.—For erection of Patent Office, Quality Court Block, for the Commissioners of H.M. Works and Public Buildings. Mr. J. B. Westcott, H.M. Office of Works, Storey's Gate, S.W.

LONDON.—May 19.—For the foundations of the new parcel office, Union Street, S.E., for the Commissioners of H.M. Works and Public Buildings. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

LONDON.—May 19.—For the demolition of the Atlas Works, Woodfield Road, Harrow Road, W. Mr. Fras. J. Smith, architect, Parliament Mansions, Victoria Street, Westminster.

LONDON, N.—May 26.—For the erection of fourteen rows of cottage dwellings for the working classes on the White Hart Lane Estate, Wood Green. Particulars at the Housing Section of the Architect's Department, 19 Charing Cross Road, W.C.

NEWCASTLE-UPON-TYNE.—May 18.—For the erection of blocks of dwellings for the labouring classes in Walker Road and Albion Row, Newcastle-upon-Tyne. Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley Street, Newcastle-upon-Tyne.

NORTH SOMERCOTES.—May 20.—For the erection of a Wesleyan chapel and schoolroom, &c., at North Somercotes, Lincs. Mr. W. H. Dinsley, architect, Chorley, Lancashire.

NOTTINGHAM.—May 16.—For the erection of farm buildings at Bulcote, near Nottingham. Mr. Arthur Brown, city engineer, Nottingham.

PONTEFRAC.—May 12.—For the erection of stable, coach-house, alteration to house at Mill Hill, &c. Messrs. Tennant & Bagley, architects, Pontefract.

POOLE.—May 13.—For building a salt-water tank in brickwork at Constitution Hill, and for the erection of a public convenience in brickwork at Thames Street—both in the borough of Poole. Mr. John Elford, borough surveyor, Poole.

PULHAM MARKET.—May 15.—For alterations and additions to the workhouse at Pulham Market, Norfolk. Mr. Alfred Clarke, architect, London Road, Lowestoft.

RAMSGATE.—May 25.—For the erection of superstructure of pavilion, shelter, &c., at Harbour Parade. Mr. E. B. Sharpley, town clerk, Albion House, Ramsgate.

RICHMOND (YORKS).—May 11.—For the erection of a new ward, lavatories, bath and other rooms in connection therewith, also laundry, mortuary, coach-house, &c., and alterations to the existing buildings, at the fever hospital. Mr. T. H. Hailstone, borough surveyor.

ROCHDALE.—May 20.—For repairing and reslating a portion of the retort-house roof at the gasworks. Mr. T. Banbury Ball, the manager, Gasworks, Dane Street.

ROYTON.—May 18.—For the erection of a police station and court-room at Royton, Lancs. Mr. Henry Littler, architect, County Offices, Preston.

SANDBACH.—May 11.—For the erection of engine-house at the central shops, Sandbach. Mr. Alfred Price, architect, Sandbach.

SCOTLAND.—May 11.—For alterations and additions to Meigle public school. Messrs. Carver & Symon, architects, 34 Castle Street, Forfar.

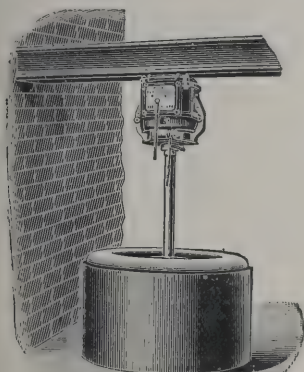
SCOTLAND.—May 11.—For additions to house in New Street, Rothes. Plans and specifications may be seen at 10 Seafield Square.

SCOTLAND.—May 11.—For the erection of a school, with offices and enclosing walls, at Sandend. Messrs. Sutherland & Jamieson, architects, Elgin.

SCOTLAND.—May 11.—For alterations on Castle Lodge, Glenbuchat. Messrs. Jenkins & Marr, architects, 16 Bridge Street, Aberdeen.

SCOTLAND.—May 12.—For the erection of the grand stand, bandstand, pens, jumps and other works in connection with the fitting-up of the showyard in Westlands Park, Cupar-Fife. Mr. David Storrar, architect, Cupar-Fife.

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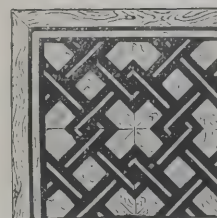
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SCOTLAND.—May 16.—For the erection of warehouses at the corner of Nelson Street and Trongate, Glasgow. Messrs. Thomson & Sandilands, architects, 241 West George Street.

SEIGHFORD.—May 20.—For the restoration of St. Chad's Church, Seighford, Stafford. Mr. W. D. Caroe, architect.

SOUTHAMPTON.—May 18.—For erecting the superstructure of the new electricity-supply station on the Western Shore. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

SOUTHTAWTON.—For rebuilding and enlarging the residence at Wood, Southtawton, Devon. Mr. James Jerman, architect, 1 Bedford Circus, Exeter.

TRURO.—May 15.—For the erection of three houses near the railway station at Truro. Mr. Sampson Hill, architect, Redruth.

WALES.—For the erection of premises, Monk Street, Abergavenny, for Inland Revenue offices. Mr. E. A. Johnson, architect, Abergavenny.

WALES.—For the erection of ten cottages at Cross Hands, Llanelli. Plans and specifications at New Cross Hands Colliery, Cross Hands.

WALES.—For the erection of Calvinistic Methodist chapel and schoolroom at Llandegla. Mr. William Moss, architect, 2 Temple Row, Wrexham.

WALES.—For the erection of fourteen houses in Ruthin Road, Wrexham. Mr. Frank J. Whittingham, architect, Bank Street Chambers, Wrexham.

WALES.—May 11.—For the erection of sixty or more houses on the Cwmdare Fechan Field, Aberdare. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—May 11.—For the erection of thirty-seven to forty cottages at Penrhwi-ceiber. Mr. G. A. Evans, secretary to the Cottage company, Ffwrdd Offices, Mountain Ash.

WALES.—May 11.—For the enlargement of Williamstown Board schools, Ystradyfodwg. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—May 12.—For completing six houses at Bargoed. Mr. T. Edwards, Brewery, Rhymney.

WALES.—May 13.—For alterations and extensions to the Blast Furnace inn, Pontlloftyn. Mr. P. Vivian Jones, architect, Hengoed.

WALES.—May 14.—For repairing, painting and papering the King's Head and Cambrian inn, Tredegar; Royal Oak, Blackwood; Crown hotel, Abercarne, and the Clarence inn, Brynmawr. Mr. T. Edwards, Rhymney Brewery, Rhymney.

WALES.—May 16.—For the erection of thirty-five houses at Pontypridd. Mr. A. O. Evans, architect, Pontypridd.

WALES.—May 16.—For the erection of a chapel at Tumble. Mr. W. Griffiths, architect, Llanelli.

WALES.—May 16.—For the erection of large market halls and alterations and additions to the Cowbridge Arms hotel adjoining. Messrs. Llewellyn Smith & Davis, architects, Aberdare.

WALES.—May 16.—For alterations and extensions to Emlyn and Clytha Villas, Nanthir Road, Blaengarw. Mr. R. J. Richards, Conservative agent, Port Talbot.

WALES.—May 18.—For the erection of a cottage hospital at Tredegar, Mon. Mr. E. A. Johnson, architect, Merthyr.

WALES.—May 19.—For the erection of a church in Holton Road, Barry Dock. Mr. Geo. E. Halliday, architect, Cardiff.

WALES.—May 20.—For altering and renovating Bethel Baptist church, King Street, Blaenavon. Mr. Geo. C. Hillard, architect, Market Chambers, Abertillery.

WALES.—May 21.—For the construction of new lavatories, fire staircases, &c., providing and fixing new eaves, gutters, down spouts and various other works at the workhouse, Bangor Road, Conway. Mr. T. B. Farrington, architect, Trinity Square, Llandudno.

WALSALL.—May 14.—For the erection of orphanage buildings at Aldridge, Walsall. Mr. Frederick W. Mager, architect.

WARRINGTON.—May 12.—For the construction of a concrete culvert. Mr. James Deas, water and sanitary engineer, Bank House, Warrington.

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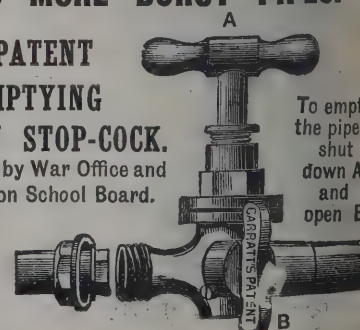
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WARWICK.—May 18.—For the erection of nurses' accommodation, extensions to wards and a porter's lodge at the Warwick joint hospital. Mr. F. P. Trepass, architect, 1 Church Street, Warwick.

WINDSOR.—May 11.—For taking-down and rebuilding the mortuary at the Windsor cemetery. Mr. E. A. Stickland, surveyor, Alma Road, Windsor.

WOOLWICH.—May 21.—For the erection of a public library on a site adjoining 230 High Street, Plumstead. Mr. Frank Sumner, borough engineer, Maxey Road, Plumstead.

WORKINGTON.—May 15.—For the erection of a shop, hall and dwelling-house at Clifton. Messrs. W. G. Scott & Co., architects; Victoria Buildings, Workington.

WORKINGTON.—May 18.—For the erection of a public library. Mr. W. A. Mellom, architect, City Chambers, York.

WYKE.—May 21.—For the erection of seven houses at Carr House Gate, Wyke, Yorks. Mr. Raymond Berry, architect, Commercial Street, Halifax.

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THOMPSON & Co, Howden, near Goole (accepted) 337 10 0
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R. Stewart 329 2 5

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For the construction of pipe sewers and sewage disposal works for Watnall Chaworth. Mr. S. MAYLAN, engineer, Public Offices.
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J. & S. Shaw 658 0 0
H. H. Barry 650 0 0
Cope & Raynor 632 0 0
Lock, Andrews & Price 615 0 0
J. HAWLEY & SON, Ilkeston (accepted) 610 0 0
S. Richmond 598 0 0
Kerry & Co. 577 0 0

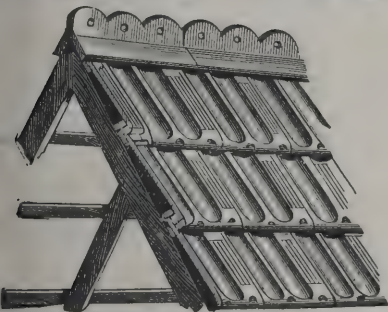
BOURNEMOUTH.

For the erection of a residence in Osborne Road, Branksome Park. Mr. PHILIP STURDY, architect.
Hoare & Sons £1,695 0 0
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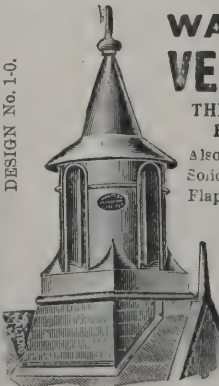
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BLOOMSBURY.

For preparing and painting the whole of the ironwork on the outside of the four blocks of the workhouse in Endell Street and offices in Broad Street, and cleaning out and repairing all the gutters and stack pipes, and repointing the back, front and sides of the offices in Broad Street.

Accepted tenders.

Munday, 73 Endell Street, W.C., painting.
Sandland, High Street, W.C., repointing.

BRIGHTON.

For painting and renovating the interior of the quarantine wards at the workhouse, Elm Grove.

J. Dutton	£319	12	0
W. Brown & Sons	325	0	0
E. C. Holland	315	0	0
Gates & Son	265	0	0
J. OLLIVER, 12 Richmond Terrace (<i>accepted</i>)	200	0	0

GUILDFORD.

For repainting the volunteer drill hall and club building, Haydon Place. Messrs. CLEMENCE & MOON, surveyors, Bank House, Guildford.

Bluett	£216	6	0
J. Foster	152	10	0
D. Coker	145	10	0
A. FRANKS, Guildford (<i>accepted</i>)	138	0	0
G. Chesswass	70	10	0

HACKNEY.

For the supply of condensing plant.

Coles, Marchant & Morley, Ltd.	£2,758	0	0
Pulsometer Engineering Co., Ltd.	2,681	0	0
Bertrams, Ltd.	2,656	0	0
Alley & MacLellan	2,471	0	0
Ashton, Frost & Co., Ltd.	2,445	0	0
RICHARDSON, WESTGARTH & CO., LTD. (<i>accepted</i>)	2,438	0	0
Bertrams, Ltd. (alternative with German motor)	2,366	0	0

HALIFAX.

For rebuilding warehouse in Portland Street, Halifax. Messrs. WALSH & NICHOLAS, architects, Museum Chambers and Station Chambers, Halifax.

Accepted tenders.

S. Mitchell, Kirk Lane, Hipperholme, mason.
J. Turner, New Bank, joiner.
J. S. Ackroyd, 46 Pellon Lane, plumber.
J. Bancroft & Son, Winding Road, slater and plasterer.
R. Hird, Ltd, Shipley, iron and steel.
Seed & Ingham, King Cross Street, painter.
W. H. Heywood & Co, Bay Hall Works, Huddersfield, patent glazier.

For the erection of four shops, workrooms, offices, warehouse, stable, &c., in Horton Street. Messrs. WALSH & NICHOLAS, architects, Halifax.

T. MITCHELL, Warley Town (*accepted*).

HASTINGS.

For brickwork for engine and boiler-houses at Bede pumping-station. Mr. P. H. PALMER, waterworks engineer.

F. WEEKS & G. SMALL (*accepted*) £289 10 0

HULL.

For the erection of a junior department at the Northumberland Avenue Board school.

Amalgamated Builders, Ltd.	£6,552	9	1
T. Bilton	5,896	7	6
H. T. Arnott	5,700	11	3
J. Houlton & Son	5,571	0	0
F. Southern	5,427	16	6
E. Good & Son, Ltd.	5,402	11	8
W. Hodgson	5,390	13	4
M. Harper	5,297	0	0
G. Jackson & Sons	5,173	6	5
J. T. Levitt	5,120	0	0
J. R. Woods	5,083	14	4
T. Goates	5,000	0	0
J. Simpson & Son	4,980	5	1
F. BIELBY (<i>accepted</i>)	4,879	0	0
Hull General Builders, Ltd. (<i>incomplete</i>)	3,880	0	0

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S. WILKINSON (*accepted*).

HUSBANDS BOSWORTH.

For additions and alterations to a house. Mr. W. J. SMITH, architect, Market Harborough.

Accepted tenders.

G. H. Eastwood, general work £329 12 0
J. Gilby, plumber, painter, &c. . . . 143 10 0

IRELAND.

For the erection and completion of a Presbyterian church at Convoys, co. Donegal. Mr. JOHN M'INTYRE, architect, Letterkenny.

S. Donnell & Co. £1,695 0 0
D. M. Coffrey 1,435 0 0
J. M. Clay 1,412 7 0
S. WOODS, Ballybofey, co. Donegal (*accepted*) 1,264 10 0

For supplying and erecting a suitable weighbridge on the workhouse premises at Ballinrobe, to weigh from 30 cwt. to 35 cwt.

F. KILKELLY, Ballinrobe (*accepted*) £27 0 0

LANCASTER.

For the erection of an emergency staircase, &c., at the Lancaster Union workhouse. Mr. J. PARKINSON, architect, 67 Church Street, Lancaster.

N. W. STONEHAM, Lancaster (*accepted*) . . . £153 0 0

LICHFIELD.

For alterations and repairs to public baths, Walsall Road, Lichfield, Staffs. Mr. WM. LINDLEY CATLIN, surveyor.

T. Walmsley £79 10 0
W. A. Goodman 78 18 6
A. Pilsbury 78 10 0
WOOD & SON, 39 St. John Street (*accepted*) . 52 15 0

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For the supply of fire hydrants, main and pump at the Northern Hospital.

J. Milne & Son, Ltd. £2,556 15 6
W. J. Fraser & Co. 2,238 7 0
Merryweather & Sons 2,233 0 0
H. F. Joel & Co. and T. Potter & Son, United, Ltd. 1,998 0 0
J. Blakeborough & Sons 1,925 0 0
Rosser & Russell, Ltd. 1,914 10 0
J. & F. May 1,863 10 0
B. Rhodes & Son 1,850 0 0
R. Harding & Son 1,699 19 0

For the supply of fire main and hydrants at the South-Eastern Hospital.

Russell & Co. £1,297 12 2
J. Milne & Son, Ltd. 772 6 8
W. J. Fraser & Co. 679 4 0
Rosser & Russell, Ltd. 677 10 0
J. & F. May 677 0 0
Merryweather & Sons 676 1 6
J. Blakeborough & Sons 653 19 0
H. F. Joel & Co. and T. Potter & Son, United, Ltd. 600 0 0
Shand, Mason & Co. 560 0 0
R. Harding & Son 554 5 5
Wenham & Waters 526 6 0
T. WOOD & SONS, 21 Chapel Street, Luton (*accepted*) 507 17 9

For sewerage and street works in Studley Grange Road and St. Margaret's Road (part of). Mr. S. W. BARNES, surveyor.

St. Margaret's Road.

R. Ballard, Ltd. £992 12 0
B. Nowell & Co. 894 15 10
Felkin & Watson 849 12 11
T. Free & Son 838 11 7
J. Mowlem & Co. 832 0 0
W. Neave & Son 751 0 0
M. Morecroft 740 0 0
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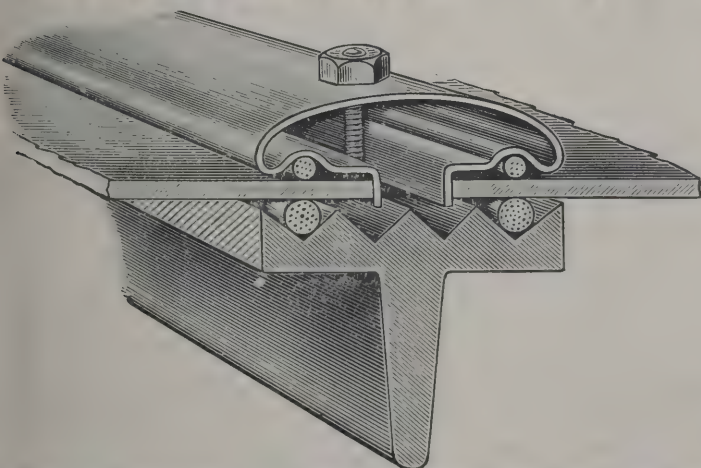
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Studley Grange Road

R. Ballard, Ltd.	£1,952	10	1
H. Morecroft	1,772	0	0
B. Nowell & Co.	1,737	16	1
Felkin & Watson	1,696	9	4
T. Free & Son	1,663	8	8
J. Mowlem & Co.	1,584	0	0
W. Neave & Son	1,447	0	0
J. MACKLIN (accepted)	1,346	16	6

LONGTON.

For street works in Sutherland Road and Weston Colney Road.
Mr. J. W. WARDLE, borough surveyor.

A. T. Brown	£2,603	6	2
T. Tucker	2,532	6	10
Smith & Taylor	2,364	0	0
W. Williams	2,244	0	0
F. Barke	2,038	0	0
J. BASSETT, Strongford, Tittensor, Stoke-on-Trent (accepted)	1,939	14	0

MARGATE.

For the construction of a verandah at East Cliff House, Cliftonville.

W. A. Baker & Co, Ltd.	£505	0	0
W. H. Bowchier	443	0	0
J. Brown & Son	413	0	0
A. Dyke	387	10	0
J. W. WOODHALL & SON, LTD., 68 Boundary Road, Ramsgate (accepted)	378	10	0

NORTHOWRAM.

For the erection of a farmhouse at Westcroft, Northowram, Halifax. Messrs. WALSH & NICHOLAS, architects, Halifax.

Accepted tenders.

H. Barraclough, Buttershaw, mason.
H. Abbott, Ambler Thorn, joiner.
W. Stocks, Queensbury, plumber.
Crowther Bros, Shelf, slater and plasterer.

RAVENSTHORPE.

For street works in the Dewsbury and Elland main roads.
Mr. FRED GREENWOOD, surveyor.

G. Whitehead	£6,075	0	0
W. Wilson	4,650	0	0
Dick, Kerr & Co, Ltd.	4,100	0	0
A. Graham & Son	3,850	0	0
Brookes, Ltd.	3,595	0	0
J. Brunton	3,575	0	0
W. Keighley	3,375	0	0
M. Hall & Son	3,350	0	0
S. Coop & Son	3,250	0	0
J. Speight	2,900	0	0
Turner, Heason & Mitchell	2,862	10	0
RILEY BROS. & HARTLEY, Sowerby Bridge (accepted)	2,325	0	0

ROTHWELL.

For the erection of two houses. Mr. W. J. SMITH, architect, Market Harborough.

Haycock & Sharman	£457	17	6
Read	438	10	0
Barlow	425	0	0
BUCKBY, Rothwell (accepted)	400	0	0

SCOTLAND.

For the erection of farm steading and alterations and additions to present steading of Reswallie-by-Forfar. Mr. A. H. L. MACKINNON, architect, 243 Union Street, Aberdeen.

Accepted tenders.

Liddle & Calder, Brechin, mason	£1,026	0	0
J. Robertson, Arbroath, carpenter	1,166	0	0
W. Brand & Son, Arbroath, slater and tiler	303	6	9
D. Masterton, Forfar, plasterer	199	16	6
Milne & Sons, Forfar, plumber	96	0	0
D. Savage, Kirriemuir, painter and glazier	78	13	10

For extensions to the fever hospital, Bannockburn. Messrs. MCLUCKIE & WALKER, architects, Stirling.

Accepted tenders.

J. J. & P. McLachlan, Stenhousemuir, buildingwork.
David Stewart, Bannockburn, joinerwork.
Anderson & Dewar, Bannockburn, slaterwork.
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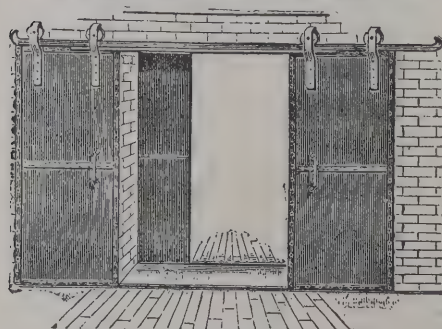
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SHILDON.

For alterations and reseating of the Primitive Methodist chapel, Shildon.

J. F. Adamson	£665	12	6
H. T. Heppel	573	0	0
R. Blackett	519	10	0
J. H. MILBURN, Hartlepool (accepted)	461	0	0
North of England Furnishing Co. (incomplete)	436	0	0

SOUTHEND-ON-SEA.

For sewerage works in Leigh Road. Mr. ERNEST J. ELFORD, borough surveyor.

W. E. Davey	£1,894	0	0
G. Bell	1,722	0	0
J. & J. Iles	1,670	3	5
W. Iles	1,660	0	0
BUXTON & JENNER, Southend-on-Sea (accepted)	1,549	17	0
G. Burgoyne	1,531	0	0

TOOTING BEC.

For the erection of disinfecter-house, greenhouse, &c., at asylum.

Jones Bros.	£953	0	0
W. Johnson & Co., Ltd.	947	0	0
CROPLEY BROS., LTD., Epsom (accepted)	893	0	0

WALES.

For the erection of a school for boys and girls and a school for infants, to accommodate respectively 540 and 396 children, with out-offices, boundaries and playgrounds, at Aber-tillery (Mon). Mr. R. L. ROBERTS, architect, Abercam (Mon). Quantities by architect.

D. W. Davies	£13,200	0	0
D. Davies	12,865	0	0
Latty & Co.	12,836	3	5
N. Badley & Co.	12,418	16	6
Smith Bros.	11,860	0	0
J. Newcombe	11,642	0	0
D. Lewis	10,650	0	0
A. P. Williams	10,509	0	0
E. C. Jordan	10,370	0	0
D. W. Richards & Co., Ltd.	10,100	0	0
D. J. Davies	10,040	0	0
J. JENKINS, 11 Clifton Road, Newport (accepted)	9,925	0	0

WALES—continued.

For erection of a C.M. chapel at Carno.

E. Davies & Son	£2,493	0	0
E. C. Phillips	1,900	0	0
E. H. Williams	1,630	0	0
J. J. MEREDITH, Llanidloes (accepted)	1,627	10	0

For sewerage and sewage-disposal works at Colwyn Bay. Messrs. PRITCHARD, GREEN & Co., engineers, 37 Waterloo Street, Birmingham.

J. Best	£108,868	10	0
G. Law	83,000	0	0
J. Strachan	79,500	0	0
McKee & McNally	71,402	0	0
W. Jones & Sons	69,369	18	10
J. S. Dawson	68,401	3	6
Nowell & Sons	64,994	0	0
Johnson & Langley	63,900	0	0
J. & T. Binns	62,869	8	10
B. Cooke & Co.	57,990	0	0
UNDERWOOD & BRO., Dukinfield (accepted)	55,276	0	0
J. Moffat	49,550	11	7

For new promenades and foreshore improvement works at Colwyn Bay. Mr. WM. JONES, surveyor.

Promenade No. 1.

J. & M. Patrick	£35,934	0	0
Bower Bros.	32,545	0	0
Turner, Heason & Mitchell	30,130	0	0
W. Kennedy	29,868	0	0
E. Nuttall	27,365	0	0
L. Roberts	26,464	0	0
J. & T. Binns	22,707	0	0
J. Moffatt	22,637	0	0
R. C. Brebner & Co.	22,227	0	0
Pethick Bros.	21,899	0	0
McKee & McNally	21,653	0	0
Nowell & Sons	20,560	0	0
J. Strachan	20,505	0	0
E. R. Lester	20,503	0	0
W. Jones & Sons	20,176	0	0
G. Law	20,126	0	0
J. S. Dawson	19,399	0	0
Public Works Co.	19,056	0	0
UNDERWOOD & BRO., Dukinfield (accepted)	18,757	0	0

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Promenade No. 2.

J. & M. Patrick	£15,572	0	0
W. Kennedy	12,226	0	0
Bower Bros.	11,218	0	0
E. Nuttall	11,025	0	0
Turner, Heason & Mitchell	9,339	0	0
J. & T. Binns	8,866	0	0
J. Moffat	8,130	0	0
McKee & McNally	7,599	0	0
J. Strachan	7,431	0	0
Public Works Co.	7,420	0	0
Pethick Bros.	7,419	0	0
E. R. Lester	7,396	0	0
G. Law	7,188	0	0
L. Roberts	7,135	0	0
Nowell & Sons	6,912	0	0
R. C. Brebner & Co.	6,798	0	0
UNDERWOOD & BRO. (accepted)	6,691	0	0
G. Bell	6,585	0	0
W. Jones & Sons	6,578	0	0
R. Finnagan	6,521	0	0
J. S. Dawson	5,749	0	0
Dixon & Co.	5,615	0	0

Promenade No. 3.

J. & M. Patrick	18,304	0	0
T. Dent & Sons	17,310	0	0
W. Kennedy	15,172	0	0
Bower Bros.	14,303	0	0
E. Nuttall	14,042	0	0
J. & T. Binns	11,106	0	0
Turner, Heason & Mitchell	11,028	0	0
L. Roberts	10,806	0	0
J. Moffat	10,803	0	0
McKee & McNally	10,795	0	0
R. C. Brebner & Co.	10,343	0	0
J. Strachan	9,646	0	0
Pethick Bros.	9,322	0	0
Nowell & Sons	9,275	0	0
E. R. Lester	9,240	0	0
R. Finnagan	9,044	0	0
UNDERWOOD & BRO. (accepted)	8,903	0	0
J. S. Dawson	8,865	0	0
Public Works Co.	8,695	0	0

WALES—continued.

For the erection of a villa, Standard Street, Crickhowell. Mr. B. J. FRANCIS, architect, Abergavenny	Quantities by architect.		
Thomas & Sons	£998	0	0
T. Morgan	845	10	0
G. GRIFFITHS, Crickhowell (accepted)	822	0	0
For the erection of a workmen's library, institute, &c, at Nantfyllon, Maesteg. Messrs. E. W. BURNETT & SON, architects, Jarrow House, Tondu			
W. J. Jackson	£2,600	0	0
S. LEWIS, Maesteg (accepted)	1,925	0	0
For street works in Tunnel Terrace and Gwynfi Street (portion of), Blaengwynfi. Mr. W. P. JONES, surveyor, Council Offices, Cymmer, Port Talbot.			
J. Evans	£1,475	6	7
M. Thompson & Co.	771	2	5
Duckells & Balls	755	13	11
S. Rees	743	14	7

WALESBY.

For erection of Primitive Methodist chapel and school at Walesby.			
G. W. COULSON, Market Rasen (accepted)	£295	0	0
McGinnis	293	0	0

WOMBWELL.

For covering floors of Primitive Methodist church, gallery and classrooms at Wombwell with linoleum, and carpet for pew seatings. Mr. J. P. EARLE, architect, 10 Norfolk Street, Sheffield.			
T. & J. ROBERTS, Moorhead, Sheffield, linoleum 2s. per yard, seat rugs 2s. 6d. (accepted).			

YEADON.

For the extension of Leaffield Mills, Yeadon. Mr. HAROLD CHIPPENDALE, architect, Guiseley, near Leeds.			
Accepted tenders.			
McYeadon & Sons, Yeadon, contractors.			
A. Parker, Windhill, Shipley, joiner.			
J. Lockwood, Guiseley, plumber.			
A. Firth, Yeadon, plasterer.			
Hill & Nelson, Edmund Street, Bradford, slater.			
F. Tillotson, Shipley, ironfounder.			

BRITISH MANUFACTURE

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For all DECORATIVE WORK.

“O” QUALITY “INDIAN” QUALITY

FOR INSIDE USE.

FOR OUTSIDE USE.

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EASY FLOW AND MANIPULATION UNDER THE BRUSH.

ENORMOUS COVERING PROPERTIES.

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Made in any Tint or Colour required, or may be Tinted with Tube Colour Stainers.

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ILLUSTRATIONS.

SHALDON CHURCH, DEVON.

BELGARTH, CORK: GARDEN FRONT. THE HALL. DRAWING ROOM. DINING ROOM.

RAVENSLEA, NIGHTINGALE LANE, WANDSWORTH COMMON.

GRAND HOTEL, CHARING CROSS: THE BRIDGE.

THE LESLIE ARMS HOTEL, CROYDON.

THE WHITE BEAR HOTEL, PORTSEA.

WALL'S AUTOMATIC BURGLAR SASH-LOCKS.

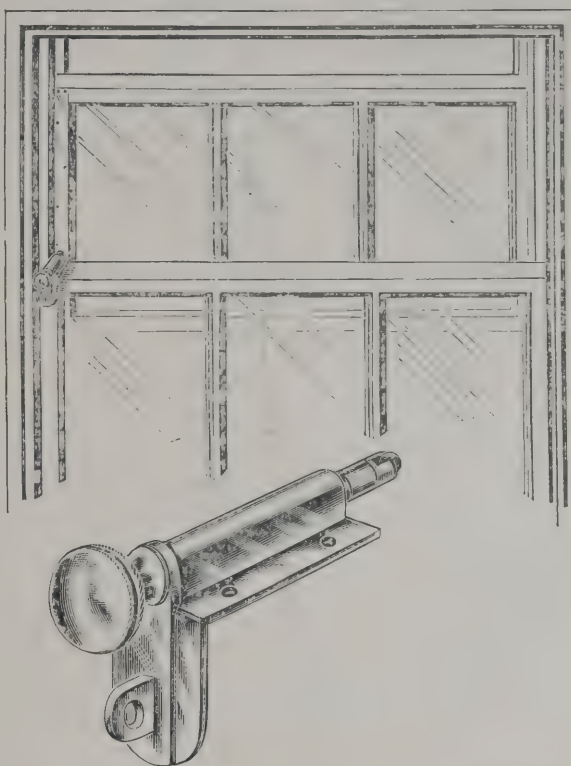
JUST as the improvement in the defensive armour of our Navy must be in advance of the improvement in the destructive force of projectiles, so should the protective devices in the windows and doors of our houses be in advance of the resources of the enterprising burglar. It must, however, be confessed that in the past the burglar has had the advantage. But at last the position is about to be reversed, a result due to the skill of Mr. Osborne Wall, who has invented what he calls an automatic burglar-proof sash-lock.

The device consists of a spring-actuated bolt fastened upon the top of the upright of the lower sash. When the window is closed the bolt rests in a socket in the lower end of the upright of the top sash. To open the window the bolt is withdrawn by pulling a milled-edged handle at the end of the bolt, and both sashes can then be moved any distance. At the end of the bolt is a roller disc, which enables the bolt to run freely up and down the face of the upright of the top sash.

The window may be left open at night for ventilating purposes with perfect security. This is effected by boring a hole 4 or 5 inches distant from the first hole. Into this second hole the bolt is automatically shot and the window, though open, is locked. The top sash may then be lowered 4 or 5 inches, or both sashes may be moved, leaving the window open, say, 2 inches at the bottom and 3 inches at the top. An opening of 4 or 5 inches is suggested, as through such a narrow space it would be impossible for a burglar to introduce his body.

The position of the bolt being at the intersection of the sashes, it would be impossible for a burglar to reach it by thrusting his arm through the opening at the bottom or that at the top of the sash.

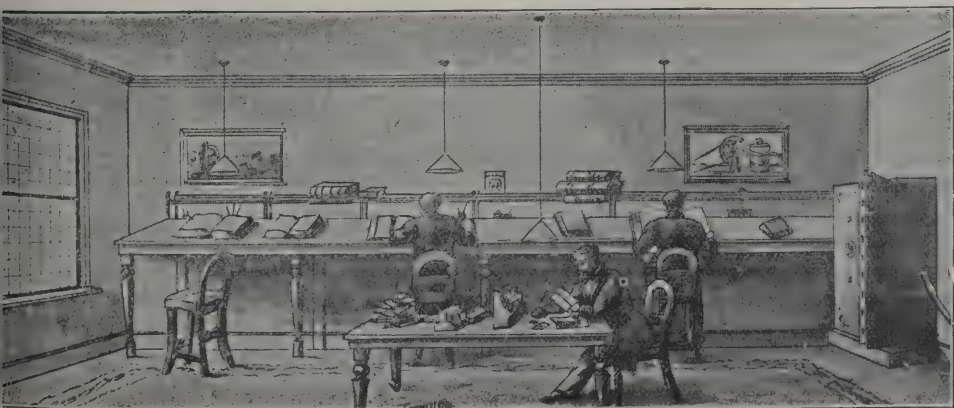
The window may with safety be left open less than 5 inches without being locked, for if a thief came along and tried to raise the sash it would lock automatically at the 5-inch hole, the bolt shooting into its place as soon as it came opposite to it. The housekeeper or housemaid may now with an easy



mind leave the windows open, so that a room may be aired while her duties call her upstairs or elsewhere, knowing that though the window be open, it is also locked. If a person outside his house notice a window open he has only to move the sash, and the window is locked automatically inside. He need not enter the room to lock it.

WILSON'S PATENT "MULTILUX" WINDOWS

The above illustrates an office where the light coming from the sky falls on to the floor and is absorbed, thus leaving the back part of the room dark. The illustration below shows the same room with WILSON'S PATENT MULTILUX WINDOW fixed. This refracts the rays of light and throws them horizontally, thus preventing them falling on to the floor, and lighting up the whole room.

**PRICE**

5/- per foot super.

Wilson's Patent
"SAFETY" Pavement
Lights prevent slipping

Wilson's "DIOPTRIC"
Pavement Lights are
an improvement on
the semi-prism at the
same price.

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GIRDERS, AND ALL ARCHI-
TECTURAL CASTINGS.

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GRAY'S INN ROAD,
LONDON, E.C.

To prevent a burglar pulling back the bolt, even if he broke the glass pane to get at it, a small padlock put through a staple beneath the handle may be employed. This would be found an extra security in cases where a householder was away at the seaside or visiting friends.

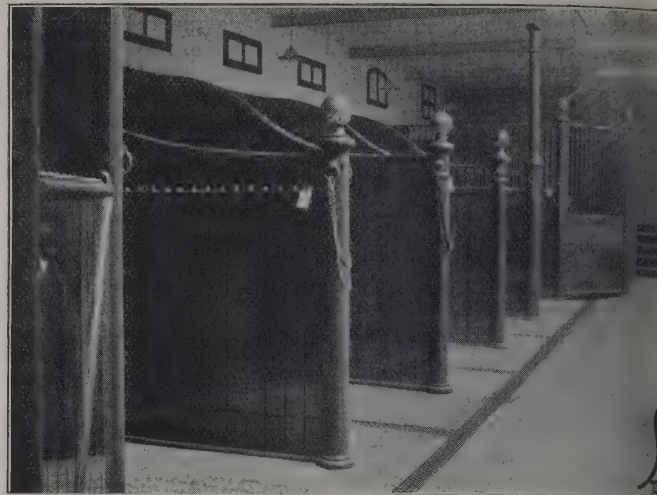
To meet the burglar's device of inserting a knife between the sashes to turn the catch, or of inserting a steel saw between the sashes to cut the catch, methods employed against the ordinary sash lock, the inventor employs a loose collar revolving around the bolt at the point of intersection of the sashes. This collar prevents the saw "biting." The more the burglar saws the more the collar revolves without effect. Another advantage is obtained from the pressure of the bolt against the upper sash—it prevents the rattling of the sashes when they are loose. This sash-lock is simple in construction and effective in action. In appearance it is neat and ornamental. A model window to which the lock is affixed is on view at Wall's Fountain Pen Depot, 56 Gracechurch Street, London, E.C.

A NORTHERN INDUSTRY.

WE recently had the opportunity of visiting the showrooms and works of Messrs. Dinning & Cooke, for so many years established at Percy Ironworks, Newcastle-on-Tyne, and were particularly interested in the new showrooms devoted to stable and harness-room fittings, where are displayed all the various devices and arrangements for the safety, health and comfort of the horse that the long experience in this branch of their business has enabled them to perfect. In the largest of the showrooms and for the better display of these they have constructed a range of five full-size stalls and three loose boxes, each one a model of construction and perfect in fittings, without unnecessary ornamental designs, and yet each exhibiting different patterns and arrangements, so that a wide selection is offered to suit individual tastes and requirements, from a plain stall division, consisting of plain heel-post and ramp, cleaded with wood, to the more elaborate, fitted with brass-mounted heel-post and ventilating panel with blind plate, sliding barrier, &c. The sliding barrier is drawn out at the heel-post and the ball end dropped into a socket fixed in the wall of the stable, converting the stall into a loose-box, and also confining the horse should it break loose during the night.

One stall is fitted with extended heel-posts to carry another

floor or roof, which can be seen in the illustration, taken from a photograph of part of the showroom.

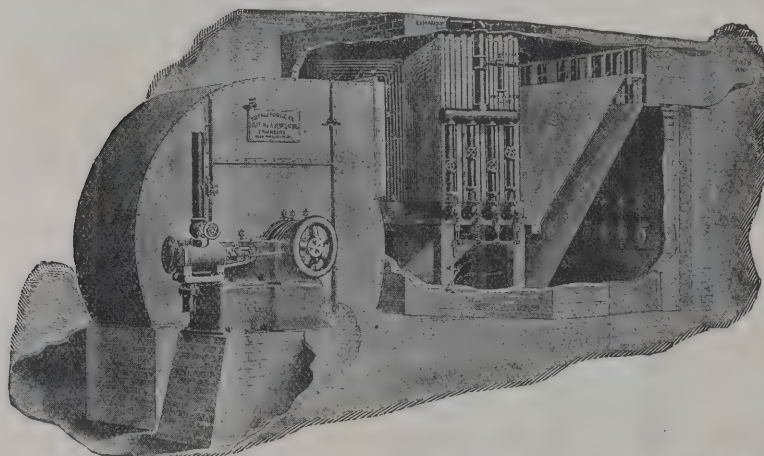


Cast-iron is used as the best material for stall-post, loose box, pillar ramp and stall rails, mangers, channel gutter, &c.; while wrought-iron is utilised for ventilating panels, hayricks, &c., the mangers being coated with vitreous enamel, insuring cleanliness.

Care has been taken that the importance of good ventilation and drainage should receive proper attention. Proper drainage is effected by an enamelled iron channel, which is graduated, allowing the stable floor to be laid level from head to foot of stalls, and is fitted with loose cover in short lengths, by which the channel can readily be cleaned and obstructions removed, and ventilation secured by various forms of ventilating windows, admitting air without draughts, fixed at the stall-heads.

Concrete flooring is principally shown and the walls covered with enamelled tiles. Both being non-absorbent and easily cleansed a sanitary stable is insured.

The stalls are fitted with a noiseless tying apparatus



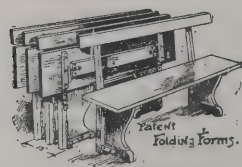
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15 per cent. more seated.

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For Index of Advertisers, see page x.

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attached beneath the manger top. The strap works over an anti-friction roller, and the weight is enclosed in cast-iron shield which contains a buffer, and in the loose boxes a brass traveller runs along a steel rail which gives the horse plenty of freedom with security. The doors of the loose boxes are fixed at an angle, centre hung and open both in and out, and are fitted with a special deadweight catch, a security against accidental opening.

A part of the showrooms is reserved for harness fittings, a heavy harness bracket designed to hold a complete set of cart harness calling for special attention, in addition to ventilating malleable iron brackets for riding and driving harness.

THE INTERNATIONAL FIRE EXHIBITION AT
EARL'S COURT.

H.R.H. THE DUKE OF CAMBRIDGE, K.G., opened on Wednesday the attractive Exhibition which this year occupies London's pleasure at Earl's Court.

In the various halls and galleries are shown a comprehensive collection of fire-resisting building materials, fire-alarms, and numerous appliances for combating and extinguishing fires, while in the Empress Theatre and the Loan Collection will be practically displayed or exhibited the primitive engines and other fire paraphernalia of our ancestors.

The Exhibition has been organised under the auspices of the British Fire Prevention Committee, and a powerful and influential honorary advisory Council has been formed with, for president, H.R.H. the Duke of Cambridge, K.G., and vice-presidents, the Right Hon. the Lord Mayor of London, Sir Marcus Samuel, the Duke of Marlborough, K.G., president National Fire Brigades' Union, and Mr. Edwin O. Sachs, chairman British Fire Prevention Committee. In addition there are a score of sub-committees, including the best technical brains of the United Kingdom, of the leading European nations, and of the United States. On July 6 an International Fire Prevention Congress will be held at Earl's Court, and extend over several days.

In the German Court, which occupies the whole of the

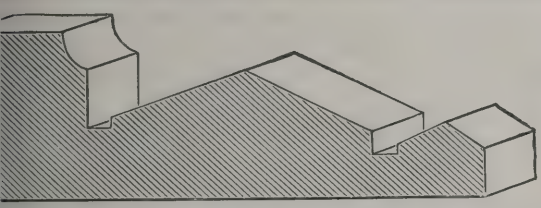
Ducal Hall, will be found the highly interesting historic and artistic collection from Germany, for the loan of which the Government of that country were gracious enough to give special permission. In the galleries surrounding the Imperial Court other foreign nations are fittingly represented, and here also will be found the British Loan Exhibits on entering by the "Monolith of Fame."

In the Empress Theatre, twice daily, will be given the thrilling and practical sensation of "Fighting the Flames" on a most elaborate scale. Stately buildings, with imposing fronts, represent large business thoroughfares through which passers-by and traffic hurry on duty bent. Fire breaks out, and from beginning to end all the scenes of a great conflagration are vividly enacted, without exaggeration and without omitting a detail. The firemen are practical and experienced fire-fighters, selected from leading brigades, and the appliances and equipment are of the most approved pattern.

In the northern end of Elysia, the Garden of Variety, is located a village of the Upper Nile, which has been imported to Earl's Court by permission of the Egyptian Government. There the "fellaheen" can be seen amid the typical local colour and surroundings of the sacred river tilling the soil with crude implements, irrigating the arid pastures laboriously, or engaged in the pastimes of his people. In the covered bazaar the various Egyptian handicrafts are in full swing, jugglers and acrobats show their skill, and the youths contest with their "nabbouts," i.e. double-handed sticks. Buffalo, cattle, camels, gazelles, Pharaoh poultry, Arab dogs, &c., add a verisimilitude to this faithful reproduction of the East.

Behind a representation of Old Temple Bar a reproduction of the Great Fire of London, 1666, at midnight may be seen. There are numerous other side-shows of more than ordinary interest, and the illusory scenery which forms the boundary of the grounds represents with remarkable effectiveness Warwick Castle on the Avon and Bothwell Castle. The exhibition, which is both interesting and instructive, should, given fine weather, be a great success.

An interesting feature of the Exhibition is the fully-equipped station of the London Salvage Corps, which has been erected on the grounds. A full staff of men, horses, &c., will be kept there, and will "turn out" to any fires occurring in the district. Lieutenant-Colonel Fox selected the stable fittings, &c., for the station from the St. Pancras Iron Work Company, Ltd., and the excellent appearance of the stables generally reflects great credit upon this firm.



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WATER TANK.

CLOISSONNÉ MARBLE MOSAIC.

ARROLITHIC, LTD, formerly Mainzer & Co, Ltd., 18 Berners Street, W., have forwarded us a sheet of mosaic patterns illustrating (Mr. Mainzer's patent) the application of the cloissonné principle to mosaic pavements, which has the two-fold object of limiting the cracking of floors of wide dimensions by subdividing large surfaces into sections by the insertion of metal strips, which can be so arranged as to form at the same time an ornamental pattern, as shown on the following sketch

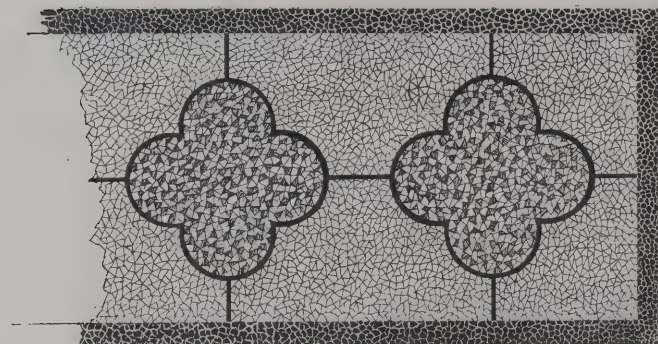


FIG. 1.

(fig. 1), which has been actually carried out for the aisle pavement laid in two colours in St. Edward's Church, Selly Oak; and for outlining the ornament in the mosaic, which gives it the appearance of cloissonné, producing a pleasing artistic effect. The thickness of the brass can be varied as required from 1-16-inch to $\frac{1}{8}$ -inch, and is $\frac{1}{2}$ -inch in depths. Border patterns can be treated in the same manner, as illustrated in fig. 2.

We wish to call particular attention to pattern No. 203, which attains both objects at the same time, viz. forming a corner ornament, with an elongation forming a mitre which

counteracts the expansion and contraction of the cement. Various applications of the process are on view at the offices of

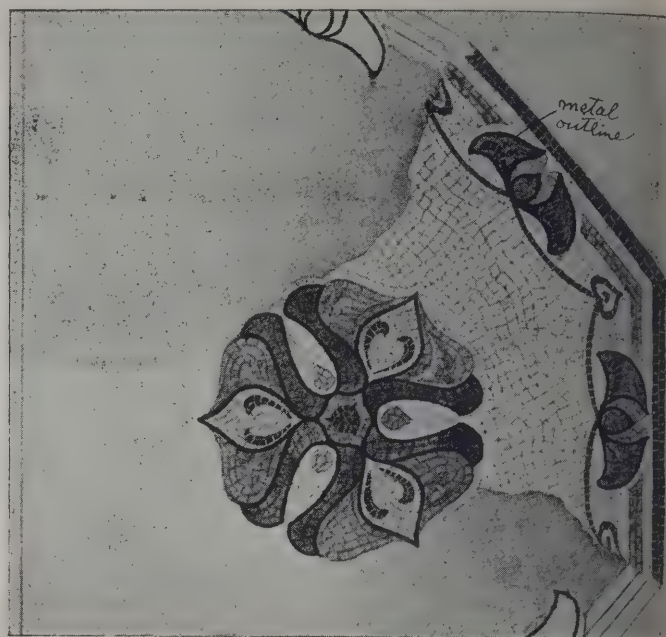
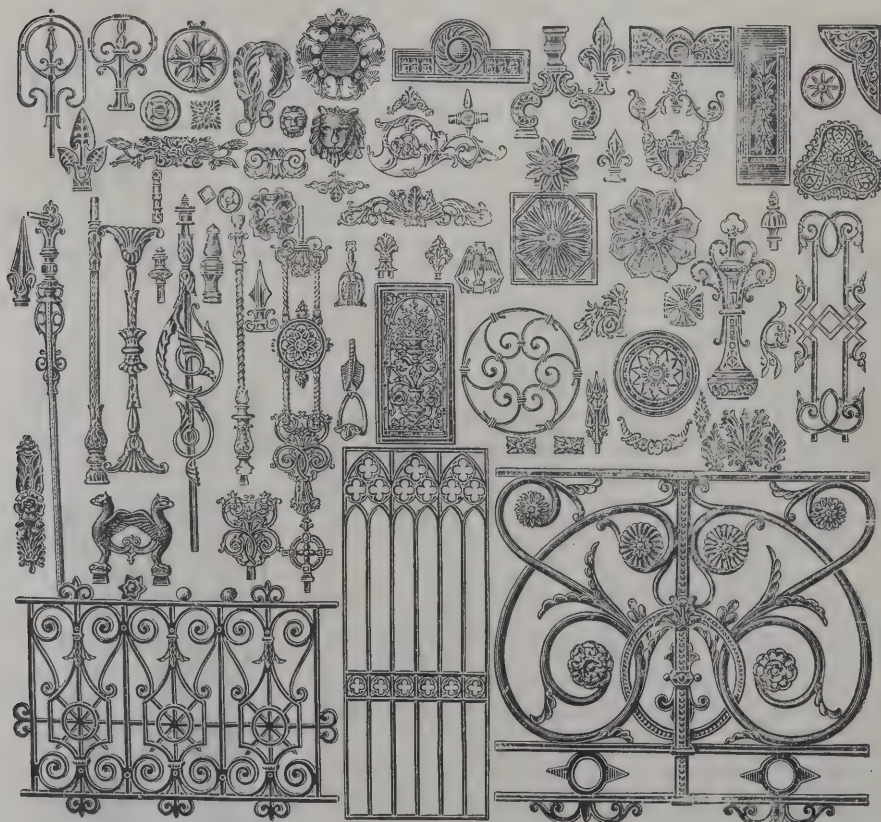


FIG. 2.

the company, 18 Berners Street, Oxford Street, W., and are worth inspection by all architects and artists.

THE Local Government Board have sanctioned the scheme submitted by the Oakengates, Warwick, Urban Council for the borrowing of 18,500*l.* for purposes of the sewerage and sewage disposal, including the cost of the land for the outfall works at Oakengates. The scheme first proposed involved an expenditure of about 40,000*l.*

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TRADE NOTES.

MR. W. ALDERSON, of London, a native of Reeth, North Yorks, set a new public striking clock in motion on Wednesday at the Reeth Congregational church. There is a large illuminated dial facing the market square. The clock was made by Messrs. Wm Potts & Sons, clock manufacturers, Leeds and Newcastle, who erected one at Fridaythorpe church, near Driffield, last week.

CAEN WOOD TOWERS, the historic mansion at Highgate, now the property of Mr. C. F. Cory-Wright, J.P., has been entirely redecorated and the floors covered with Mainzer's improved parquet, and the conservatory has been paved with Arrolithic mosaic of special design. The alterations have been carried out under the supervision of Mr. G. E. Nield, A.R.I.B.A., The Outer Temple, 222 Strand, W.C.

THE London County Council have erected extensive car sheds in Clapham Park Road for the accommodation of the electric cars, which will commence running on the 15th inst. after the opening trip by H.R.H. the Prince of Wales. They have been fitted throughout with Kinnear's steel rolling shutters by the "B. & S." Folding Gate Co. of Great Tower Street, Upper St. Martin's Lane, W.C., who are also supplying them for the car sheds at Bexley Heath. Other orders recently received include the Lancashire and Yorkshire Railway Co. for Bankfield Warehouses, Liverpool, and at Fulham two large ones are being fixed at the Imperial Saw Mills.

MESSRS. EASTON & CO., LTD., successors to Easton, Anderson & Goolden, Ltd, engineers, Broad Sanctuary Chambers, Westminster, announce that they have appointed Messrs. J. Lomax, Kendal & Co., of St. James's Square, Manchester, as agents for their electric and hydraulic lifts for the cities of Manchester, Stockport and Salford, and that all communications relating to lifts should be addressed to them. They point out that this agency is entirely separate from the superheater and general agency for Lancashire and the adjoining counties, which is conducted by Mr. G. D. Seaton from No. 49 Deansgate, Manchester.

THE annual meeting of the shareholders of the London and Lancashire Fire Insurance Company was held on the 30th ult. at the Law Association Rooms, Liverpool, when the chairman of the company, Mr. Edward H. Harrison, was in the pleasant position of being able to speak in very glowing terms not only

of the business done in the past year, but also of the great strengthening of the company's financial position which has taken place. As he explained:—"Having passed 100,000% additional to the reserve fund, the company is now within measurable distance of that fund becoming the round million sterling which is a company's natural ambition." The dividend has risen from 12 per cent. to no less than 28 per cent., while the sum of 50,000% has been set aside to establish a pension fund.

ELECTRIC NOTE.

THE Ramsgate Corporation, whose electric-lighting order expires very shortly, have before them the offers of two companies to take the powers over, and they have just decided to enlist the services of an electrical engineer, upon whose advice they will act. The position is a somewhat difficult one, inasmuch as the local gas undertaking is municipally owned, and from its profits handsome sums have been paid in relief of the district rates.

BUILDING AND BUILDERS.

THE foundation-stone of a Congregational Sunday school was laid at Garstang on the 6th inst. The school is to be built on a site adjoining the present chapel. The cost, exclusive of furnishing, will be a little over 1,000%.

ON the 4th inst. Alderman Alliston (chairman of the City police committee) laid the foundation-stone of the new police-station at Moor Lane. The old station at Moorgate only accommodated thirty-seven constables, whilst the new building will be large enough for sixty-seven. It will include a reading-room and a billiard-room, and the whole erection will cost 20,000%.

AT a meeting of the Stepney Borough Council in camera negotiations were set on foot for the acquisition of an extensive site on the Thames at Limehouse. The site is estimated to cover 60,000 square feet, and can be adapted both for purposes of storage and the erection of tenements to accommodate between 600 and 700 of the working classes. It is calculated that the site will cost between 20,000% and 30,000%.

THE gas and water committee of the Barrow Corporation will recommend at the next meeting of the Council that

THE HELLIWELL

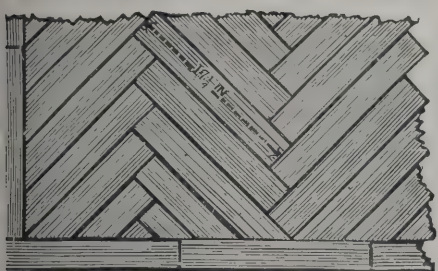
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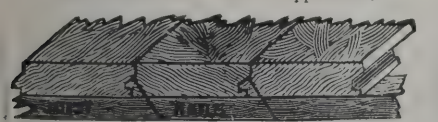
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17 1/2" x 3" x 1 1/2" ditto, 6s. 10d. per 100.

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1 1/2" x 4 1/2" Wainscot Oak at 53s. 0d. per square.
1 1/2" x 4 1/2" ditto at 42s. 6d. "
1 1/2" x 4 1/2" Pitch Pine at 23s. 0d. "
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These prices do not include desiccation.

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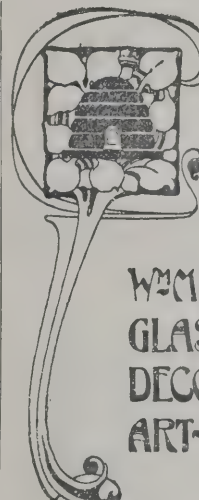
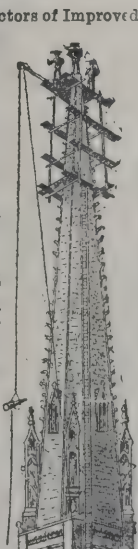
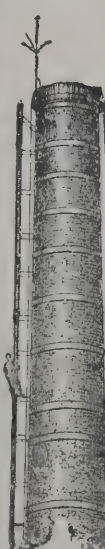
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Messrs. Hannay & Clarke's tender, amounting to 42,303*l.*, be accepted for the supplying of cast-iron pipes in connection with the Duddon water scheme, and that Messrs. John Aird & Son's contract for the laying of the pipe track, amounting to 26,471*l.*, be also accepted. The track will be about 16 miles in length. The heaviest work in connection with the scheme will be the construction of a masonry dam to raise the level of Seathwaite Tarn, the source of the river Duddon.

ARRANGEMENTS have been made for a special visit of the delegates and subscribers of the Hospital Saturday Fund to Llandudno to-morrow (Saturday) on the occasion of the opening of Marle Hall by the Lord Mayor (Alderman Hallowell Rogers), who will be accompanied by the Lady Mayoress. A short time since the Hospital Saturday committee acquired the freehold of Marle Hall at a cost of 6,000*l.*, and they have expended some 7,000*l.* in what is practically the rebuilding of the structure for the purpose of a permanent convalescent home for women. The building will now accommodate eighty-five patients, as compared with twenty-seven hitherto accommodated there, and a further twenty-seven at a neighbouring house. The party is expected to number about 400, and for their accommodation a special train will leave New Street station at 7.30 A.M., calling at Monument Road and Smethwick.

VARIETIES.

A NEW Independent Methodist church at High Park, Southport, was opened on the 2nd inst. The total cost of the building and land has been 1,614*l.*

CHRIST CHURCH schools, Heaton, Norris, have been extended, and the new portion, which has cost some 2,000*l.*, is now open.

THE new Baptist Church House, which forms so conspicuous and pleasing a feature of the newly-widened Southampton Row, has been opened. The building has been erected to the designs of Mr. A. Keen.

THE Bishop of Derby dedicated a clock tower and peal of five bells presented to St. Andrew's, Swanwick, by the ex-high sheriff of Derbyshire (Mr. Fitzherbert Wright) in commemoration of the Coronation.

A NEW school, erected in connection with the Baptist chapel, Mills Hill, Chadderton, near Oldham, has recently been opened. The school has cost about 2,228*l.*, and consists of a

central hall with two classrooms at either side. It will accommodate about 500 pupils.

THE competition for the Wavertree Baptist church and schools, Liverpool, has been decided in favour of designs submitted under motto "New Era," the authors being Messrs. G. & R. P. Baines, 5 Clement's Inn, Strand, London, W.C. The assessor was Mr. Henry Hartley.

COMPENSATION to the extent of 7,770*l.* has been awarded in the London Sheriffs' Court to Mr. J. Tyler, an ironmonger, for the compulsory acquirement of his premises, 15, 35, 41 and 43A Wandsworth Road, which are needed by the London County Council in connection with the scheme for widening Wandsworth Road.

ABERGWILI PALACE, Carmarthen, the country seat of the Right Rev. John Owen, Lord Bishop of St. Davids, has been practically destroyed by fire. The chapel was irreparably lost, with its handsome stained windows, but some of the paintings were saved. His lordship's library was also saved. Most of the furniture was thrown into the garden.

THE Duke of Devonshire laid, on the 25th ult., the foundation-stone of the new technical institute and free library at Eastbourne. The site has been presented by the Duke in commemoration of his year of office as mayor in 1897-98. The contract price is 34,700*l.* The architect is Mr. Philip A. Robson.

THE section of the District Railway between South Harrow and Ealing is expected to be ready for electrical working in the course of a few weeks. The electric traction of the main line depends upon the completion of the power-house at Chelsea, and that of the Metropolitan Railway on the station at Neasden.

ENTRIES for the London Cart Horse Parade in Regent's Park on Whit Monday close on Monday, May 11, but the lists will be kept open for seven days longer on payment of the late fee. About 400*l.* will be awarded in prizes to deserving drivers. Full particulars and forms can be obtained of the Secretary at the offices, 12 Hanover Square, W.

THE St. Pancras Borough Council have informed the London County Council that, with a view to linking up the north and south tramways, and subject to any street widenings that might be necessary, St. Pancras is prepared to give its consent to a tramway along Tottenham Court Road, contingent upon the County Council obtaining Westminster's consent to continue the same class of tramway to the Embankment.

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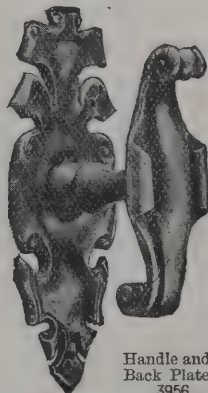
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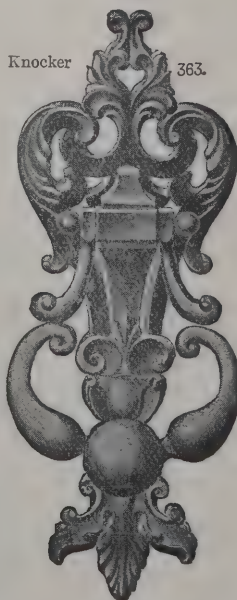
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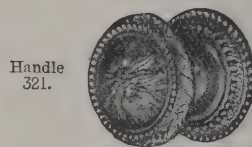
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AN open competitive examination for not fewer than twenty-four situations as assistant examiner in the Patent Office will be held by the Civil Service Commissioners in July next. The examination will commence on the 21st of the month, and forms of application for admission to it will probably be ready for issue in the course of a few days. They will be obtainable on request addressed by letter to the Secretary, Civil Service Commission, Burlington Gardens, London, W.

THE members of the East of Scotland Engineering Association visited on the 2nd inst. the new dock works in progress at Grangemouth. The company were conducted over the works by the engineers and the contractors, Messrs. Charles Brand & Sons, engineers, who explained the various features of interest, including the suction dredging, sinking of the monoliths at the entrance, caisson gate, &c. The members were then entertained to tea, and an inspection of the work at the junction of the old and new docks concluded a most instructive and enjoyable excursion.

THE Bridge House Estates Committee of the City Corporation, under whose direction the Tower Bridge was built, have under consideration a proposal for improving Southwark Bridge. Owing to the steep incline on the City side, the bridge is not much used by heavy vehicles, and many propositions have been made in the past for reducing the gradient. One of the schemes considered by the Corporation was the building of a viaduct, which it was intended should span Upper Thames Street, but the idea was abandoned. The new proposal will, it is believed, practically involve the rebuilding of Southwark Bridge, which in its present condition leaves much to be desired.

NEW CATALOGUES.

MESSRS. JOSEPH CLIFF & SONS, Baltic Wharf, Waterloo Bridge, have just issued the new sink section (forming the second section) of their new complete catalogue which is in course of preparation. It is handsomely produced, printed in tints, and contains numerous illustrations of the various kinds of sinks made by the firm. The variety of forms is very great, all purposes being provided for, and dimensions and all necessary information are fully given. It is noticeable that in all designs shown, while cleanliness and excellent sanitary conditions are the prime desiderata aimed at, attractiveness of appearance is by no means disregarded.

IN the compendious catalogue just issued by Messrs. Beck & Co., Ltd., hydraulic, sanitary and general engineers, of Great Suffolk Street, S.E., illustrated descriptions are given of the machinery manufactured by the firm, which embraces water meters for the measurement of hot and cold water, sluice valves, reservoir fittings, water cranes, standposts, hydrants, surface boxes, cast-iron tanks, pipes and specials, fire extinguishing apparatus, stop and bib taps, ball valves, sewerage ironwork and fittings, gas valves, pumps and pumping machinery, cast-iron flanged pump pipes and fittings, steam and boiler fittings, valves, patent visible-drop and other lubricators, hot-water valves and boilers, engineers' tools, shafting, &c.

METROPOLITAN ASYLUMS.

THE hospitals committee of the Metropolitan Asylums Board have presented a report, from the point of view of risk from fire, on the subject of the use of temporary buildings for hospital purposes. It has already been decided by the Board to demolish two out of eight wooden huts at the Northern Hospital, and the question of replacing those eight huts by permanent buildings is before the Board. The demolition of a temporary hut at the South-Western Hospital and of one of the temporary huts at the South-Eastern Hospital is proceeding, and the question of reconstructing in permanent materials a part of this latter hospital is under consideration. At the North-Eastern Hospital the Board have approved of steps being taken for pulling-down the wood structures there and for completing the reconstruction of the hospital in permanent materials, and the whole matter of the preparation of a scheme is before the works committee at the present time. Alluding to the recent fatal fire at Colney Hatch Asylum the committee said it seemed to them, speaking generally, that, as between a lunatic asylum and an infectious hospital, the circumstances of fire risk in wooden buildings were more favourable to the hospital. They did not advise, at the present at all events, any further demolition of existing temporary structures, but they were of opinion that the accommodation which the temporary structures afford at the Fountain and North-Western Hospital should be looked upon in the light of a second line of defence, and be used only for purposes of emergency and when the number of cases rose considerably. Following this principle they proposed to empty the Fountain Hospital and the temporary buildings at the North-Western Hospital of

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patients as circumstances of infectious disease made it practicable, and to utilise permanent accommodation to the fullest possible extent. The empty buildings would be kept aired, clean and ready for use at short notice, so as to provide for quick expansion of accommodation in time of increased needs. The principles proposed by the committee as to the utilisation of temporary buildings for fever patients and as to the emptying of the Fountain Hospital and the temporary wards at the North-Western Hospital were approved.

STRAND IMPROVEMENTS.

A LETTER has appeared in the *Times* from Mr. Hamo Thornycroft, R.A., in which he says the work of widening the Strand between the two well-known island churches—St. Mary's and St. Clement Danes—is now sufficiently advanced to satisfy any observer of the vast gain that has been effected in the main thoroughfare to the Courts of Justice. But it has also revealed very clearly the one weak point in the scheme of improvements, viz the narrowing of the street at its eastern end, where it joins Aldwych. The reason for this narrowing at this point can only have been for the sake of economy; but now that one can stand on the ground and see how the plan will work out it is very clear that it will be a fatal mistake and one that will wreck the symmetry of the whole effect.

The way out of the difficulty is, however, comparatively easy. It is simply to make the Strand the same width from the eastern end of St. Mary's to the junction with Aldwych, a distance of 130 yards. This would give three permanent—and, I venture to say, very important—advantages; first, in bringing the beautiful and symmetric church of St. Mary's into alignment with the centre of the thoroughfare; secondly, in making the direction of the thoroughfare aim at the front of the church of St. Clement's, and not at one corner of it, as it most awkwardly does at present; and thirdly, it would secure for the future a good view of the Courts of Justice to all coming along the Strand from the west.

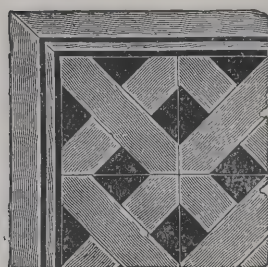
The first two of these results are very desirable, for the new arrangement, as at present indicated by the newly-laid pavement, seems only to have accentuated the singularly awkward angle at which the two churches are set in relation to the line of the street; and I am confident that unless the line on the north side of the street is thrown back, as suggested, the general effect of the "improvements" at this point will be

a constant eyesore, not a crookedness which is picturesque, but an unfortunate crookedness, yet one which happily there is still time to avoid.

As I have said, the only valid objection that can be made to the proposal is on the score of economy, as it would curtail the frontage some 60 feet in the new street Aldwych; but I have no doubt whatever that the gain in the fine, generous open space and a symmetric effect in the great thoroughfare of the Strand would more than compensate for the outlay. The change could now easily be made; later, when buildings have been erected, it would be a costly matter.

NATIONAL REGISTRATION OF PLUMBERS.

THE annual meeting of the members of the Edinburgh and East of Scotland District Council of the National Registration of Plumbers was held in Dowell's Rooms, George Street, Edinburgh, on the 30th ult., Councillor Purves presiding. Mr. James Marchbank, S.S.C., submitted the annual report of the Executive Council, who reported satisfactory progress with the work carried on in connection with the registration movement. The Registration Bill advanced to such a stage that there was a reasonable prospect of the Bill becoming law before the session closed. Unfortunately, owing to the pressure of other business, the Government were not successful in getting the Bill pushed through. There was, however, every indication in favour of it becoming law at an early date. On November 6 last Mr. Long, secretary to the Local Government Board, received a deputation in favour of the Bill, and the Council felt confident that the hearty support given by Mr. Long to the principle of the Bill would be of invaluable service. This report and the report by the treasurer, Mr. Rutherford, were adopted. Office-bearers were elected as follows:—Hon. president, Sir James Russell; president, Councillor Lang Todd; vice-president, Councillor Purves; secretary and registrar, Mr. Marchbank, S.S.C.; treasurer, Mr. J. Rutherford, jun.; auditor, Mr. D. E. Wallace, C.A. The Chairman, in the course of a few remarks, referred to the success which had attended the registration movement. Public opinion had reached the House of Commons, and, while there might be opposition in England, he was certain that they would be able to prove conclusively that this registration movement was no selfish one of theirs. It was a movement for the public benefit and for the preservation of health.



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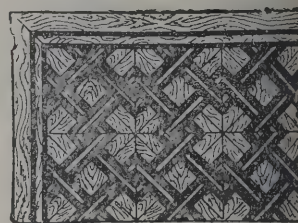
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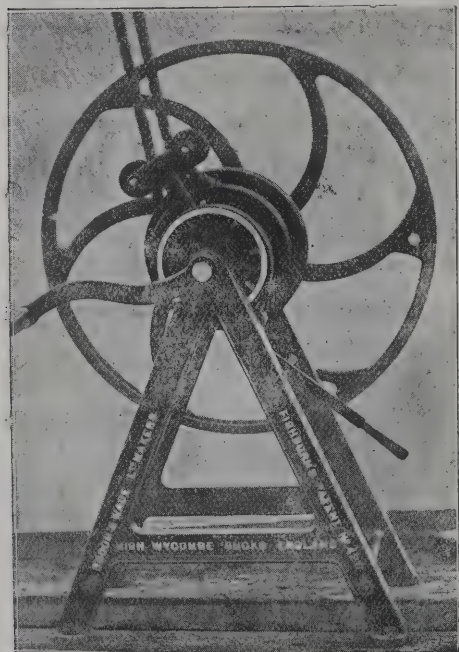
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They can be obtained of all Rope-makers, Ironmongers, Merchants, Factors and Wholesale Houses in town and Country.

N.B.—Please note that all our goods, as advertised above, are labelled either inside or outside with our Trade Mark—"The Anchor."

STOCK EXCHANGE, JOHANNESBURG.

The foundation-stone has been laid by Lord Milner of the new Stock Exchange, which will occupy a site 180 feet square, bounded by Fox, Sauer, Main and Holland Streets, on a portion of what was formerly known as Marshall Square. The building will be four storeys high, the basement ceiling being about six feet above the pavement level. The total floor-spaces will measure about $3\frac{1}{4}$ acres, and will contain 3,000,000 bricks, 20,000 cubic feet of stone, 500 doors, 600 windows, 60,000 feet of 9-inch by 3-inch joists, and 16,000 square feet of glass.

The main entrance in Holland Street will be wide and spacious, and lead into the entrance-hall 35 feet by 17 feet, with semicircular ends, and the ceiling will be formed with a dome and two half-domes over the circular ends. Here clients can interview their brokers and obtain the latest quotations of the share market.

An inner vestibule leads into the main hall, which is in the centre of the building, and will be 90 feet by 70 feet, divided into nave and aisles by arcades of columns and arches. The nave will have circular ceiling richly panelled and decorated in plaster relief and colour. The ceiling of the aisles will be a series of flat domes on arches covered with gold, and though all is not gold that glitters, it will be in this case. The windows in aisles and clerestory will be filled in with stained glass, especially rich colour being reserved for the high windows in the ends.

An extensive use will be made of scagliola in imitation of choice marbles, so that practically the columns, walls and window openings will resemble varieties of marble in various colours. The floor will be solid oak blocks, divided into panels with teak or Jarrah wood, and being laid on concrete it will form a pleasant and quiet floor to walk upon.

A second entrance is provided from Fox Street, and the entrances and vestibules will have marble or tile wall-linings and floors. A gallery will be provided at one end to seat spectators.

A post and telegraph office will be situated near the Fox Street entrance for the use of the public, with a private space for members, who will enter direct from the Exchange Hall. The secretary's office will be placed on the opposite side, and have access from the hall, and also from the corridor for the convenience of the public. At one end of the hall will be the safe deposit, fitted by Messrs. Milner & Company with all the latest improvements, and made thoroughly fireproof.

All round the main hall on the various floors there will be ranged about 200 offices for members, fronting to the streets, and over 40 strong-rooms fitted with Chatwood strong-room doors.

The whole building will be heated by steam pipes and radiators, especial attention being paid to the ventilation of the Exchange Hall and offices. Four staircases and three electric-passenger elevators give access to every part of the building. The lavatories and sanitary arrangements are of the latest improvements, and are conveniently placed in various parts of the building.

The exterior is treated in a free Classic style, based on the architecture prevailing in England about the end of the seventeenth century. The whole of the basement and principal features will be carried out in stone; the plain wall spaces will be red-faced brick.

The building was put out to competition by the Stock Exchange, and was won by the architects Messrs. Leck & Emley, who have the carrying-out of the building. The contractor is Mr. Charles Woods (who is under contract to finish the main hall by the end of the year), and the clerk of works, Mr. S. Burnett. The cost of the building will be about 125,000*l*.

THE SURVEYORS' INSTITUTION (IRISH BRANCH).

THE annual general meeting of the Irish Branch of the Surveyors' Institution was held on the 2nd inst. at the offices, 110 Grafton Street, Dublin.

Colonel H. G. S. Alexander, F.S.I., chairman of the branch, presided.

The attendance of members was large, the following being noted as present:—

Frederick A. B. Turner, Toler R. Garvey, W. E. Holmes, Savage French, A. H. Wynne, P. F. Chenevix Trench, George F. Stewart, D.L.; Hugh Galbraith, George F. Trench, T. C. Townshend, Matthew H. Franks, E. C. Hamilton, W. A. Barnes, T. Loftus Townshend, James C. Trench, Tissington W. G. Tatlow, Averell Lloyd, Charles Dickinson, R. C. Townshend, R. E. Hodson, William J. Roe, E. A. Penrose, W. R. Penrose, Francis M.G. Denny, P. Fitzgerald, G. R. M. Hewson, R. E. Maunsell, C. G. C. Hemphill and A. B. Watson, LL.B., secretary.

The Secretary read the annual report, which referred to the

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HUGH DORRIAN, Yacht Builder.
Nunsquarter, Kirkcubbin, Co. Down, June 24, 1901.

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FEWER COATS. LESS MATERIAL.**

WHAT CUSTOMERS SAY**H.M. THE KING.**

I have had it used at Sandringham for H.M. the King and found it most satisfactory. It was used on some large additions last year.

C. SMEDLEY BECK, Architect.
11a, Prince of Wales Road, Norwich, Jan. 21, 1903.

ARCHITECT.

I am exceedingly pleased with the result of the Velure I had last year. Our doors look and feel like ivory, and show every appearance of great durability. I find that they keep very clean, and do not take the dirt.

A. E. PURDIE, F.R.I.B.A.
Meadow Grange, Blean, near Canterbury, Jan. 2, 1902.

IN A STEAM DISINFECTOR.

I am pleased to state that the Velure has been a perfect success so far. It has been subjected to great heat, steam pressure, and withstood the expansion and contraction of the iron, and there are no cracks or flaws to be found, the surface being perfect. It was applied by unskilled labour, the hospital porter doing the work.

J. BROOK, S.I.C., A.S.I., Surveyor, R.D.C.,
Stratford-on-Avon, 5th December, 1902.

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Velure gives a beautifully smooth surface, which remains hard under water, and does not foul easily.

JOHN MACKENZIE, Sail Maker.
Sandbank, Argyllshire, Sept. 26, 1901.

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past year as one of exceptional strain and anxiety, due to the projected change in the land laws vitally affecting the professional existence of Irish land agents, and calling for unsparing effort from all responsible for the guidance of the branch. The report in its details dealt chiefly with the action taken by the committee on behalf of the interests of members as affected by the previous and present Land Bills.

Its adoption, having been moved by the Chairman and seconded by Mr. George F. Trench, was unanimously carried.

On the motion of the Chairman, seconded by Mr. Alfred H. Wynne, Mr. William Rochfort, F.S.I., Cahir Abbey, Cahir, was unanimously elected chairman for the ensuing year.

Mr. Toler R. Garvey proposed that Mr. Thomas Courtney Townshend, F.S.I., Dublin, be elected vice-chairman. The motion was seconded by Mr. George F. Stewart, and was also passed unanimously.

Mr. P. Fitzgerald, Limerick, then moved that Mr. George F. Stewart be appointed to represent the Irish branch on the Council of the Surveyors' Institution of Great Britain and Ireland. The appointment was cordially approved by the meeting and confirmed.

Messrs. Charles Dickinson and J. R. C. Townshend having been nominated scrutineers, the meeting proceeded to the election of members to serve on the executive committee. Subsequently several provisions of the Land Bill were fully discussed and the following resolution was unanimously passed:—

"That, while recognising the great merits of the Land Bill recently introduced into Parliament, we desire to call the attention of the Government to the fact that while it employs public credit and public funds for the advantage of two classes—landlords and tenants—it overlooks the claims of a third—the land agents—who will be financially ruined in exact proportion as the Bill is successfully carried out, and that we call upon the Government to grant us compensation for the loss of our profession and income."

Mr. T. C. Townshend having been moved to the second chair, Mr. George F. Trench proposed, and Mr. Hewson seconded, a vote of thanks to the outgoing chairman, Colonel H. G. S. Alexander, for his untiring attendance and valuable work during the year. The vote was passed most cordially, and suitably acknowledged by Colonel Alexander.

Subsequently the scrutineers reported the result of the ballot for the executive committee as follows:—

Colonel H. G. S. Alexander, H. D. M. Barton, W. A.

Barnes, Charles Brownlow, James D. Crosbie, W. D. Talbot Crosbie, Charles Dickinson, P. Fitzgerald, Matthew H. Franks, Hugh Galbraith, Toler R. Garvey, G. R. M. Hewson, W. E. Holmes, Lieut.-Col. Henry Irvine, R. W. Jameson, J. Stewart Kincaid, Maurice Knight, Averell Lloyd, Arthur J. Owen, J. E. Penrose, Robert Sanders, George F. Stewart, Alexander Tailyour, J. Garnett Tatlow, E. Shaw Tener, H. C. Tisdall, P. F. Chenevix Trench, F. A. B. Turner, Arthur P. Vernon, Gilbert de L. Willis, A. H. Wynne, E. Synge.

SALFORD'S ELECTRIC SUPPLY.

THE 14th inst. has been selected for the inauguration of the important new electricity supply works which have just been completed, the old establishment having proved inadequate.

A site for new works was selected in Frederick Road (formerly known as Strawberry Road), and it is these which will be started on the date mentioned. The works have been constructed under the directions of Messrs. Lacey, Clirehugh & Sillar, consulting engineers. A plant of 10,000 horse-power has been provided, this being sufficient to supply the requirements of the tramways and lighting systems for five years to come. A complete cable system for both tramways and private supply has also been established. A loan of 398,275*l.* for the purposes of the scheme has been sanctioned by the Local Government Board. Most of the plant at the Frederick Road works has been in position for some time, and the station has been at work for considerably over a year, the old Walness Road station having been shut down in May last. The system adopted is the direct-current system, with a declared pressure of 220 volts for lighting, on the three-wire system. Power can be supplied to motors at 440 volts, and to the tramways at 500 to 550 volts. The station is of simple design, consisting mainly of a boiler-house, containing a single row of sixteen boilers, and an engine-room equipped with a parallel row of eight generating sets. At each end of the buildings are economiser and pump-rooms, and the plant can be divided, in case of need, into two complete and independent systems. The boiler-house, which is 221 feet in length, contains, as already mentioned, sixteen boilers. These are of the Lancashire pattern, with Galloway tubes (they have been supplied by Messrs. Galloway, Ltd), and each is 35 feet long by 9 feet in diameter. They are arranged in eight pairs, each pair feeding one engine or supplying steam to the main range as desired.

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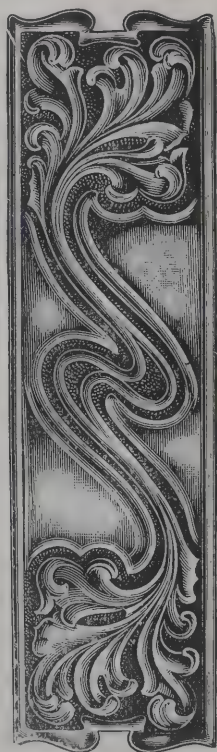


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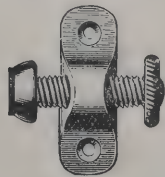
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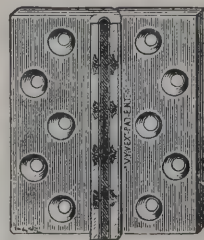


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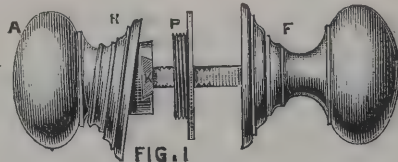


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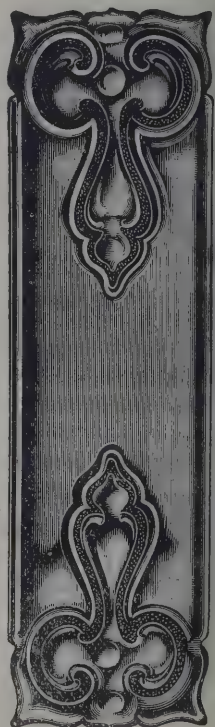
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They are fitted with coking mechanical stokers, which are worked by an overhead shaft, driven by a Westinghouse motor. The coal required for the boilers is stored in steel bunkers, which extend the length of the boiler-house. Adjoining the boiler-house is the Bury and Rochdale Canal, and from the barges in the canal the coal is raised by electrically driven cranes, which run on rails over the bunkers. From the bunkers, which have a storage capacity of about 1,600 tons, the coal is fed to the mechanical stokers by means of shoots, each of which is fitted with a measuring device. Similarly, the ashes from the boilers are raked into hoppers, and by means of an automatic ash-conveyer and a shoot are deposited in the canal barges without being handled. There are four economisers, two at each end of the boiler-house. They are of the Green type, and comprise 400 tubes each. Feed water is obtained from the canal, with the town mains as an alternative supply. Each of the two pump-rooms contains three electrically driven feed pumps. The steam piping consists of steel, with copper bends; the flanges are of steel, rivetted and welded. Each pair of boilers is connected with an engine by a pipe 8 inches in diameter. The engine-house has an imposing row of eight generating sets, each of 800 k.w. These, as well as the machinery in other parts of the station, have been constructed by manufacturers either in Salford or in Manchester. The lofty engine-room is spanned by a 30-ton single-motor electric travelling crane running on rails at a height of 34 feet from the floor level. Along one side and both ends of the room is a gallery, at a height of 15 feet, which renders supervision of the generating plant easy. The gallery communicates with the switch-room at one end and with the stores at the other. The headquarters of the electricity department adjoin the new generating works, with the frontage into Frederick Road. Here, besides the offices of the borough electrical engineer (Mr. C. D. Taite) and his staff, are committee-rooms for the use of the electricity committee of the Corporation.

THE MEANING OF "SCAFFOLDING."

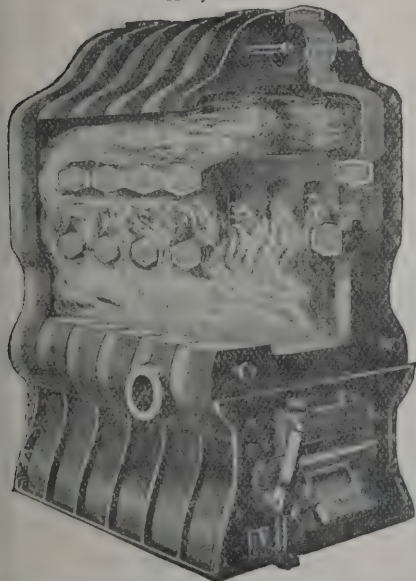
A NUMBER of appeals under the Workmen's Compensation Act, says a legal correspondent of the *Manchester Guardian*, engaged the attention of the Court of Appeal, and though several of their decisions were of general interest, one of them stands pre-eminently forward in importance, both because of its unexpectedness and because of the number of employers and workmen affected by it. An

ordinary step-ladder, such as is used by painters—and if so, then any kind of ladder—may be "scaffolding" within the meaning of the Act, said the Court of Appeal. This decision brings within the Act all workmen who are engaged in house-repair—and painting or whitewashing may be "repair"—provided that the house exceeds 30 feet in height, and provided that a ladder is used, whether inside or outside, for the purpose of their work. That is to say, a master painter who contracts to whitewash or paint a dining-room ceiling, and whose men use ladders for the purpose of reaching their work, may be an undertaker within the meaning of the Act, and so liable to pay compensation to his workmen. For amongst the employments to which the Workmen's Compensation Act, 1897, applies is employment "on, in, or about any building which exceeds 30 feet in height and is either being constructed or repaired by means of a scaffolding."

To the ordinary person this wording seems clear enough, as there are few who, on seeing a building in the course of construction or repair, would not consider themselves competent judges as to whether scaffolding was being used in the operation or not; but to employers of labour and workmen, to legal and insurance men, and to all who come into contact with the working of the Act, its meaning has ever been a source of trouble and uncertainty, and still remains involved in doubt. And why? Because "scaffolding" is not defined in the Act, and the Courts have refused to give a definition of it, with the result that the question has again and again arisen, whether it bears its ordinary popular meaning, or includes any temporary structure of any kind used to enable a workman to work at an elevation. The history of the litigation that has centred around the word is interesting and instructive indeed. The Court of Appeal early held that whether a structure amounted to a "scaffolding" within the meaning of the Act or not, was a question of fact for the arbitrator to determine, and that his finding could not be upset on appeal, except on the ground that there was no evidence to support it. This decision was as unsatisfactory as it well could be. So long as it was purely a question of fact whether a structure constituted a scaffolding or not, arbitrators were at liberty to find that exactly similar structures were scaffolding in one case and not in another. Such an anomaly did, in fact, arise. In *Maude v. Brook* an arbitrator held that loose boards placed upon trestles about 4 feet high to enable plasterers to reach the top of the walls of a room were "scaffolding," and the Court of Appeal refused to disturb his finding. Shortly afterwards, in *Fergusson v. Green*,

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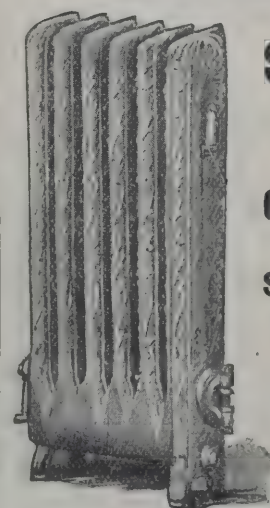
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where the structure was identically the same, another arbitrator held that it did not constitute scaffolding, and again the Court of Appeal refused to interfere with the finding.

When the question came before the House of Lords, as it did in *Hoddinott v. Newton, Chambers & Co.*, it was hoped that the question what constitutes a "scaffolding" would be settled once and for all. But the hope was disappointed, as the House of Lords refused to define the word. They did, however, decide that such questions as to what is a scaffolding are not solely questions of fact but mixed questions of fact and law, upon which, after the facts have once been found, the Court of Appeal is "bound" to express an opinion, and Lord Brampton gave some very clear directions as to the kind of facts it is necessary to find before deciding in law that a particular structure is a "scaffolding."

Now let us return to the Court of Appeal to see how they have reviewed the questions of law, as the House of Lords said they were bound to do. Since the case just mentioned was before the House of Lords three cases bearing on "scaffolding" have been before the Court of Appeal. In *Veazey v. Chattle* a workman was injured while engaged in the repair of the roof of a house by means of a ladder and a "crawling-board," which consisted of a wooden plank about 20 feet long and 10 inches wide, across which were nailed ridges of wood for the purpose of giving a foothold; on the underside of one end was fastened a cross-piece of wood which fitted over the ridge of the roof and kept the board in position. At the time of the accident the workman was on the roof fixing the crawling-board, while the lower end of the board was being steadied by an assistant standing on the ladder. The County Court judge found that the ladder and crawling-board were suitable for the particular purpose for which they were used, and held as a matter of law that such a combination might be a "scaffolding," and further, as a matter of fact, that it was, and the Court of Appeal (Lord Stirling dissenting) said that he was justified in so holding. Following this case came *Marshall v. Rutherford*, where a workman was injured while employed on a house which was being repaired by means of a ladder, the lower end of which rested on the ground and the upper end against the parapet of the building. The County Court judge found that the ladder was not a "scaffolding," and the Court of Appeal held that he was entitled so to find. "Unless we can say as a matter of law," said the Master of the Rolls, "that a ladder used under the conditions which existed in this case must be a scaffolding we cannot reverse his decision," a "review" of a

question of law upon which the Court of Appeal is to be congratulated.

Then last week the converse of this case came before the Court of Appeal in *Elvin v. Woodward & Co.*, where a pair of ordinary painter's steps were used to paint the wall of a house which was being repaired, but from which the main scaffolding used in repairing it had been taken down. In the opinion of the County Court judge such steps afforded no evidence that the house was being repaired by means of a "scaffolding," but he added that if the Court of Appeal were of opinion that such steps were a scaffolding he would award the workman 12. per week; but as he was not of that opinion he made an award in favour of the employers. The appeal to the Court of Appeal was allowed and compensation awarded (Lord Stirling again dissenting), on the ground that as it was impossible to say as a matter of law that a ladder was not a scaffolding, there was some evidence that it was. The Master of the Rolls, however, said that if the County Court judge had merely made an award in favour of the employers he would have found it impossible to disagree with him, because there seemed to his lordship to be evidence upon which he could have found either way.

Thus in one case an appeal against a finding that a ladder is not "scaffolding" fails because it is impossible in law to say that it must be "scaffolding"; in another the appeal is allowed because it is impossible in law to say that it cannot be "scaffolding." Either a ladder is or is not "scaffolding," and, according to the remarks of Lord Brampton mentioned above, it would appear that it is not. However, this is one of the questions of law which the Court of Appeal ought to "review" and finally determine, and they appear to be shirking their duty in refusing to do so. And the result of their refusal is that now, after the Act has been in force for nearly five years, and after appeal upon appeal has been heard, the position is exactly the same as it was before *Hoddinott v. Newton, Chambers & Co.* reached the House of Lords. As the law at present stands, whether a particular structure is "scaffolding" or not depends almost entirely upon the view taken by the arbitrator in the first instance. If upon the facts he is at liberty to come to one or the other conclusion in law, compensation must be given to one workman and refused to another who are working under exactly the same conditions. The right to compensation will therefore depend, not upon the law of the country, but upon the particular view of that law taken by the County Court judge of the district in which the accident happens.

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The Architect.

THE WEEK.

THE works of over 400 engravers and etchers will be seen in the loan exhibition which is arranged in the Victoria and Albert Museum, near the Imperial Institute. As they are hung in chronological order the visitor to the gallery will be able to derive an accurate idea of the history of the art. It is to be understood that every example is by a native of this country or by a foreigner who resided here. Plates by REMBRANDT, MARC ANTONIO, MORGHEN, VOLPATO, AUDRAN and other masters are not to be found in the collection. There is, however, a title-page by GEMINI, which was published in London in 1545, and FRANZ HOGENBERG'S print of Queen MARY, dated 1555. The sixteenth, seventeenth, eighteenth, nineteenth and twentieth centuries have all contributed. Of course, the specimens obtained will not always be approved by amateurs. GEORGE CRUIKSHANK, for instance, is not at his best in the *Worship of Bacchus* and his illustrations of "The Life of GRIMALDI," and *Omnibus*. HABLOT K. BROWNE (PHIZ) not only was an etcher, but he executed some engravings; there is no work by him here, although he helped to popularise the art. The KING has lent *The Great Executioner*, by Prince RUPERT, and there are three others of the Prince's mezzotints. By HOGARTH are six or seven plates, and there are four by Sir ROBERT STRANGE, who was one of the greatest of the British masters. The splendid mezzotints by the engravers who worked after REYNOLDS will delight many visitors. Plates from the Etching Club series lead the way to the etchings by Sir FRANCIS HADEN, Mr. WHISTLER, Mr. LEGROS and later artists. Mr. A. H. HAIG has lent four of his architectural plates. An interesting feature of the exhibition, especially for novices, is a display of tools and materials used in etching and engraving. The exhibition will repay many visits, and the only regret it can excite is that space was not available for a larger collection. But nearly 1,000 examples are to be seen in addition to the exercises of the students of the engraving school of the Royal College of Art. The collection is an argument for greater encouragement of the art by the Royal Academy.

THE House of Commons on Monday, by a majority of forty-seven, declined to allow the second reading of the Old Bridewell Burying Ground Bill. From its position in Dorset Street, near Blackfriars Bridge, the ground is very valuable. Since it was closed as a burial-ground by order of the Home Office it was used for various purposes, and at present it serves as a builder's yard. The Bill was opposed by the City Corporation and by members connected with the Metropolis. It appears there is some doubt whether it was ever a public burial-ground, but the circumstances are considered to be sufficient to allow the Disused Burial Ground and Open Spaces Act to be applied to the land, and the Bill was rejected on the ground that the House of Commons declined to sanction a private Bill in contravention of general public statutes concerning open spaces for the express purpose of enhancing the value of a private estate.

A FEW weeks ago we recorded the commencement of an action by M. BOUGUEREAU, the French painter, whose *Printemps* is in the principal room of this year's exhibition at the Royal Academy, against some porcelain manufacturers in Limoges. He was offended because they copied a head from his picture, *La Vierge Consolatrice*, in the Luxembourg Gallery. The head by itself could not, he maintained, afford any adequate idea of his work, and therefore was unfavourable to his interests as an artist. A law-suit about such an offence was novel, and the Court has taken a month to arrive at a decision. The judgment states that when a painter has alienated his work, or, in other words, has sold it to the State, he cannot interfere if copies, however imperfect, are made in large numbers. But he is still entitled to the right to preserve the idea expressed in his picture unaltered. In M. BOUGUEREAU'S picture there were two women and a dead child. The character of the painting could not be inferred from a single head. M. BOUGUEREAU

did not claim damages, as all he sought was the recognition of his right, and the manufacturers were therefore only ordered to pay the costs of the action as a penalty.

It is remarkable to find that Americans can compete with Germans in the reproduction of pictures. A copyright case heard before Mr. Justice GRANTHAM shows the kind of success which attends such feats. Messrs. WOLFF & Co. claimed damages from Messrs. PLIMPTON & Co. for infringement of copyright. Mr. SCHAUER brought out prints in colours from a painting called *The Awakening*, and the prices charged to Messrs. WOLFF were 30s. and 10s. each, to the trade 52s. 6d. and 22s. 6d., and to the public 105s. and 45s. In America the prints were copied successfully, and the copies were sold in this country for 1s. and 2s. each. There could be no disputing the infringement, and the case was settled by defendants agreeing to pay a further 25% over and above the 25% paid into Court, as well as plaintiffs' taxed costs on the High Court scale. A perpetual injunction was granted restraining the sale of infringements, and copies now in possession of the defendants were to be surrendered. In England publishers say they are compelled to have recourse to Germany for the production of prints, as the prices asked for such work in this country would not allow of sufficient profit. The Americans, however, can contrive to manufacture plates, of which the excellence was admitted, at less than a tenth of the German prices. It is not merely in the production of steel bridges and machinery that the contest between America and Germany is remarkable.

So few people in Paris are able to occupy the whole of a house, it becomes an important question to those who propose to take appartements whether the other parts of the building are in a sanitary condition. Indeed, the majority of tenants would hesitate if they were invited to investigate the premises. Although sanitary conditions are lax in the city, it is found that many houses in all districts do not show a compliance with them. According to official returns, out of 79,742 "immeubles," or mansions, no less than 25,000 are tabulated as "médiocres" and 7,026 as "mauvais." In 11,050 the water was a mixture and several depended mainly on filtered Seine water. The occupiers are therefore likely to approve of the project of M. PAUL STRAUSS. He proposes that every house is to have its "livret" or record, corresponding with those which are essential for every individual Frenchman. A tenant would be able to demand an inspection of the document, and by means of it would realise the extent of the risks he was likely to encounter.

ACCORDING to the report of the Board of Manufactures in Scotland there were 57,255 free admissions to the National Gallery, Edinburgh, last year. There were 3,517 visitors who paid 6d. and 2,202 attendances by copyists of pictures. The School of Art is in a transition state. The resignation of the headmaster affected to a considerable extent the attendance of the students during the autumn and winter session, but in the spring and summer session the number enrolled was fully up to that of the previous year. Several important changes and reforms in the arrangements and conduct of the school were made. A Students' Sketch Club was also organised for home work and outdoor sketching classes were established during the summer session, all of which proved very attractive and successful. For some years past the numbers of students entering the school for elementary instruction have been gradually decreasing, owing to elementary art being now taught in all ordinary schools, in day and evening continuation classes, and in technical and other similar institutions. The Board, taking this into consideration, came to the resolution that while general subjects of art study should continue in future to be taught in the School of Art as formerly, the study of advanced art in all its branches should be made a special feature of the curriculum. Arrangements were accordingly made for a complete reorganisation of the school. During recent years the works sent up to the national competition in London by schools of art in Scotland have been gradually growing fewer in number. Several schools have now ceased to compete, and comparatively few works were this year sent from the Edinburgh school.



TYPES OF COSTUME: ENGLISH, SIXTEENTH AND SEVENTEENTH CENTURIES.

PAINTING AT THE ROYAL ACADEMY.—II.

WE mentioned last week some of the pictures which were supposed to be derived from ordinary life. A few others deserve notice. *The Chess-Players*, by Mr. MELTON FISHER, shows two girls engaged in the game, and would be considered as a very rich example for its colours and costume. *The Back from the Fair, Co. Donegal*, by Mr. BARTLETT, is not suggestive of wealth, but poverty, and expresses that mixture of sadness and resignation which is now coming into favour as an element of Irish character. Mr. CALDERON'S *Lot 97—The Grey Mare*, is one of the truest pictures of country life to be seen in the exhibition. The splendid horse, that is not without a touch of vanity, shows the artist's power as an animal painter. The crowd of people who have come to the farm to witness the auction might have been derived from a photograph of an actual sale. There is some of the pathos of agricultural work suggested by Mr. F. G. WAUGH'S *Early Toilers*, a ploughing scene before there is daylight. Mr. MOUAT LOUDAN'S nameless picture, which is suggested by the verse of OMAR KHAYYAM, "Alas! that spring should vanish with the rose," is one of the most delightful of this year's paintings. Two girls in richly-embroidered dresses are seated under trees, and look out of the canvas with the utmost simplicity. There is nothing in the subject that has not been expressed repeatedly, and yet it can never tire, especially when rendered as in this case. The technique is of high order, for the effect is gained by thin painting on coarse canvas. Mr. SPENLOVE SPENLOVE'S *Pilot's Funeral: Southwold, Winter*, is pathetic, and yet seems to be real. The long low row of cottages, with snow on the roofs, the long line of walling, all seem from their quiescence to be in keeping with the incident.

A great change has taken place in the manner of regarding portraits. Not many years ago they were looked upon as intruders. Painters of historical pieces, of genre or of landscape, and especially those whose pictures were rejected or were not hung in desirable positions, used to make estimates about the large area on the walls assigned to portraits. Visitors in general complained about the "nobodies" who were obtruded on their attention, and about whom they were indifferent. Portraits are now believed to constitute an important class of art, and the space assigned to them is considered to be well disposed. It is not to be inferred that the subjects are more interesting than formerly, for the majority of the men and women represented cannot be claimed to have attained distinction by their abilities or their public services. Likenesses are tolerated because it is now imagined that in them, more than in any other kind of painting, there is displayed that daring manipulation which is thought to be as remarkable as the feats of a conjurer. The most impressive effects are assumed to be produced by a few strokes of the brush, and amazement at the legerdemain takes the place of the grumbling formerly excited by the works of painters who were masters of the art.

The large work which is Mr. FILDES'S only contribution this year, *Mrs. James Reynolds and her Daughter Leila*, appears, if compared with some examples by other artists, to be a little old-fashioned. We suppose more time and labour have been expended on it than on any other of the

numerous portraits in the exhibition. The posing is pictorial, or, as some would say, formal. A lady richly clad is seated on a sofa looking at a locket which she wears, and which, we may presume, represents her husband, while the child's gaze is in the same direction. The white dress of the child with a scarlet scarf, and the costume of the mother, which is brilliant in colour, are almost Eastern in effect. It is an elaborate and conscientious painting, and at one time would be accepted as a masterpiece. But the indifference shown to the new spirit or dogmas of portraiture will cause its excellence to be questioned. *Mrs. Huth Jackson*, by Mr. F. D. MILLET, is in a similar manner, for the subject is clad in red, and is placed in front of a large screen copied most exactly. But the picture is small, and in an exhibition where so many figures are immense that consideration is enough to merit favour for it. The excellent likeness by Mr. FRANK DICKSEE, *Lady Aird*, which is also in the first room, cannot be looked upon as a type of modern treatment, for it does not impress us as a hurried product; but it is a masterpiece for its truth, naturalness and quietude. We see a lady unostentatiously dressed, with a fur cloak, seated in a well-furnished room as if she had just returned from shopping or from a round of visits. There is no posing or obtrusiveness. The portrait becomes the more noteworthy because the artist usually is captivated by many colours, and, it must be said, is not always able to control them. It is only necessary to compare it with *A Duet*, Mr. DICKSEE'S principal contribution, a lady at a spinet, while another holds a lute and sings, to see how much can be gained by restraint. Although Mr. SARGENT has six portraits, regrets have been heard from his admirers that he has not a larger number. The two we prefer are his *Mrs. Joseph Chamberlain* and *G. McCorquodale, Esq.* Both are vivid and appear to have been struck off without much labour. But the *Earl of Cromer* does not do justice to the intellectualism of the Egyptian ruler. Mr. SHANNON is almost on a level with the American artist. The hard blue dress in his *Mrs. Ansell* is enough to deter people from appreciating that portrait, although the vigour is unquestionable. But there can be no objection to the treatment in *Mrs. Lazarus and Daughter*, or the *Mrs. Henry Riviere* with its very dark tapestry background. Mr. OULESS has seven portraits in his customary style, of which *The Earl Cawdor* is the most effective. Mr. SOLOMON confines himself to three portraits; the *H. J. Levy, Esq.*, and the *Mrs. Benjamin Lazarus*, denote increased skill. Mr. HUGH RIVIERE has been successful with his *Professor Kennedy*, of University College. *Major-General Baden-Powell*, by H. VON HERKOMER, shows the soldier sketching with his left hand, and is a suggestive representation of a man who has nothing of the pipe-clay officer about him, and who is well adapted to be an innovator if not a reformer. *Vice-Admiral Lord Charles Beresford*, by Mr. C. W. FURSE, is a half-length portraying the officer in full uniform but bareheaded, leaning on the rail of a ship. The manliness or breeziness of the commander is suggested, but it is overborne by the extent of the conventionalism, and to be complete a storm should be suggested, or at least a battle in progress. *Mr. Aston Webb, A.R.A.*, is the work

of Mr. C. E. BROCK, but is also over-emphatic in its professionalism. The portraits of *Lady Lucy Hicks-Beach*, *Miss Deena Tyrrell* and *Sir Frederick Falkiner, K.C.*, demonstrate the loss which Ireland has sustained by the death of WALTER OSBORNE. His works secured attention whenever they appeared of late in the Academy exhibitions, and it was reasonable to conclude that if favoured with the adequate support which is attainable in England, he would have competed successfully with any portraitist of our time. The portrait of Mr. LEHMANN, by himself, recalls the kindly old artist whose works have often appeared on the walls of the Academy.

Landscapes, we hope, will always be abundant in an Academy collection, as they are this year. Mr. LEADER'S *Southward from Surrey's Pleasant Hills* is of the simplest, but everybody must enjoy the vast prospect which is unfolded. It is a typical English scene. Mr. MACWHIRTER'S *White Queen* is, of course, one of his delicate Scotch trees that seems to rule over the country around. If in the north wood was more abundant and attained English proportions the artist's occupation might appear to be at an end. But *The Rugged Hills of Skye* and *The Silent Night* are enough to show that the artist could conquer in other fields. Mr. DAVIES'S *Old Monmouthshire Canal* suggests a country that has not been greatly used by the landscapist. Mr. J. W. NORTH, from whom so much was expected, is allowing his invention and observation to lie fallow, and if he does not always confine himself to the same scene, he restricts himself to the same colours. *The West-country Woodland* differs from its predecessors by the introduction of a great mass of barren rock on the left side. But the woodland is familiar, and the figures on a broken tree might be taken for a clump of green and gold vegetation. Some of the pleasure which Mr. DAVID MURRAY'S landscapes impart is owing to the ease with which they appear to have been derived from nature. They might be copies rather than compositions. This year in *June* he shows trees abounding in blossom and growing in meadows near a river and with a church in the background, such a landscape as might be found in any county. Mr. MURRAY'S *In the Country of Constable* shows a Suffolk scene with a canal and trees, but there is no imitation of CONSTABLE'S manner of treating land, water and sky. Mr. W. L. WYLLIE'S *Peace Driving Away the Horrors of War* is sure to give rise to many interpretations, but all will acknowledge the evidence of versatility which it affords on the part of a painter whose pictures are generally surrounded by the gloomy atmosphere of the lower Thames and the Tyne. The sun, we know, shines on the just and the unjust, and the earth is indifferent whether it produces fields of corn or affords a tomb for an army, as at Waterloo. On the left of the picture we see dead warriors, while their companions appear to be making the final arrangements for their burial. Birds of prey abound, and in the distance a city is on fire with ruined buildings. On the right men and women are labouring in the fields and the limits between peace and war are defined by a double rainbow. The picture is, therefore, symbolic. Whether landscape art lends itself to that purpose may be doubted. Mr. WILLIAM LOGSDAIL continues to be faithful to Venice. His *Summer Evening* is a view on the canal near the church of S. Giorgio Maggiore.

Mr. GEORGE CLAUSEN'S work still remains in the experimental stage. He is satisfied with endeavouring to interpret very limited aspects of nature, but often contrives to make them impressive. The elements of *Dusk* could hardly be simpler, for all we see is a hayrick rather clumsily piled, which looms out of the darkness by means of the streaks of golden and coloured light which are observed beyond it. It is an illustration of something witnessed, but is rather disappointing. Mr. H. W. DAVIS by his *Apple Blossom: Upper Wye*, would delight a Japanese. The trees and country denote the hand of a landscapist, while the sheep are introduced with special skill. *Warkworth Castle* has long been a favourite subject, especially since the time of Sir WALTER SCOTT, but we doubt if a more masterly view has been produced than that by Sir E. A. WATERLOW. The old building still asserts its supremacy over a border-land that was well worth fighting for, either for conquest or defence. Mr. J. FARQUHARSON has often given snow scenes. In *The Shortening Winter's Day* the monotonous

white is varied by patches of glow which are pleasing. Blossoms are again found abundantly in Mr. A. PARSON'S *Pear Orchard*. Mr. J. H. C. MILLER'S *The Kremlins of Crougham* is a noble study of the summits of cliffs rising through a mist. *The Golden Hour* of Mr. WESTLEY MANING is an excellent effort to depict a sunset scene. But the long barren trunk on the left excites a desire to conceal it with paint. It is a sign that the old conventionalism of a dead tree in the foreground is not at an end. Not even Mr. WATTS can escape from it, for his *Parasite* is the trunk of a tree surrounded with ivy, with a barren one beside it in its naked decrepitude. Mr. ALFRED EAST in his *Tintern* gives a panoramic view of the valley of the Wye. The scene is so beautiful, we are bound to overlook the rigid line of the railway bridge which forms so prominent an object in the landscape. Mr. H. S. KORTRIGHT'S picture *The Peaceful Hour* is expressive of its subject, because he realises the fact that it is only by the introduction of buildings of some kind stillness can be made plain to us. In this case there are old barns and farm-buildings, but they serve their purpose as well as the view of London, with its towers, domes, theatres, and temples, did for WORDSWORTH when he wrote his sonnet on Westminster Bridge.

This year the absence of Mr. HOOK is noticeable. But there are several paintings which seem to be inspired by his spirit. Mr. J. R. REID shows one of his picturesque little harbours in the *Home Squadron*, but he likes to represent the sea at rest. Mr. HEMY, on the contrary, cares only for a sea that has motive power in it. His *Youth* is a picture of a yacht race, and derives the title from the young fellows sailing the boat. It could with no less fitness be called *Speed*, for the yacht has the effect of rapid flight. This no doubt is in some measure caused by the skilful way in which the boat is placed near the side of the canvas, as if the bow had passed beyond the frame. This picture is at least equal to the sea-scene which put the seal on Mr. HEMY'S reputation after long years of waiting. There is a wise northern proverb about giving "our ain sea-guts to our ain sea-men;" it seems to have inspired his *Sea-gulls*, in which is shown a fishing incident, but modern birds do not wait for food to be offered to them. As Mr. HEMY rightly depicts them, they are quite prepared to snatch it from the fishermen's hands. Another fine seascape is Mr. PETER GRAHAM'S *Washed up by the Restless Waves*, a subject he has often treated, but never with more force than in the picture to be viewed in the exhibition. The waves are not in serried files, but dash themselves in tumultuous masses against the rocks, while the gulls look on as if the concussion between land and sea was intended for their amusement.

Incidents that have taken place out of doors, landscapes and seascapes, are so much the vogue, there is no opportunity for a painter who would paint grand interiors or represent buildings. If another DAVID ROBERTS were to arise, it is doubtful whether any of his great cathedral studies would gain admission. Mr. BACON, in *A Romance*, neatly portrays a French salon in the eighteenth century, and Mr. TALBOT HUGHES in *Played out* has a gay and festive scene in a hall of dazzling light where stakes are high, but the rooms are no more than backgrounds. Mr. FULLEYLOVE represents the interior of the *Dome of the Rock, Jerusalem*, with customary skill and knowledge. But the most ambitious architectural effort is found in Mr. ALBERT GOODWIN'S *The Gate of the Inferno*. It is not the first time the artist has measured himself with JOHN MARTIN as a creator of stupendous structures. DANTE, who is generally so definite, is almost silent about the entrance to his Inferno. He gives us the inscription which was written in sombre characters over a door or gateway, but what was the character of the structure is left to our imagination. It is not his sight which was exercised but his ears. The sighs, the weeping and the piercing cries compelled the poet himself to weep, and the tumult of divers tongues, horrible expressions, words of dolour and the smiting of hands overcame him, and he asked VIRGIL not to explain the architecture, but the meaning of the sounds. All we know is that the structure was to endure for ever. It is not within the province of architecture to raise an emotion of terror. It is difficult to design a prison that will frighten culprits. The belief that a

merciless governor presided over one is found to be more effective than any masonry. Mr. GOODWIN therefore attempts an impossible feat. His building retains some characteristics of the Classic style such as might have floated before the vision of the poet, and the pale grey stonework is enshrouded in mists, but it would be difficult for a student of DANTE to show a connection between it and the poem. There are windows which are no doubt intended to exclude the light, and it would be easy to imagine from the treatment that a part was undergoing repair. But if that were the case the building could not be the work of divine power, sovereign wisdom and primeval love. As a contrast with this vision we may refer to the President's *Bells of St. Mark's Campanile*. Here, fortunately, we have the utmost precision, and the painting will be a valuable record of the belfry before the destruction of the tower. Sir E. J. POYNTER always treats architecture as an expert, and we wish he would test public taste by an architectural subject in which figures would have only minor importance.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER XI (continued).

A.

SYMBOLS AND THEIR SIGNIFICANCE (see fig. 75).

Anchor	Hope.
Anvil	Blacksmith.
Apollo	Music.
Ark, Noah's	Safety (illustrated at <i>c</i>).
Ass carrying blindfolded person	Ignorance.
Atlas carrying the World	Newspaper called <i>The World</i> (illustrated at <i>e</i>).
Bacchus	Conviviality.
Balances	Equinox.
Balances carried by blindfolded female with a sword	Justice.
Balls, Three golden	Pawnbroker (illustrated at <i>z</i>).
Banyan tree	Empire.
Barrel	Brewer, vintner (illustrated at <i>n</i>).
Bear	Stock Exchange, Russia, furriers.
Beehive	Industry, schools.
Black (pigment)	Mourning.
Blue (in Christian art)	Hope.
Blue, Azure (in Christian art)	Immortality.
Book, Open	Study.
Box-shrub (in Christian art)	Resurrection.
Britannia	England (illustrated at <i>y</i>).
Bull	Stock Exchange.
Calliope the Muse	Heroic poetry.
Camel	Endurance, Africa.
Cannon	Military buildings.
Cap (blue, with white border)	Liberty (England).
Cap (on a pole)	Liberty (illustrated at <i>a</i>).
Cap (red)	Liberty (France).
Cap and bells	Folly.
Cat	Liberty.
Chameleon	Air.
Circle	Eternity.
Clio the Muse	Historical poetry.
Club (Saint holding a fuller's club)	Fullers, St. James the Less.
Club (Saint with club or staff, and a carpenter's square)	Carpenters, St. Jude.
Cock	Vigilance, St. Peter.
Combs	Hairdressers, woolcombers, St. Blaise.
Cornucopia	Plenty, fruiterers.
Cow	Dairies.
Crescent moon and star	Turkey.
Crocodile	Egypt.

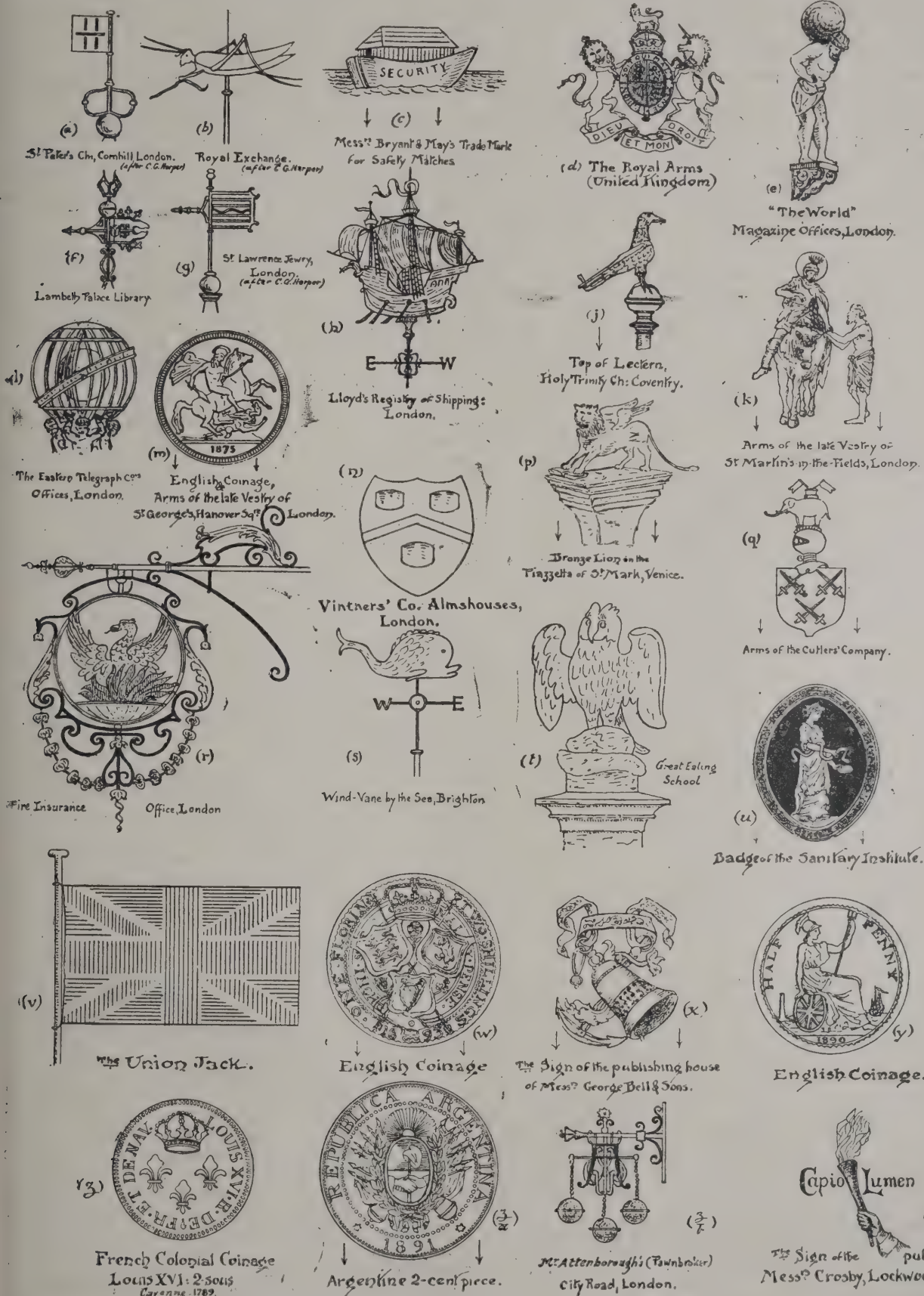
Crook (curved)	Bishop.
Crook (floriated)	Archbishop.
Cross (Latin)	Christ.
*Cross (St. George's, red on white field)	England, ambulance work.
*Cross (saltire, white on blue field)	St. Andrew, Scotland.
*Cross (saltire, red on white field)	St. Patrick, Ireland.
* Illustration of Union Jack at <i>z</i> , drawn according to heraldic blazonry.	
Cross (triple)	St. Peter, fishmongers.
Crown and sceptre	Sovereignty (illustrated at <i>w</i>).
Crowns, Three	Munster.
Cupid	Love and courtship.
Cuttle-fish	Printers, newspaper offices.
Cypress	Mourning.
Diana hunting with bow and arrows	Shooting-box.
Dog, Bull	Vigilance, security.
Dogs	Kennels.
Dolphin	Tidal rivers, sea (illustrated at <i>s</i>).
Dove	Peace.
Dragon	Wales.
Eagle (in Christian art)	St. John the Evangelist (see illustration <i>j</i>).
Eagle (in heraldry)	Fortitude.
Eagle (in mundane affairs)	Empire.
Eagle, Double-headed	Dual empire, Austria.
Electric bolt grasped in the hand	Electricity.
Elephant	Asia, cutlers (illustrated at <i>q</i>).
Equilateral triangle (in Christian art)	The Trinity.
Feathers, Three ostrich	Prince of Wales.
Figurehead	Navigation.
Fish (in Christian art)	Christ.
Flag (half-masted)	Mourning.
Flag (red)	Battle.
Flag (stars and stripes)	United States of North America.
Flag (white)	Peace.
Fleur-de-lys	French sign (illustrated at <i>z</i>).
Forge	Blacksmith.
Fox	Cunning.
Globe (in Christian art)	Eternity.
Globe (in mundane affairs)	Travel; Newspaper office (illustrated at <i>e</i> and <i>l</i>).
Goat	Wales.
Grasshopper	Grocers, badge of Sir Thomas Gresham (illustrated at <i>b</i>).
Green (in Christian art)	Faith, Immortality, Resurrection.
Green (pale, in Christian art)	Baptism.
Gridiron	Curriers, St. Lawrence (illustrated at <i>g</i>).
Guns	Military buildings.
Hahnemann (the German physician)	Homœopathy.
Halberd	Military buildings.
Hammer	Smiths, auctioneers.
Hand, blood red and erect	Baronetage, Ulster.
Hand issuing from a cloud	The Deity.
Hand with electric bolt	Electricity.
Handcuffs	Prison.
Harp	St. Dunstan, Ireland (illustrated at <i>d</i> and <i>w</i>), Leinster.
Heart (flaming)	St. Augustine, charity.
Heart, pierced with arrows	Sorrow.
Hebe (figure holding a cup)	Youth.
Helmet	Military buildings.
Hen and chickens (in Christian art)	Providence.
Hercules	Strength.
Hind with arrow through the neck	St. Giles, cripples' homes.
Holly	Resurrection.
Horse	Courage, speed, stables.
Horseshoe	Good luck.
Hour-glass	Time.

Hygeia (female figure holding a salver to catch the serpent's virus).
Hymen (man holding bridal torch and veil).
Iris (see Fleur-de-Lys).
Ivy.
John Bull (a farmer type).
Kangaroo.

Health (illustrated at *u*).
Marriage.
Eternity.
England.
Australia.

Key (or two keys).
Lamb (in Christian art).
Lamb led by a child (in Christian art).
Lamp.
Lamp, Red.
Laurel.
Laurel wreath.

Fishmongers, St. Peter (illustrated at *a*).
Christ.
St. John the Baptist.
Study.
Doctors, chemists.
Mourning.
Victory.



Signs and Symbols.

Leek	Wales.
Legs, Three radiating and courant	Isle of Man.
Leopard	Bravery.
Lily	France, purity.
Lion (in Christian art).	St. Mark (illustrated at <i>p</i>).
Lion (passant regardant on shield)	England (illustrated at <i>d</i> and <i>w</i>).
Lion (rampant on shield)	Scotland (illustrated at <i>d</i> and <i>w</i>).
Lion (saliant)	Valour.
Lion (sejant)	Counsel, barristers.
Lotus flower (or plant).	Regeneration.
Lyre	Music.
Mace	Authority.
Man with winged heels	Mercury, the gods' messenger (see below).
Marigold (in Christian art)	The mother of Christ.
Mask	Comedy.
Mercury (statue)	Messenger, electric cable office.
Mitre	Archbishop (illustrated at <i>f</i>).
Myrtle	Union, concord.
Neptune with trident	The sea.
Nimbus	Sanctity.
Oak	Mourning.
Olive branch	Peace.
Olive tree	Prosperity.
Organ	St. Cecilia, music.
Owl	Bakers' sign, wisdom, schools (illustrated at <i>t</i>).
Padlock	Locksmiths.
Palette and brushes	Painters' sign.
Palm branch	Triumph, victory.
Palm branch held in the hand (in Christian art)	Martyrdom.
Palm tree	Tree of life.
Parsley wreath	Victory.
Peacock (in Christian art)	Incorruptibility.
Pelican (in Christian art)	Christ, sacrifice.
Pelican (in mundane affairs)	Charity.
Pestle and mortar	Apothecaries' sign.
Phoenix (in Christian art)	Resurrection.
Phoenix (in mundane affairs)	Regeneration or resurrection, chemists' sign, fire insurance (illustrated at <i>r</i>).
Pole with gilt knob at end	Hairdressers' sign.
Policeman	Guardianship.
Pomegranate	Union, concord, Spain.
Portcullis	Security.
Purple	Justice, royalty.
Quails	Plenty.
Ram, suspended	Tailors' sign.
Raven	Providence, Denmark.
Red	Charity.
Rose (colour)	Martyrdom.
Rose (flower in Christian art)	Incorruptibility.
Rose (flower in mundane affairs)	England (illustrated at <i>w</i>).
Saffron colour (in Christian art)	Confession.

(To be continued.)

THE ARTS IN ENGLAND.*

WHEN MILTON attempted to write the history of early England he became dissatisfied with his undertaking, owing to the difficulties he encountered from the authorities on the subject. As he said, "The age whereof we now write hath had the ill hap, more than any since the first fabulous times, to be surcharg'd with all the idle fancies of posterity." It was a penance to him, he stated, merely to think of the works of some of the later monastic historians, but he underwent the toil of sifting their fables in order to save others from such unpleasing labour, "except those who take pleasure to be all their lifetime raking in the foundations of old abbeys and cathedrals."

* *The Arts in Early England*. Vol. I.—The Life of Saxon England in its Relation to the Arts. Vol. II.—Ecclesiastical Architecture in England from the Conversion of the Saxons to the Norman Conquest. By G. Baldwin Brown, M.A. (London: John Murray.)

It is still as difficult as in the seventeenth century to define the chronological sequence of events prior to the Norman Conquest. But in a great measure, owing to the investigations of those who have been raking amongst old abbeys and cathedrals and other ecclesiastical institutions, it is possible to explain relations between life in those distant days and our own. Many of the foundations then laid continue to be the support of things which are most dear to us. In spite of all importations from abroad, we are yet mainly Anglo-Saxons as a people, and the determination of the identity is an important exercise.

The task of bringing past and present into connection is mainly modern. Many prejudices had to be overcome before it could be attempted. Since the Reformation it was held to be a sign of patriotism to insist on independence of Rome, not only in the present, but in the past. It was believed there was an original Christian Church founded here in apostolic times. Even if that were the case, it would in no way prevent the formation of other bonds with Rome. The imperial city might be considered, after the downfall of Athens, as the capital of civilisation. The world—that is to say, Western Europe—derived from it not only law, but much else of importance. We find men going there from remote places, although it may not be clear to us what was the object of their journey. As the late E. A. FREEMAN used so often to repeat, "All roads lead to Rome," and, indeed, so much was sought there, it is no wonder that a great deal was credited to the city which never belonged to it. From Rome issued not merely material highways, but what we may call intellectual highways, and for the latter it sometimes happened the centre from which the lines diverged was sometimes no more than an abstraction.

Professor BALDWIN BROWN has produced a pair of fascinating volumes relating to the arts in early England, because to a large extent he recognises the direct or indirect influence of Rome. Although he holds that Rome or Roman may have been occasionally only an idea, "certain elements," he says, "of the civilisation which we call 'Roman,' and which we find pervading all the lands of the empire, had, in fact, their origin and the source of their power in the actual city of the seven hills: such elements were law, and the military and administrative system in general, but it must not be supposed that Rome herself was the fountain-head of all the intellectual and religious movements which pulsed throughout that vast domain." In all such cases it should be remembered that inspiration could not be always direct. There were likely to be many intermediaries, and in the course of the conveying and transferring changes were certain to occur. In respect to buildings this is demonstrated plainly. The forms which are characteristic of Saxon architecture do not bear a close resemblance to what is seen in Rome. But if an ordinary Englishman who could not draw endeavoured to make a builder in a distant colony realise the styles which are now in favour in London, there is no doubt any structure raised as a consequence of the instruction would be no more than a caricature. The English buildings may simply have been derived from similar caricatures erected by Roman colonists in England. There is much to be said for the opinion expressed by THOMAS RICKMAN ninety years ago. Speaking of the architecture in early England, he asserted:—"Although some fine specimens of workmanship have been dug up in parts, yet by far the greatest part of the Roman work was rude, and by no means comparable with the antiquities of Greece and Italy, though executed by the Romans. When they left the island it was mostly likely that the execution of the Britons was still more rude, and endeavouring to imitate, but not working on principle the Roman work, their architecture became debased into the Saxon and early Norman, intermixed with ornaments perhaps brought in by the Danes." This may not be clearly expressed, but there can be no hesitation about RICKMAN's meaning.

Any remains of the early architecture in England which happen to survive are parts of churches. With a people like the English we suppose in all times buildings of that class will be the best representatives of contemporary architecture. The chapters in Professor BALDWIN BROWN's first volume therefore "deal with some of the facts of religious and social life that underlie the early

history of English art." Some readers may be alarmed at the word "religious," imagining the book is an attempt to establish some theory about the primitive Christianity of England. But, so far as we can see, the author has no aim of that kind. Religion was closely bound up with life in England, and out of it arose much which is secular. This will be observed by the mere titles of the chapters in the volume:—The Country and the Town a Thousand Years Ago—The Castle, the Church and the Monastery—Christianity in Roman and in Unromanised Lands: the Conversion of England—The English Missionary Bishop and his Monastic Seat—The Saxon Monastery in its Relation to Learning and Art—The Village Church: the Circumstances of its Foundation—The Village Church: its Constitutional History—The Village Church in its Relation to the Life of the People. These headings are sufficient to show that a developing process was in operation. The parish, for instance, in the sense that we now interpret the word, was a late arrangement. On the authority of BOUX, there was no parish known in any of the French cities prior to 1032. As late as the time of the Council of Trent there were dioceses in Italy which were without parishes, and we believe that at the present day a Florentine child can be baptized only in the baptistery near the cathedral. The parish and diocese coincided in their boundaries and the bishop was thus the parish priest. According to BINGHAM, the revenues of the whole diocese were in the hands of the bishop, and there were no priests, deacons or clergy for particular churches in the city or diocese. They were all served from the mother church. Consequently, in a country like Ireland the administrative unit was not a town or a district, but rather a tribe or a clan, and in the time of St. PATRICK there were, it is said, over 300 bishops in the island.

In England, where there was more stability than in Ireland, there seem to have been villages which were the capitals of a tribe, or, it may be, of a family and its retainers. Sometimes the village church would be regarded as essentially the property of the nearest land proprietor. A few years ago, it will be remembered, there was long litigation because the Duke of NORFOLK treated the chancel of the church at Arundel as if it were his private property. It contained the monuments of some of his ancestors, and he separated it by a wall from the rest of the building. Archæologists who were unaware of the history of English churches looked on the act as illegal; but the Courts took a contrary view, and the old chancel is now locked up as a private chapel. The case exemplifies many things found in the Professor's first volume. No doubt the power of the clergy was enough to restrain private owners from any arbitrary exercise of ownership in respect of church buildings. But the right existed and still remains. There was one instance with which the late Sir GILBERT SCOTT was connected in which the owner of an estate, or lord of the manor, believing he was affronted by the vicar, threatened to deprive him of a church by its demolition, and it was, we believe, mainly through the architect's diplomacy that the evil was avoided. Wilful men of that class happily are rare, and the English church was allowed to become the centre of local life to the great advantage of high and low.

The second volume is as architectural as the first is constitutional and social. The various types of structures, from the beehive huts on islands off the west coast of Ireland down to the churches in which the Normans endeavoured to improve on what stood in this country, are illustrated and described. The principle of evolution is kept in view, and the change from the homogeneous to the heterogeneous, or, to put it in the author's words, "the exigencies of form produced originally by the exigencies of construction, is gradually modified by subdivision and by the defining and accentuating of parts." We give one abstract descriptive of a familiar characteristic in order to suggest the author's manner of treating his subject:—

Long-and-short work is the best known and most easily diagnosed of all Saxon symptoms. The following is the method of it:—An upright pillar of stone, square in section and in height, varying from about 2 feet to 4 feet, is placed at the angle of the structure. It may be that of the tower, the nave, the chancel, or the porch, and over it is laid a flat-slab of stone which grips into the wall and shows the length of its sides along the two faces. The correct designation of the work, when the whole of it is seen, would be upright and flat

rather than long and short, but the latter term becomes appropriate when, as is often the case, the surface of the walls is plastered. With a view to plastering, which was a common, perhaps a normal, finish to Saxon walling, the wall face was set back some half-inch or so from the surface of the upright stones on the quoins, and the plaster brought up flush with the edge of these. The parts of the flat slabs that lay along the walls were cut back level with the wall faces and covered with the plaster, so that only that portion of them was visible which corresponded with the widths of the uprights. This portion was in height only the thickness of the slab, and appeared "short" in comparison with the "long" upright pillars. Fig. 34 exhibits the technique in an example where the plaster has been stripped from the stonework. Were the plaster present the tailing of the flat piece into the wall would not be seen. This quoining is an excellent Saxon criterion, for, so far as the writer's knowledge goes, it is never used in Norman work in the Duchy, or indeed anywhere on the Continent, though there are occasional survivals of it in Norman work in England. An equally significant feature, and one that can be caught in a passing glance, is the so-called pilaster strip. This must be carefully distinguished from the buttress. Saxon walls in general are unbuttressed, though the buttress occurs in three Kentish examples, St. Martin and St. Pancras, Canterbury, and Reculver; also in the enigmatic church of St. Peter-on-the-Wall, Essex, and round the apse at Brixworth. These buildings are all presumably early.

It will be observed there is no indifference to the details of construction in the passage. The volume can be considered as practical in the sense that it would be possible to make drawings which would be indicative of construction from the descriptions alone. There is, however, nothing to daunt the intelligent reader who is not an architect. Page after page can be perused with ease, for the style is clear and precise. The two volumes fill a void in professional literature. There are some excellent histories of earlier and later periods of architectural history. But either the difficulty of piercing the obscurity or the fear that readers were indifferent has prevented the preparation of any adequate treatise on the pre-Norman period, when it may be said the foundations of what is best in modern English life were laid. Thanks to Professor BALDWIN BROWN's courage and research, the chain of history has been completed, and both Englishmen and foreigners can now realise the part which has been taken in the evolution of architecture during fifteen hundred years.

IRISH BUILDING STONES.

ON Monday at the Imperial Institute a lecture was delivered on "Ireland's Mineral Resources" by Mr. St. John Lyburn, the mining expert of the Department of Irish Agriculture and Technical Instruction in charge of the collection of Irish building materials and minerals now at the Imperial Institute. The lecturer declared that the mineral resources of Ireland were deserving of the attention of capitalists. Iron ores were also known throughout the country, but transit difficulties stood in the way of proper development. The other minerals which might be worked to advantage in Ireland were lead ore, zinc, copper, gypsum, barytes, rock-salt, pottery clay, and there were besides a large number of granite, limestone, sandstone and marble deposits. He believed there was a great future in store for Ireland in the development of its granite industry. What was wanted was first inspection and then prospecting, to be followed by vigorous development where the discoveries justified such a course. Mr. H. Plunkett, vice-president of the Department of Agriculture and Technical Instruction in Ireland, said that it was not those who talked about industries, but those who took part in their development who were the men that Ireland wanted at the present time. The mineral resources of Ireland which appeared to him to be the most important at the moment were the building materials, the most attractive of which were the marble and granite. When Ireland possessed such a variety of marble and granite of great beauty of colour, it must be a matter of surprise to many that these stones were so little used in England. The reason was a very simple one. While there was a demand for them there never had been any concerted attempt to develop them in a large way. They could not be developed with small capital or in single localities, but he believed the time had now come for developing these resources in a large way. His Department was satisfied that in many districts all the unskilled labour that was required could be provided, and in time all the skilled labour that was necessary to put the requisite capital to a profitable use. There was undoubtedly a very useful movement in the way of the industrial development of Ireland, and he believed that Ireland was going to do its share in upholding the industrial and commercial life of the United Kingdom.

NOTES AND COMMENTS.

THE annual dinner of the Society of Architects will be held this evening. Mr. SILVANUS TREVAIL will preside. Several distinguished guests have accepted invitations. The President will at Thursday's meeting give his impressions of architectural rambles on the Continent. On May 23 there will be a "field day" at Rochester, with Mr. GEORGE PAYNE, F.S.A., as leader. The party will leave Victoria Station at 9.30 A.M. During the day Eastgate House, the Cathedral, Restoration House, the Castle, and the old Corn Exchange will be visited. There will be also an excursion to Cobham. The return is due at Victoria at 9.25 P.M.

ALTHOUGH the first number of the *Burlington Magazine* (Savile Publishing Company, Ltd.) was excellent, it has been surpassed by the second. The reproductions of paintings by FRANCIA, LUINI and an unknown Flemish master are successful renderings. There are others from drawings, old engravings, silver plate, &c. Sir E. MAUNDE THOMPSON explains the drawings of pageants known as the Warwick MS., and which form part of the Cottonian collection in the British Museum. They are invaluable as illustrations of costumes, armour, &c., and photography in such cases is more true than any engraving, as will be seen by a comparison with STRUTT's plates. Mr. PERCY MACQUOID treats of the "Evolution of Form and Decoration in English Silver Plate." Mr. WEALE continues his description of works in the Bruges Exhibition. Mr. PHILIP NORMAN narrates the history of Clifford's Inn, and appeals for its preservation; but when lawyers have determined on a project of legal education, for which the price of the old Inn is needful, lovers of antiquity have no chance of a hearing. The *Burlington Magazine* is the most interesting of the new ventures of its class.

THERE are a great many judges who believe that ADOLPHE MENZEL is the foremost illustrator of our time. We speak of him in the present tense, for although he was born six months after the Battle of Waterloo, he is still competent to produce fine drawings. Whether his natal year had any influence on him perhaps he could not tell, but a great many of his drawings have been given up to the illustration of war, and especially of FREDERICK THE GREAT. It is doubtful whether RAUCH's splendid monument in Berlin can equal as a memorial the numerous plates which MENZEL has devoted to the warrior king. He must, however, have regretted that he was unable to witness with bodily eyes the events he commemorates, for Herr MENZEL is, above all things, a lover of truth. A vast number of his drawings, from which engravings were made or photographs taken, will shortly be on view in London. They go back from recent times to his early years, and they will show the progress he attained, not only by hard work but by an endeavour to make every drawing better than its predecessor. The art of illustration receives so much attention among us, we have no doubt the veteran artist's work will be welcomed by those who labour in the same field.

THE Italian explorations at Haghia-Triada in Crete, which were recommenced in February, have brought to light a great many small examples of various classes of ancient art, besides the remains of a palace resembling the Knossos building. About two hundred stamps of baked clay were found, and they are supposed to be novelties in Greece, although familiar in the East. What purposes they served is unknown. Twenty plaques bore characters similar to those which Mr. EVANS was the first to bring under notice. Among the "finds" are four plain vessels of copper, ten female figures of copper, a dozen figures of sacrificial victims in bronze. There are also lamps in clay, steatite and stone, weights, vessels with figures of warriors, &c.

A CASE was recently heard before Mr. Justice FARWELL which demonstrates that the Public Health Act cannot be employed to support the claims of individuals. A Mr. HUBBARD erected a stable and coachhouse in Corporation Street, Loughborough, which a neighbour, Mr. MULLIS, alleged was contrary to the provisions of the Public Health Act, and was, moreover, outside the building line as marked

by the plaintiff's front wall. An application was made to take down the building, but as defendant refused, an action was taken. The defendant stated that the plans were submitted to the local authority, and the only amendment in them was the covering of a manure-pit. When plaintiff complained the authority refused to take proceedings. Mr. Justice FARWELL said the case was the first attempt ever made by a private individual to make use of a public Act passed to protect public rights for the purpose of asserting a private right, and in his opinion such attempt could not succeed. The urban authority was constituted for the purpose of safeguarding the general rights of ratepayers within its area, and not for the purpose of protecting the particular rights of next-door neighbours. If the next-door neighbour had any common law rights these were left untouched, and he could assert them. If he had no common law rights it seemed to him (the judge) that the legislature by the Public Health Act intended not to create rights in individuals, but general rights for the benefit of the inhabitants of a particular borough or district. Under these circumstances the action failed, and must be dismissed with costs.

ILLUSTRATIONS.

CATHEDRAL SERIES.—WORCESTER: CLOISTERS AND SOUTH TRANSEPT.

CARVED OAK PULPIT AND SCREEN, BOTHBURY CHURCH, NORTHUMBERLAND.

THE RAILWAY HOTEL, NORTHALLERTON, YORKS.

THIS hotel, situate immediately adjoining the North-Eastern Railway Station, has recently been completed for Messrs. PLEWS & SONS, of Darlington, &c.

A portion of the old house still remains (as may be seen from the accompanying illustrations), but this, together with the whole of the extensive stable block and out-buildings, has been entirely remodelled and brought up to date. The lower portion of the building, to the level of the first floor windows, is faced with the Huncoats Company's Accrington red "plastic stamped" pressed bricks, relieved with Burmantofts buff terra-cotta. The bay windows and principal doorways are entirely of terra-cotta with bold enrichments. The upper portion, to level of overhanging eaves, is hung with red tiles, with intermediate courses of fancy tiles, and the whole of the roofs are covered with red tiles, all supplied by Mr. J. C. EDWARDS, Ruabon. The bar and tea-room (32 feet by 16 feet), divided by a glazed screen 7 feet high, is fitted out in stained and polished mahogany. The Bowes "well" fires have been used to all the principal rooms, and are in colours to match the decoration of the several rooms. The entrance halls, vestibules and bar are laid with MAW & Co.'s black and white tiles to an approved design, the floors of tea-room and smoke-room being of wood block on concrete, beeswaxed and dull polished. The whole of the windows externally, above the transoms, and the doors and fanlights over, internally, on the ground floor, screens, upper panels of doors on first floor, borrowed lights, &c., are of leaded lights of suitable design in plain white Venetian and sheet glass, the panels of the doors on ground floor being lettered in copper. The bar and tea-room windows are of brilliant cut and embossed glass with gilt lettering, the whole being supplied by Messrs. WM. MORRIS & Co., 252A Fulham Road, Kensington, London.

The stable fittings were supplied by Messrs. YOUNG & Co., London. The whole of the building is lighted by electricity, the fittings to the principal rooms being of oxidised silver.

The hanging sign of copper with *repoussé* lettering, the arc-lamp brackets and wrought-iron gates were supplied by Messrs. N. & E. SPITTLE, Birmingham. The spandrels to porch and to frieze of oriel bay window are executed in boldly modelled plaster by Messrs. G. JACKSON & SON, London.

The contract for the furnishing was placed in the hands of Messrs. MAPLE & Co.

The whole of the work has been executed from the designs and under the personal supervision of Mr. W. HARGREAVES BOURNE, A.R.I.B.A., architect, Darlington.

CHICKSANDS PRIORY, SHEFFORD, BEDS.: THE ENTRANCE HALL.

ARCHITECTURE AND THE PUBLIC.*

(Concluded from last week.)

ONE of the problems of the age is undoubtedly the domestic servant difficulty, and I venture to suggest that we have so little grasped the fact that we neither design our houses to minimise the evil, introduce labour-saving appliances, nor so decorate as to lessen work. I do not think we are far-seeing enough. We design for the moment—perhaps on the principle that "sufficient for the day is the evil thereof." The time seems to be approaching when the middle class will not be able to procure domestic servants at all, and when that time comes we cannot expect everyone to build afresh or to live in flats. The ingrained liking in every Englishman for his own little castle will not be eradicated readily, and the problem is to make that castle practically independent of domestic labour.

Small wonder that the lady of the house, overwhelmed by her domestic worries, rails against the architect who has aggravated them.

Are we ahead, not abreast, of the demand for technical education in these days? Are we conversant with the recent scientific discoveries? Are we making proper use of new inventions and applications of materials? Are we taking the measures we should to minimise fire risks? I do not know that we are. I will not extend the list, lest I try your patience.

Hedged about as we are with difficulties, hampered at every turn, we can neither experiment on our clients nor at their expense. Our opportunities of testing materials are limited, and we fear to attempt new departures lest they prove failures, and bring down upon us the wrath of our clients. No wonder we are dubbed old-fashioned, and accused of lagging behind the age. If I am correct, and I admit my assertions may be disputed, I do not think we should be hampered. With all respect, I would offer one or two suggestions to the Institute, not at all as criticisms, but as expansions of its usefulness.

1. Cannot some of its funds be devoted to such valuable tests of materials as, for example, those recently applied to brickwork, which, I believe, are now taken as the standard? I cannot but feel that the Institute could further the welfare of the profession to a much greater extent than it does in this way. I venture to think that a series of tests of cements, especially as to their expansive properties, would be invaluable; and further, in view of the behaviour of steel girders and stanchions during a fire, how far concrete with steel rods can be substituted. The question of fire protection is so important a one to the public that some definite data for those who are endeavouring to combat the difficulty would surely be highly welcome.

2. Cannot evidence as to the behaviour, advantages or disadvantages of certain materials, fittings and appliances be collected and published?

Manufacturers are doing much to keep level with the times, and all sorts of new ideas are showered upon the practising architect. If one of these ideas commends itself to me, if I think it grapples in a common-sense manner with some difficulty, or is an improvement on a preceding invention, I should like to make use of it, but in nine cases out of ten I dare not. I have no evidence that it is a success. If I boldly adopt it and it turns out satisfactorily, well and good, but if otherwise, I have to endure the rage of a client who instantly puts me down as incapable or crazy.

It is too much in the nature of an experiment. I would suggest that such ideas, such inventions should be considered, and if thought to be of value to the profession should be thoroughly tested, that evidence of their behaviour should be gathered, and that such information should be accessible to members of the Institute. I am not sure, but I think manufacturers would welcome such a test, and the profession might be spared a considerable amount of rubbish, and while avoiding the necessity of constantly falling back on things which are nearly obsolete, would encourage the manufacturers to a wholesome emulation.

I am quite prepared to be told that all this is utterly impracticable. Perhaps so—but I am certain of this, if the Institute do not establish something of the kind some other body will.

I need only mention one matter to illustrate my point. I suppose one of the greatest difficulties we have to encounter is the work of the plasterer, and recently attempts have been made to find efficient substitutes, but as far as I know with only moderate success. Here, then, is a field for investigation.

3. Cannot the Institute afford facilities for the testing of materials at a cheap rate to its members? Here is a matter in which our governing body have already been forestalled.

The National Physical Laboratory is prepared to undertake such tests at a moderate charge, I believe—to a limited extent—but I suggest that this is a boon which membership of the

Institute should confer, and would be of more practical value than knowing how the Greeks set out a volute.

If I wish to specify a cement, if I want to know the strength of a particular type of brick, if I am doubtful as to the quality of my timber, or if I want to know whether the plasterer has introduced garden mould into his rough stuff, I think my Institute should afford me the necessary facilities for ascertaining the information.

4. Cannot an elementary knowledge of chemistry be introduced as one of the subjects for examination?

I cannot conceive of any subject more important to the practical architect, and yet one more generally neglected. I think the advantages of even an elementary knowledge of such a subject are so very obvious that I need not weary you by recapitulating them, but I imagine chemists must stand appalled at the alarming ignorance of men who deal with substances without knowing their properties.

As an example, why should it gravely be proposed to dispose of the vitiated air in a room by "drawing off" carbonic-acid gas from the floor, under the impression that it is heavier than air? A little elementary knowledge would prove that warm carbonic-acid gas is lighter than cold air. Where air and carbonic-acid gas are of the same temperature, it is perfectly true that the latter is some two and a half times heavier, but having regard to the high co-efficient expansion of gases, it should be obvious that carbonic-acid gas, as produced from human bodies and artificial lights, is at a high temperature, and therefore so far expanded that it rises readily through cold air.

Are we not far too dependent upon so-called experts, who themselves lack the definite technical training which should make their services of any real value?

It is in considering such questions as these that it appears to me an intelligent knowledge of chemistry and physics, as applied to ventilation, materials and hygiene, should form part of the technical training in the equipment of the architect of the immediate future. Therefore, I would ask the committee of the Association to consider the advisability of establishing a simple laboratory and the necessary instruction.

If the architect is hampered by insufficient technical training, how much more is he hampered by the lack of any such training at all in the workman—not only the artisan, but the labourer?

As a case in point, may I instance a labourer who in filling up with dry rubbish under a tile floor included enough lime to blow up the floor and cause considerable worry—which, of course, recoiled on the architect. I maintain that no architect should have to stand over a workman to prevent such results of ignorance. Ignorance like that should not exist, and I for one would welcome any system of technical training which would not only create efficient workmen, but give them an intelligent interest in their work. Perhaps then we might have less deficient workmanship, less friction, and the long-suffering architect would not be goaded to the last pitch of exasperation.

Perhaps, too, in time our employers will come to realise that the scale of remuneration is not always such that it should command the services of many experts in the person of one man, who, if he is to earn a decent livelihood, must so overburden himself that he cannot give the attention he would wish to minute details. At present the public little realise the immense amount of labour represented by an architect's services, their idea of his labours generally being comprised in the notion that he sits down in an easy chair for an hour or two and produces a pretty sketch, for which no brain-work is required. When it is realised that the services of such an expert as an architect are a valuable commodity, it may be that it will be made worth his while to devote such services to fewer things at a time with advantage, I venture to think, to both parties.

If an architect could but take up his job, make it his pet, live in it and revel in it, as a painter does his picture or the sculptor the work of his chisel; if he could make it the fitting home for the work of these artists or the craftsman—untrammelled by sordid considerations—I think we should hear less of the grumbling, and perhaps receive a word of grateful appreciation with the final cheque, more than repaying the months of anxious thought and unwearying devotion, and endless trouble and worry.

It is coming to this, that with the multifarious requirements now demanded of the architect, life will be too short to cram into it the requisite amount of study, and we shall have to specialise more and more. It may be that our system of training is too general and too superficial, and the problem will be to develop the particular bent, to encourage the special talent of the young beginner. I am not sure, myself, that our present system of training is by any means perfect. I think far too much time is spent over "the orders," to the detriment of more important subjects. What does it matter that the student should determine the proportions of the Parthenon to a hair's-breadth, and be called upon to judge between the measurements of various authorities? Are we to breed architects or mere antiquaries? What does it matter if a

* A paper read before the Architectural Association by Mr. A. Needham Wilson on Friday evening, May 1.

student does not know the difference by name between an "apophyge" or a "cyma recta," or that he cannot give offhand the name of the man who designed the Parthenon? Is he less likely to turn out a practical architect because he does not know these things? Does it give him greater power of design, or a keener sense of the beautiful? I do not wish to deprecate for one moment the advantage of a good sound grounding and solid knowledge of all on which we base our modern architecture, but I do strongly deprecate the trifling with unimportant details to the exclusion of more urgent matters. As I said, if the particular bent of the student can be determined after a period of general training, then will be the opportunity to insist upon a proper understanding of the minute details connected with that bent. I cannot but feel that in our anxiety to emphasise the artistic side of the profession we have swung a little too far, and the public have developed some impatience with us and our methods, and it is high time to show them we can be artistic and practical as well.

Further, we are a humble minded folk much to our detriment. We have not sufficient self-assertion or combination. We take little heed of criticisms or attacks, and we rarely concern ourselves as to whether they are justified. We live too much in a little world of our own, and scarcely realise that we are a vitalising force, and should make ourselves a vital necessity and a tremendous educational power. There is too much individualism amongst us. Why should any one of us be left to fight out as best he can some vital point, intimately affecting the weal or influence of the profession as a whole? Why should a single individual be left to fight for a principle? He should have the whole weight of the profession and its leading body at his back, provided the cause is just. Far too often have we to acquiesce in some palpable injustice because we dare not, cannot stand alone.

What weight do we carry as a body? If some glaring vandalism is contemplated, who attaches any weight to our feeble protests? Things are perpetrated which should raise a storm of righteous indignation, and we shrug our shoulders and placidly go on our obscure way. Our streets are made hideous by every Philistine method that can be compassed by the wit of man, and we content ourselves with a nervous grumble. Now the public are beginning to open their eyes to the sordid dinginess and dead level of monotony which surrounds them and the rampant ugliness on every hand. They are casting about for means of delivery from this blighting ugliness of commercialism which crushes them down, and it is for us as a body to proclaim ourselves their emancipators, to set ourselves at their head. It is for us to raise the oriflamme of a new era of brightness and beauty adapted to the practical needs of the age before municipalism sweeps us one and all into a chaos of general commercial utilitarianism.

In conclusion, I feel some apology is due for the unintentional prominence of the personal pronoun in these notes, but on such a subject it is unsafe to dogmatise, and better to stand or fall on the merits of one's personal opinions. I am quite prepared to have them mercilessly criticised, and I do not claim that they are particularly new, and if any of them are I will cheerfully accept the statement that they are quite worthless. If I have but offered, however crudely, a field for useful discussion from wiser heads than mine, I shall be more than content.

Lord WINDSOR, in acknowledging the invitation to the meeting, said he did not feel he had any right to address the members after the admirable paper they had heard, but for the reason that the subject was not a purely architectural one—i.e. wholly technical—the public had been prominently introduced. He had had the opportunity—a rare one—of calling in the efforts and knowledge of architects in a private capacity, but to an extent which did not fall to the lot of most people. This was for the building of a house in the country and in London, and, so far as his experience went, the result of the work in the concrete form would redound to the credit and raise the fame of the architects engaged for generations. There was one point he would refer to. It was one common to the education of the present day in its various branches, namely, it all tended to extreme specialisation. They knew that scientific men were unable, as their predecessors were able, to follow scientific pursuits within a large area, and as each one desired to attain the highest point in the investigations he was engaged in, he was almost compelled year by year to specialise more than his predecessors, and to devote himself to one narrow branch. He (the speaker), from what he had heard in the paper, imagined that this state of affairs was true to some extent nowadays in the practice of architecture. He could quite believe, therefore, that the difficulties were very great when the architect was obliged by the public to make himself acquainted with the large number of subjects which he would have a right to believe should be treated by a specialist. At the same time, it would be a pity to narrow more than could possibly be helped the great conception of architecture. It was well to remember the Italian Renaissance, a great time in the history of building of two schools. In Italy certainly the Florentine school proved

that their buildings were not only the work of the greatest architects, but the greatest painters and sculptors, and it could not be doubted that the extreme beauty of the creations of that time were attributable to the wide knowledge of those men engaged in building and the various branches of art. Thus it seemed that the nearer the relation of the arts the more was it possible to have good architecture and to produce great and lasting monuments of art.

Mr. FRANCIS HOOPER, who proposed a vote of thanks for the paper, said he had had the pleasure and satisfaction of taking part in some of the tests of brickwork undertaken by the Institute; the results were valuable, but little appreciation was shown for the efforts of those who conducted them—men who had few spare moments.

Mr. MURRAY seconded the motion, supported by Messrs. W. A. Pite, W. Banks Gwyther, R. H. Weymouth and A. F. Munby.

The PRESIDENT read the report of the scrutineers and the result of the ballot for the committee for session 1903-4:—*President*.—Henry T. Hare. *Vice-Presidents*.—R. S. Balfour, Arnold Mitchell. *Committee*.—W. A. Pite, Louis Ambler, A. N. Prentice, E. Guy Dawber, W. Howard Seth-Smith, E. L. Lutyens, John Murray, J. S. Gibson, F. D. Clapham, R. H. Weymouth. *Hon. Treasurer*.—Francis Hooper. *Hon. Librarian*.—J. MacLaren Ross. *Hon. Secretaries*.—H. P. G. Maule, Henry Tanner, jun.

A vote of thanks was passed to the scrutineers and the meeting then terminated.

A DUBLIN CHURCH BUILDING CASE.

A REMARKABLE action was heard before Mr. Justice Madden in Dublin on May 5, 6 and 7. It was brought by one of the Roman Catholic priests of that city, the Rev. J. E. O'Malley, P.P., against the archbishop, the Most Rev. Dr. Walsh. The plaintiff claimed 4,727*l.*, which was paid to and for the use of the defendant by the plaintiff as his agent, and at his request. The plaintiff had been appointed in 1892 parish priest of St. Agatha's, which was then in want of a church. In 1894 a parishioner, Miss Eliza Walsh, died leaving by will a large legacy to Father O'Malley and to the Archbishop with which to provide for the erection of a church in the parish. The plaintiff took steps immediately to carry out this desire, and he selected a site in Richmond Place, which was then occupied by a laundry carried on by the Discharged Prisoners' Aid Society. The arrangement was that premises no less suitable for the business should be provided in exchange. Accordingly, plaintiff arranged with the late Alderman Meade to purchase premises in Henrietta Street for 2,500*l.* Machinery was put in, the removal was duly made and the negotiations and agreements met with the approval of the Archbishop. The costs in all amounted to 4,700*l.* odd. At a later date the Archbishop alleged that he had not sanctioned the application of any of the trust money of Miss Walsh to the Henrietta Street premises.

The Commissioners of Donations and Bequests brought an action against both the Archbishop and Father O'Malley with the view of having the trusts of the will carried out and administered by the Court. The Master of the Rolls decided that the trust funds had not been properly applied to the purchase of the Henrietta Street premises, and gave Father O'Malley credit for 3,225*l.*, and the balance between that sum and the original total of 4,725*l.* was the sum the plaintiff was now actually suing for. That balance amounted to 1,472*l.*, which the plaintiff had paid out of his own pocket. The plaintiff had spent, at the request of the Archbishop, 4,727*l.* 15*s.* 3*d.*, and he had been allowed all but the 1,472*l.* Father O'Malley could not raise that money by appeal to his parishioners or the public without the sanction of the Archbishop.

The plaintiff gave evidence in support of the case. In the course of the cross-examination he was asked about the preparation of plans of the church.

Who did you employ to prepare the plans?—Mr. Lowey.

You described Mr. Lowey as greater than Michel Angelo, greater than Gandon, and the Parnell of architecture?—I suppose I did.

And that this gentleman, Mr. Lowey, solved a problem that was annoying Michel Angelo all his life, inasmuch as he united the five orders of architecture in one tower?—No answer.

Counsel read a letter of October 28, 1895, from Father O'Malley to the Archbishop, in which he described Mr. Lowey as the ablest architect in the city, and said he proposed to build schools under the proposed church to accommodate 2,400 children which would be value for 19,000*l.*, and "the carcass" of the church, that is the four walls and the roof, would cost 23,000*l.*

You said the thing did not quite deserve the fuss that had been made?—There was a lot of talk about the matter. I never got leave to publish a plan of the church, and I never

sent the specifications to Dr. McGrath, the Archbishop's secretary, as stated in one letter. The church plan is the finest ever presented to the Archbishop of Dublin, or for the matter of that to an archbishop anywhere else.

Where did you propose to get the 40,000l.?—That is for me to make out.

Were you sure you could get the 40,000l.?—I was.

You say in that letter—"I have been doing nothing but talk." Is that the 40,000l.?—No.

Counsel read a letter from Father O'Malley to the Archbishop, dated November 4, in which he said, "I have learned a great deal of frauds and tricksters and contractors and architects, &c., which in the next three months I may find to be of some gain to your Grace, that is, assuming you are not well up in that already." Counsel further read a letter from Father O'Malley to the Archbishop, dated November 8, in which he said, "There is not a church in this country like it, or, so far as I can see, anything on the Continent either." He added that 30,000l. would be able to do the whole thing, including the portico, and he asked about the date for laying the foundation-stone. He added that it was absolutely necessary to get the money together at once, and that he had got another will within ten days leaving him 14,000l. Is that where you were to get the 40,000l.?—I won't tell you anything about it.

Weren't you intending to build a cathedral also?—From the fact that I wrote it was in my head.

Did you ever say where the cathedral was to be?—I won't tell you.

Just as a mere bit of curiosity. Suppose a little bird were to tell me where the cathedral was to be?—Then it would be unnecessary to get an answer from me.

Didn't you say it was to be in the centre of Stephen's Green?—Yes; you seem to know all about it.

And Mr. Lowey was to build it?—Yes.

A man, you said, that James Gandon might take lessons from, and that Angelo himself might confer with. Was that all true?—So far as I knew, it was.

"A man who would give an entirely new face to ecclesiastical work." All that was to be done near William Street?—Yes.

When Mr. Drew was referred to he wrote that he only knew your great architect as a ganger on a railway?—I heard he wrote a disparaging letter.

Counsel read further letters from Father O'Malley to the Archbishop, in which he spoke of submitting Mr. Lowey's plans to the "Architectural Primate of Ireland;" that referred to the President of the Institute of Architects.

In further cross-examination witness said that the Archbishop asked him to mention a single ecclesiastical edifice designed by Mr. Lowey. He mentioned one, but did not remember it now. He mentioned Findlater's Church.

He was clerk of works on it?—Yes, that is the man that builds it. I don't know whether Mr. Lowey was a member of an institute of architects. I know he was an articulated architect. The Archbishop asked me for details of the work. I could not give him details. If you knew what it was you would ask. It was a series of drawings the full size of the entire buildings—a thing that would load a horse.

I believe you said you would have to charter a donkey cart to carry them?—No; a horse's cart. The paper drawing should be the full size of every block of stone in the building for the workmen to work on.

On a scale of 12 inches to the foot?—Certainly.

Counsel read another letter from Father O'Malley to the Archbishop directing His Grace's attention to a paragraph in the *Freeman* about Armagh Cathedral, and adding that it ought to be a warning to builders about Gothic architecture. "The roof is within measurable distance of the floor, and in my opinion Maynooth Church will be in a few years also." In another letter of Father O'Malley's to the Archbishop he spoke of Mr. Lowey as "a living Council of Trent in his line," and he estimated the builders' cost of the proposed new church at 43,000l. and the architect's cost at 32,000l.

So you would save 11,000l. if you built the church yourself apart from a contractor?—I believed that.

Counsel quoted from the Archbishop's letter:—"As regards your intention of taking steps towards the erection of a church on a plan not approved of by the diocesan authority, I will not again say to you that you are not to do it. But the time plainly has come to say to you that if you do anything of the kind the consequences will be very serious indeed. As regards the deed sent to me some time ago, I am not going to waste my time writing over again what I have already written about it." Was not that the conveyance of the Henrietta Street premises that he had refused to sign?—Yes. That was the extraordinary thing. He refused, and would not explain why he refused after telling me to do it.

During all this time what had you been doing with Miss Walsh's trust money? You were paying it away actually by cheques?—All the cheques are there.

Did you not know that it was your duty to lodge that money in the joint names of yourself and the Archbishop as joint trustees?—Most certainly I didn't.

Mr. Justice Madden: There is no allegation whatever that any of this money was spent in any way other than for the expenses of the church.

There is no suggestion that this gentleman misappropriated any of the money. (To the witness)—You wrote this further letter on December 6, 1896:—"So far as my intentions are concerned, I will build no church but the one designed by Mr. Lowey"?—Yes. The Archbishop had an alternative of getting a plan of his own.

Your complaint is that the Archbishop won't allow you to collect money to build a church that he won't approve of?—No, but pay obligations that he told me to undertake.

Could not these obligations have been well discharged if you acted reasonably and under his control?—No. He got me to implicate myself, and I insist upon these being paid. When they are paid he can build the church.

Your case is that because the Archbishop didn't authorise a collection he became personally liable?—Yes, because if he authorised a collection there would be no liability at all.

Is it your view that you were to be entitled to commence a collection for any project no matter how wild or extravagant?—I would not propose a wild or extravagant project.

Is your answer, then, that you were not to be entitled to commence a collection that was for a wild or extravagant project?—There was no such distinction as that at all. Here was an absolute commission to buy a thing, and I executed the commission.

Did you ever submit to the Archbishop an estimate of the cost of this proposed church?—I didn't, beyond what we had yesterday, and furthermore, by the ordinary law of the Church I am not bound to do it. The building of a parish church is vested by the Canon Law in the parish priest.

Did the Archbishop call upon you to submit to him an estimate of the cost of the church?—He wrote it to me in letters, and, as far as I know, he has no authority by the law of the Church to make that demand; and in the position I took up in these letters you read yesterday, I was acting according to Canon Law. I asked him what was the connection between bishop and priest so far as this business was concerned, and he gave no answer.

Mr. Justice Madden: How can you get his sanction except by submitting a scheme to him?—He is empowered to pronounce for the necessity of a church, and then the money strings are in his hands, but the estimate and the style and all that is the work of the parish priest.

The amount to be raised from the parish for the building of a church, is that a matter over which the bishop has no control?—Strictly speaking, he has not by the law, but in this case the practice now is that the bishop gives leave and supplies the money, that is, in the sense in which I explained it.

Is it your view then that the Archbishop has no control over the expenditure to be incurred by the parish priest in the building of the church?—By the law, as I know it, he has not.

But you still say that he has power to prevent you from commencing the collection?—Oh, yes. That is a special clause in the law of the Irish Church.

By means of what information then is he to regulate his discretion when he determines whether you ought to start a collection or not?—That the church is to be built.

Must he not know something about the cost for which the collection is to be started?—As far as I know the law, it does not give him that power.

Although he has got no power to inquire into the expenses of the church, he has still power to veto your collection?—Yes.

And although he has no power over the expenditure he is still to be personally liable?—If he allows the collection, and allows the parish priest to take the risk of it and work it himself, he is under no liability. But if he orders the parish priest to sign papers and the rest of it and then suddenly changes and says "I won't allow it," he cannot do that.

If he prevents you from commencing a collection for a project of yours over which he has no control?—Over the details.

So far as the price is concerned he is still to be liable?—If he allows me the usual means of doing it, or any parish priest, the parish priest takes the risk then. In this case I was his agent for the purchase of the plot, and I was acting under his orders, and I was bound to obey him.

You know the law of the Church?—A little of it; but not as much as he.

Supposing, now, that there was a difference of opinion between you and His Grace, who was the more likely to be right?—I only know one law, the law of Maynooth, and I told him so.

And is it the law of Maynooth that you are going by and expounding?—Yes.

Will you point out to me or give me the reference to any statute of Maynooth which allows you to incur any expenditure,

no matter how great, without the controlling authority of the bishop, or the ordinary of this diocese?—There is nothing in the statute of Maynooth treated that way at all.

Where do you get the law, then?—What the law states when a church is going to be built is, "Let there be a collection made," and it does not say who is to make it.

Did the Archbishop serve you with what is called a precept, dated December 17, 1898?—He did.

Counsel read the precept as follows:—"To the Rev. John E. O'Malley, parish priest of the parish of St. Agatha, Dublin.—Sufficient time having now elapsed to enable you to take all requisite steps for the building of a suitable parish church of St. Agatha's, in place of the present building, I hereby enjoin upon you to take without further delay the steps which are prescribed by the statute 194 of the National Synod of Maynooth to be taken in all cases in which a new church is to be built. You will therefore on or before January 17, 1899, deposit, or cause to be deposited, here for my approval an architect's plan of a suitable church for your parish. As I cannot approve of any plan for the building of a parochial church unless I have before me an estimate on which I can rely of the cost of carrying the plan into execution, I have to require that any plan which you may submit for my approval shall be accompanied by one or more such estimates. Before my definitive approval can be given there must be a tender from some responsible builder undertaking to carry out the work for a specified amount; but, in the first instance, it will be sufficient to have an estimate the accuracy of which is attested by any architect who has superintended in his capacity of architect the building of any similar church or churches in Ireland or elsewhere. The carrying out of these preliminaries will necessarily involve some expense, and it should hardly be necessary for me to add that I am prepared, for my part, to sanction the outlay requisite for this purpose from the fund that is at present available towards the building of the new church; but this, of course, is on the condition that a statement of the expense to be incurred shall in the first instance have been submitted to me, and shall have been sanctioned by me in writing. You are furthermore required to furnish me, on or before the same date, with a duly vouched account of the moneys received by you, as one of a number of trustees, of whom I am one, as rent for the premises leased by those trustees to the Corporation of Dublin. In connection with all this matter, I have finally to call your attention to the Statute 193 of the Maynooth Synod, and to require of you to let me know, on or before next Wednesday, the 21st inst., the name of whatever public bank you may have selected, in compliance with that statute, for the opening of the account to which it prescribes that all moneys received by a parish priest for the building of a church shall be lodged."

Father O'Malley: I had been so badly treated before that that I determined to have no more money negotiations of any sort until this was settled.

In other words, you disobeyed that precept?—Yes.

Here is your answer on December 19, 1898:—"My Lord Archbishop,—I beg to acknowledge the receipt of your Grace's communication of last Saturday. The reply is not yet finished, but will be forwarded to you the moment it is completed by your Grace's very respectfully, John E. O'Malley." Were you in course of finishing your reply?—I cannot remember now. I suppose I was.

On December 24, you wrote:—"My Lord Archbishop,—I am and always have been desirous of carrying out both the Canon and civil law in relation to the matter between your Grace and myself." It is a very long document, and I won't read more than is necessary. (Reads)—"But suppose I refuse point blank, without giving any reason whatever, to take any further personal part in the discharge of this charity, am I guilty of any disobedience, and, if so, to what or to whom?" Was that the view you took, to refuse point blank?—No; I said if I did.

In the previous part of your letter you say:—"I was under no obligation at all even to show the plot previous to purchase to your Grace as Archbishop, but only as trustee of Miss Walsh"—I asked that to be informed by him. The previous part of the letter is asking for information. It is an interrogative letter from the beginning.

"The Bishop does not approve. I stand still. The Canon Law prescribes nothing further. I am not disobeying." Do you say that is merely an interrogative letter to ascertain from the Archbishop what your duty and the law was?—Yes.

And when he told you your duty, were you prepared to obey him?—Of course I would.

Did you obey him?—He never told me my duty. He never answered that letter.

Did he not tell you to send him an estimate?—Precisely. But was I bound by the law of the Church to do so?

You refused to send an estimate?—Yes, until I knew everything.

Did the Archbishop answer that letter of yours?—He wrote me a letter acknowledging that, saying, "I have received your letter and note your strange ideas of ecclesiastical duties."

After plaintiff's re-examination counsel for defendant asked the judge if the case had been made out. His Lordship said it would be more satisfactory to hear the whole of the evidence before he decided whether there was a case to go to the jury.

Mr. O'Connor, K.C., stated the case on behalf of the Archbishop. He said that although this action was only a money demand, it was, indeed, a melancholy case, as every case must be to some extent when it involved a dispute between a priest and his superior in the Church. He was not instructed to make any accusation whatever against Father O'Malley, except to say that he was of exceedingly unbusinesslike disposition.

The Archbishop then gave evidence. He said:—When I appointed Father O'Malley parish priest I told him there was a church badly needed in the parish, and that I would expect him in the ordinary course to build a suitable parish church. I gave him no further directions.

Do you remember his communicating with you with reference to certain plans for his new church some time in the year 1895?—Yes; he came to me in the month of October in that year to speak to me about the plans.

Mr. Henry, K.C. (reading):—"My dear Lord Archbishop,—May I request the favour of a short interview at the very earliest possible day to submit to your Grace a plan of the new parochial church? I want to show it to the people, to begin right in earnest to make the collection at once." Did he wait on you in pursuance of that?—Yes.

What took place at that interview?—He told me that he had put himself in communication with an architect of great eminence, a Mr. Lowey. I cannot be quite sure whether he hadn't written to me before coming a letter in which he mentioned Mr. Lowey's name. If not, the first time I heard of Mr. Lowey it was at this personal interview with Father O'Malley on October 21. I asked Father O'Malley was he quite sure that this gentleman was an architect at all. I said I had had a great deal of experience in building churches, presbyteries and schools of different architects in Dublin; that I thought by that time I was fairly well acquainted with all the leading architects of the city, and that I had never heard of this gentleman. And I added that on looking into Thom's Directory in the list of architects this gentleman was not mentioned there. What I am not quite clear of is whether I had looked into the Directory before Father O'Malley came, or whether I looked into it then and there. It is a book I always have in my study. At any rate, I looked at the list of architects and Mr. Lowey's name was not mentioned there, and I told that to Father O'Malley.

What did he say?—He said it made no difference whether a man's name was in Thom's Directory or not if he was a great architect, as this gentleman was. I then asked him could he tell me of any building that Mr. Lowey had erected, and Father O'Malley said he was very glad that I asked that question, because that was Mr. Lowey's strong point; that he had been architect of a great number of buildings, and that Mr. Lowey told him that the cost of them if totted up would amount to either six or seven millions. I am not quite sure of the figure. I asked him to name any of these buildings that he said Mr. Lowey had told him about. He said he could. He said there was a great hospital in London which cost 750,000*l.*; it was somewhere about Lambeth, he thought. I asked him was that the great hospital in Westminster opposite the Houses of Parliament. He said he did not know, but that there was some great hospital that cost 750,000*l.*; and I rather think he said that it covered 70 acres of ground, but I am not quite sure of that. I asked him were there any other buildings. He said the Parliament houses in Melbourne, the Parliament houses in Sydney and the Parliament houses of the Dominion of Canada. I said it would be rather troublesome and difficult to make inquiries about places that were so far away, especially as he was anxious about getting on with this church as soon as possible. I asked him, Could he mention anything nearer home? and especially I asked him about churches. I told him that we were very exact about having an ecclesiastical architect when a church was to be built, that a gentleman might be very good in building Parliament houses, and yet not be very capable of building a church. Well, he said that was another strong point of Mr. Lowey's, that there were two churches he could mention to me in Dublin—churches that he was sure I knew very well, and that Mr. Lowey was the architect of both. The first of these was the church known as Findlater's Church in Rutland Square, the other was St. Patrick's Cathedral—not the original building of it, but the restoration of it under Sir Benjamin Lee Guinness. I told him that I felt there was some mistake about this, that he ought to make inquiry, and that he should bring me some proof. I told him I would make inquiries myself. He said not to mind troubling myself, that he would furnish me with all the necessary proofs. Before going away he said, "There is not an architect in Dublin who is fit to point Mr. Lowey's pencil." That terminated the interview.

Was Michel Angelo mentioned at that interview at all?—

Yes. He said that Mr. Lowey had succeeded in solving the problem that Michel Angelo had spent years of his life trying to solve and had given up in despair in the end. I asked him what the problem was, and he said it was to build a tower combining all the different orders of architecture. My remark on that was that I thought that was not very difficult; that I believed I could do it myself if I could build a tower at all. Then he undertook to give me a solution. He said it was a technical matter, and that probably I could not understand it. He said he did not quite expect that I could; it was something about building a tower on its own axis.

Mr. Justice Madden: Did he descend to any such practical matters as estimates?—Oh, no, he didn't go as far as estimates.

At that interview did he also mention a project for building a large school under the church?—He did.

I believe that was to accommodate some 2,400 children?—He merely mentioned the project in a general way, and he afterwards wrote me a detailed letter about that wonderful school.

It was to train the entire north side of the city of Dublin?—He said it was to train the north side of Dublin from the Tolka to the Custom House; it was to be a day school and a night school, and the night school was to serve half the north side of the city.

In further examination, His Grace said that Father O'Malley gave him a long list of people who, he intimated, could testify to Mr. Lowey, but he didn't give testimonials from them. All through Mr. Lowey was mentioned as the architectural primate of Ireland, and Father O'Malley wrote or said that Mr. Drew would be very happy to call upon him (the Archbishop) and give him his opinion of Mr. Lowey's eminence in his profession. Mr. Drew never called. On November 19 Father O'Malley wrote, stating that the London hospital with the building of which Mr. Lowey was connected covered 70 acres, that his part in it was confidential, and that the confidentiality was created by a written contract, but that the parties concerned would give their names privately if he (the Archbishop) wished. Mr. Drew said the general conception of the building was magnificent—was very fine, but that all the details would require to be gone over by a practised or trained architect; that it was the details that were in the plan he objected to, and required other details to be substituted for them. He (the Archbishop) called for a responsible builder's estimate of the work. Father O'Malley wrote to him stating that the contractor's price for the work was 46,669*l.*, and the architect's price 35,234*l.* Father O'Malley suggested in that letter that he should be allowed to be his own contractor, and that he and Mr. Lowey should carry out the work. In a subsequent letter Father O'Malley said these figures were not correct, that he found he had made a mistake, and that he found that the 46,000*l.* was 4,000*l.* too high.

Mr. Henry: You were familiar with the parish of St. Agatha, the class of the people, the number of parishioners, and the resources of the parish?—Yes.

Was the sum proposed to be expended quite out of proportion to those resources?—Quite out of proportion. Father O'Malley described the condition of the parish accurately when he said that if a debt lay upon that parish it would remain there.

Were you prepared, if a reasonable plan at a reasonable cost had been submitted, to approve of it, and authorise the construction of the church?—Of course.

Mr. Justice Madden: You got eight thousand pounds to commence with, and I suppose about two or three thousand more would do?—I should say up to fifteen or twenty thousand, if we decided to be very liberal. Father O'Malley had told me on three or four occasions that he had a number of wills that were coming in. He said there was a will leaving him 14,000*l.* in certain eventualities. There was another occasion on which he said there were two old ladies, from one of whom he was to get 5,000*l.* and from another 5,000*l.*, so that I might be liberal in allowing a church to be built on a larger scale than usual when these promises were realised.

Ultimately, after a number of months, almost years, of correspondence with him, on July 15, 1896, did you write:—

"My dear Father O'Malley,—Three or four times the length of time which you have mentioned to me as requisite for getting the statement of the cost of the projected church have now expired. The delay threatens to become indefinite. In the meantime, there is sad need both of a church and of a school. Can we not begin to do something practical." That was your letter?—Yes.

Then on July 21, 1896, did you get an extraordinary letter in reply, bringing in Mr. Landles?—Yes; he said he gained 450*l.* by doing a sum in arithmetic.

In that letter in reply to yours asking that something practical should be done he lays down a number of conditions:—"Secondly, that the plans as shown be really carried out." Were those the plans that had been submitted by Mr. Lowey involving this expenditure of nearly 40,000*l.*?—Yes,

and plans which Mr. Drew said should be modified in detail by a practical architect.

In further examination His Grace said that in that letter Father O'Malley requested that full and complete discretion in the raising, disbursement and management and control of funds during the erection of the church should be entrusted to him. He did not give Father O'Malley any such discretion. He wrote to Father O'Malley on August 11, 1896, a letter in which he stated:—"As regards your intention of taking steps towards the erection of a church on a plan not approved of by the diocesan authority, I will not say to you again that you are not to do it. But the time plainly has come to say to you that if you do anything of the kind the consequences will be very serious indeed."

Mr. Henry: Shortly after that did the question arise as to the Walsh trust, and did proceedings then begin towards the end of 1896?—Some months after that.

The proceedings that you refer to commenced after you got a letter revealing for the first time that Father O'Malley was spending the Eliza Walsh money in Henrietta Street. You didn't know that up to that date?—No.

From the time that Mr. Lowey's plans were submitted to you was any other plan or estimate laid before you for your approval by Father O'Malley?—No other plans were laid before me but Mr. Lowey's at any time—I must correct that statement. Before Mr. Lowey's plans were produced, at a very early stage in the transaction, Father O'Malley had got plans for a church from a well-known Dublin architect, Mr. Hague. He brought these plans to me, and I approved of them. But that fell through somehow. That was before Mr. Lowey came on the scene. This was long before the interview of April 29.

On December 6 he clearly defines his position. "So far as my intentions are concerned, I will build no church but the one designed by Mr. Lowey. The old house, which is no good to me, must be removed completely first of all, and I must have absolute control of everything connected with the raising of the new building, this either from you or Propaganda. Otherwise there will be no church in my time." Up to the present time, until this case came into court, did you ever hear a suggestion that the sanitation of this house was such that it could not be used for a presbytery?—Oh, never.

Did the correspondence continue off and on practically during the year 1897 without practically anything being done?—It did.

Mr. Henry: You also got a letter offering to allow you to build the church, but that matter was to be subject to his (Father O'Malley's) control?—Yes; he proposed an alternative arrangement—that either I should allow him to build on Mr. Lowey's plan or that I should take over the obligation for the church myself, in which case I should build the church subject to his (Father O'Malley's) approval.

I want to ask your Grace some questions with reference to the law of the Church on the subject. With reference to building a church in a parish, what is the duty of the parish priest before he begins building?—His duty is to get the permission of the bishop of the diocese.

It has been suggested by Father O'Malley that that is a modern provision dating from the Synod of Maynooth?—He is completely wrong in that. It is the law of the Universal Church; it is the Canon Law that no church can be built in any diocese without the leave of the bishop.

Quite apart from any legislation of the Synod?—Yes. The universal statute law of the Church, the Sixth Book of the Decretals, contains a most express Canon on this subject. The particular decretal that I refer to was made in the time of Boniface VIII., who was Pope in the reign of Edward I., who was, I believe, a great lawyer also.

Is the bishop under any obligation to approve of the plans when submitted to him, or is it a matter for his discretion?—It is a matter for his discretion. His duty is to act reasonably and prudently; on that matter, as in all other matters of the kind, there is an appeal from the bishop to the archbishop, and from the archbishop to the Holy See.

And in the requisition that you made with reference to the submission of plans to you and the other requirements, were you acting in accordance strictly with the Canon Law and with the statute of Maynooth?—Yes; on two grounds. First, as regards the general Canon Law, there is an express injunction that the bishop shall not approve of any church without seeing that sufficient provision is made for the endowment and for the requirements of religious worship in the place. As the only endowment that we have in Ireland are the offerings of the faithful, it is under modern conditions the duty of the bishop to see that the cost of the church shall not exceed what the resources of the parish can reasonably be expected to bear.

And was it in pursuance of that duty that you called for the estimates from Father O'Malley?—Yes; under the regulations of our Synods it is necessary to have the plans of the church approved of by the bishop before any progress is made in the work, before the bishop lays the foundation-stone of the

church. Under the statutes both of Thurles and Maynooth it is the duty of the parish priest to submit the plan of the church for the approval of the bishop.

Is there a diocesan regulation in the Archdiocese of Dublin on the subject?—There is a diocesan regulation issued in conformity with the regulations of Maynooth. I can only speak for my own time in this, but I have no reason to suppose that my practice has not been the practice of my predecessors. In no case have I ever given sanction for any ecclesiastical building of a large character, especially a church, unless the plans were submitted to me in the first instance.

And a considerable number have been built in your Grace's time?—A considerable number of churches, schools and presbyteries; and this has been the only case in which there has been any difficulty such as has arisen here.

Mr. Justice Madden, in the course of his charge to the jury, said:—Here was a poor parish, and here was a nice nest egg for a new church, 8,000*l.* One would think nearly enough, but His Grace would go to 15,000*l.* or 20,000*l.* The jury did not live in the moon, and they knew that St. Agatha's was not a very wealthy parish. He really agreed with a great deal in the very eloquent speech of Mr. Chambers about enthusiasm. It had his warmest sympathy; but judges and jurors were most unsympathetic people. They only dealt in pounds, shillings and pence and hard facts. He was bound to say that His Grace had told them that Mr. Lowey's plan was according to Mr. Drew a fine one. He did not know who Mr. Lowey was, or whether his name was in Thom. Perhaps the plans were very fine, but then they worked out to 40,000*l.*, without what Father O'Malley called "trimmings." Now he had had the pleasure to preside on building cases, and there was no greater enjoyment in life. He knew what builders' "trimmings" meant. What was His Grace to do? He was sure Mr. Lowey was a Michel Angelo, and a great man, but his church for St. Agatha's would mean a charge on a poor parish of 50,000*l.*, which at 4 per cent. would mean 2,000*l.* a year, and the evidence was that that 2,000*l.* a year should be paid out of the offerings of the faithful before paying the clergy. Naturally His Grace said such a thing was impossible. The plans might be the finest and noblest, but where was the money to carry them out? Was it unreasonable on the part of His Grace if he did withdraw his consent to raise money for such a project? It was for the plaintiff to prove that. The onus rested with him. The whole business was an unfortunate illustration of the truth of the lamentable consequence of a business transaction being carried out in an unbusinesslike way.

The jury found for the defendant, and expressed the desire that the scheme for building the church might be carried out.

The evidence has been taken from the verbatim reports in the *Freeman's Journal*.

Mr. Lowey has written the following letter:—

Colonial Chambers, 62 Dame Street, Dublin:

May 6, 1903.

In to-day's report of the above case it would appear that some well-meant but ill-considered letters were referred to, which had been written by Father O'Malley to His Grace relative to me, for which I venture to say public opinion will not hold me responsible. So far from pressing my services on Father O'Malley in this matter, it was only when he had again and again requested me to make a sketch design for the church that I agreed to do so. One outrageous and lying statement was made which I cannot allow to pass; I was referred to as a gangster. I most emphatically deny that I was ever engaged in such a capacity, and hurl back the base and unfounded assertion with the contempt it deserves. I further defy any of the maligners to prove the most infinitesimal stain upon my character, either moral or otherwise. I never stated that I was architect for Findlater's Church; neither was I clerk of works, although I have filled a similar position on many works of greater magnitude.

For the enlightenment of any who may still doubt the fact of my being a qualified architect, I beg to say that I served my articles in the office of an eminent Northern architect some fifty years ago with satisfaction to my master and honour to myself. Although so many years have intervened, fortunately the document is still preserved, and can be inspected by the incredulous. I fail to see why my name should be dragged up again in this action, as I had determined several years ago to have nothing further to do with the church in question.

Kindly give place to this letter in to-morrow's issue, where it can be read with the report of the case, and oblige,—Yours faithfully, Edward S. Lowey.

P.S.—I have just observed an additional series of mis-statements relative to me in connection with numerous public buildings at home and abroad, some of which I had not even heard of until now. I have been engaged on many competitions. Amongst others, two large fever hospitals—one at Tooting, the other at Hither Green, London. Probably it was to either of those Father O'Malley alluded. Finally, on looking over Thom's Directory of 1895, I find my name "does" appear, practising then as now at 62 Dame Street.—E. S. L.

RESTORATION OF THE TEMPLE CHURCH

IN an article on the restoration of the porch and turret on the north side of the Temple Church, which is to be directed by Mr. Jackson, R.A., the *Standard* says:—

The danger of the porch is evidently due to the imperfection of modern stonework. The magnificent Norman doorway—with its groined mouldings and half-length figures in bas-relief, three of which may or may not be intended for Henry II., his Queen, and Heraclius, the Patriarch of Jerusalem—stands, barely touched by time, as sturdily as of the day when it was built. It may require a touch or two here and there, but, as a whole, it bears remarkable witness to the honesty of the ancient masons. But the arches of the porch do undeniably need support of some sort, and that because of the friable nature of the stone used on them within the last sixty years. The ecclesiastical restorers who came before, Scott meant well, but in many instances they seem to have been most unfortunate in their contractors. Their handiwork about the Temple Church—to go no further back than the beginning of the last century—comprised a general repairing, commenced in 1811 through the energy of the Master, Thomas Rennell, who was also Dean of Winchester and the son-in-law of Blackstone; the more important efforts of 1825 and onwards, when Sir Robert Smirke renewed the whole south side and the lower portion of the Round; and, finally, the active period from 1840 to 1845, when his brother, Sir Sydney, and Decimus Burton directed operations. The results of the last spell of architectural industry are familiar in the conical roof over the Round, an original feature replaced by a happy inspiration, and in the pleasant marigold window revealed above the porch, not to mention the lowering of the floor and the removal of much barbaric plaster and paint from the columns. The porch itself was freed about this time from encumbrances, the bare existence of which seems almost incredible in these days of ecclesiastical propriety. Travellers in Italy are not unfrequently aghast to perceive some exquisite interior, adorned by priceless frescoes, in constant peril from a collection of crazy cottages huddled under the outside walls. But the Temple Church, particularly at the west end, must have made the thoughtful grieve, with even more urgent cause, for its liability to destruction. The porch, a survival of the old cloisters which perished in the fire of 1678, actually had a house imposed upon it somewhere about 1700, completely blocking the marigold window from view. Another edifice stood against the northern arch, with a stationer's shop cheek by jowl with it, and even underneath the roofing. The firm, whether known as Penn & Lloyd or Lloyd & Gibbons, appear to have been regarded by the Inner Temple as most desirable tenants for considerably over a century. Both inns seem, indeed, to have clung tenaciously to various small buildings which nestled under the church; thus the upshot of a vigorous dispute between them in 1634 was merely the removal of a cottage inhabited by a seamstress. Fortunately an ampler public spirit prevailed in the nineteenth century, and though the Benchers may have been victimised by their subordinates in the work of restoration, they did not grudge expense. Britton, the well-known author of the "Architectural Antiquities of Great Britain," writing in 1807, felt constrained to admonish them that "whereas the patriotic conduct of some public societies is entitled to general panegyric, the niggardly procedure of others provokes our astonishment and censure. As the societies of the Middle and Inner Temple are equally interested in the stability of their public buildings, we are surprised that they do not remove the several petty shops which are built against the sides of the church, and which not only disfigure the building, but are injurious to its walls and foundations." He handsomely added, however, in a later edition, that he perceived an earnest of better things in the appointment of Mr. Smirke, and by the time that the era of reconstruction was over both inns had certainly dipped deep into their treasures. The repairs of 1825 and the following years cost upwards of 35,000*l.*; those begun in 1840, on a modest estimate of some 3,000*l.*, entailed in the end the disbursement of 53,000*l.*

The weather-beaten turret, with its somewhat dumpy spire, has assumed a deceptive appearance of antiquity. It does not figure at all in the prints of the Temple Church published during the first half of last century, and it is absent from the elaborate ground plan supplied by Bond to Britton's portly volumes. It belongs, therefore, to the Smirke period, as we may call it, and though it exhibits a certain feeling for twelfth and thirteenth-century taste, it cannot be regarded as other than an excrescence when architecturally regarded. The turret, nevertheless, may be considered to justify its existence by its usefulness. Originally, the bell or bells of the Temple Church hung, beyond all question, under the Round. A steeple was subsequently built for them, and in it they had become so cracked and useless by 1675 that John Playford, the clerk of the church, felt it incumbent upon him to petition the Benchers that the two should be cast into one. As he observed in the temper of a true economist, the process ought to produce an

excellent bell that would be "heard into all the courts belonging to both societies."

The Temple Church has been, on the whole, most fortunate in those who have used chisel or trowel upon it. Even during the Commonwealth period, when many ecclesiastical buildings went to ruin, the Benchers were careful to keep it in good repair. Earlier still, the doughty Dr. Micklethwaite, as became a staunch supporter of Laud, succeeded in effecting the minimum of change in the Puritan direction, though he could only carry his point by keeping the doors locked and the keys in his pocket. The real time of neglect, as distinguished from the reign of bad taste, exemplified in the seventeenth and eighteenth centuries by the erection of shops without and the application of whitewash within, was that of the Restoration. It was then that the worthy Playford complained not only of cracked bells, but of a rotten pulpit, and of doors in the screen so decayed that the chest with the Communion plate should be considered very insecure. But by 1682 Sir Christopher Wren, in conjunction with Grinling Gibbons, had been commissioned to renew the woodwork, and the building was repaired at the same time from end to end. The Temple Church has, indeed, exercised its inevitable fascination even upon many eminent lawyers who have not been considered exactly conspicuous for their piety, and secured their enthusiastic services. Judge Jeffreys, for instance, devoted much patient attention, and according to one story, musical knowledge as well, to the settlement of the rival claims of "Father Smith" and Harris to supply a new organ, having been called in as arbitrator, after trials of skill lasting over a twelvemonth had failed to determine the matter. Similar patriotism would, no doubt, be forthcoming again, even if projects so extensive took shape as the reconstruction of the fine chapel of St. Anne, which formerly stood on the south side of the church at the junction of the Round with the choir, and which, after it had been degraded to secular uses by the Fines Office, perished nobly in 1678, when it was blown up by gunpowder to save the main fabric. But the experiment of building a fresh adjunct, the last fragments above ground of which disappeared nearly a hundred years ago, would be very hazardous, and its advocacy has never emerged from the purely sentimental stage. The vast majority of the members of the inns and of the public outside them are well content, in all probability, with the policy of wise conservatism pursued by the Benchers.

ARCHÆOLOGY IN NORFOLK.

AT the annual meeting of the Great Yarmouth committee of the Norfolk and Norwich Archæological Society Mr. E. M. Beloe, jun., delivered a lecture upon Norman fonts in Norfolk. The lecture was illustrated by a series of photographic slides. The first slide was a map of the county showing the districts covered by the lecturer, including the churches of Burnham Deepdale, Hunstanton, Fincham, South Wootton, Castle Rising, Great Snoring, Ingoldisthorpe, Shernborne, Sculthorpe, Bagthorpe and Toftrees. The Burnham font was a most interesting object, and bore representations of the twelve months of the year, which were depicted by means of figures engaged in agricultural pursuits. The lecturer exemplified the influence of Byzantine art upon western craftsmanship by means of a series of slides, illustrating Norman work which he had photographed in the Eglise aux Dames at Caen. Each of the four sides of the font at Fincham bears scriptural subjects. That on the north is the Temptation, in which are depicted Adam and Eve and the serpent; that on the east the three Magi, robed in Eastern costumes; that on the south the Nativity; typified by the manger, ox and ass's head, and by a large flaming circle representing the Star of the East, very similar in design to that on the Franks casket in the British Museum. On the fourth side is illustrated the rite of baptism, depicted by a man immersed in a square font, with above a figure of the dove, emblematic of the third Person in the Trinity. At Hunstanton the font is plain and uncarved, but well-proportioned and having the original legs. That at Great Snoring is also a plain specimen. South Wootton font differs from all other specimens illustrated in its bold design. It bears on its four corners monster grotesque heads, and it is supported by nine legs. The fonts at Sculthorpe, Toftrees and Shernborne were very similar in their designs, and the lecturer placed upon the screen a diagram in which were collected the various geometrical patterns carved upon these fonts, in order the better to compare them and to prove that they must probably have been the work of the same artist. Additional curiosity was aroused on the subject by another slide prepared from a textbook on Byzantine art which showed precisely the same pattern. Symbolical scenes and scriptural subjects are to be found only upon two other fonts in the series dealt with. On one side of Sculthorpe font is the Adoration of the Magi, and on that of Shernborne is an unusual representation of the Temptation, in which instead of Adam and Eve being on either side of a tree, and Eve receiving the apple

from the serpent as at Fincham, the figures of Adam and Eve are almost hidden in the foliage of the tree. Ingoldisthorpe font was originally a square one, but is now a specimen of Mediæval vandalism, the corners having been hewn off to form an octagon, this having evidently been done in the Perpendicular period when the Seven Sacrament fonts were so common. Of these octagonal fonts the lecturer, parenthetically, showed slides of two specimens; Walsoken and Cley-next-the-Sea. Throughout the series, Mr. Beloe observed, there was a total absence of representations of fabulous monsters such as appear upon fonts of this period in other counties, which bear mermaids, as upon that of St. Peter's at Cambridge, and Sagittarius, as on that of Hook Norton, Oxon. The lecturer drew attention to the artistic feeling which was characteristic of the whole series of fonts, particularly those of Shernborne, Toftrees and Sculthorpe, and all bore treatment very different from the rude and crude Norman work found in other parts. Throughout the lecture Mr. Beloe impressed upon his hearers the curious manner in which scriptural representations were stereotyped, some of them, as those of the Temptation and the Adoration of the Magi, being found upon glass vessels and sarcophagi discovered in the Catacombs, and upon the high crosses of Ireland.

The Chairman offered a hearty expression of thanks to Mr. Beloe for his interesting lecture, and for his entertaining and instructive exhibition of photographs. To those who, like so many of them, had to study architecture and archæology at home, it was very delightful to have had an opportunity of accompanying Mr. Beloe in his pursuit of so fascinating a subject amongst the Norfolk churches.

Mr. Beloe, in acknowledging the vote, said that he was glad if his effort had been rewarded by securing their interest. He had at any rate shown them that there was much to be done in the way of illustrating the rich fund of archæological subjects of their county by means of photography, and he hoped he had demonstrated to many of them that it was perhaps better and more profitable to take photographs of churches than only of hedges.

TESSERÆ.

The Purpose of Art.

THE artist's business is to give, by any means, however imperfect, the idea of a beautiful thing; not by any means, however perfect, the realisation of an ugly one. In the early and vigorous days of art she endeavoured to praise the saints, though she made but awkward figures of them. Gradually becoming able to represent the human body with accuracy, she pleased herself greatly at first in this new power, and for about a century decorated all her buildings with human bodies in different positions. But there was nothing to be praised in persons who had no other virtue than that of possessing bodies, and no other means of expression than unexpected manners of crossing their legs. Surprises of this nature necessarily have their limits, and the arts founded on anatomy expired when the changes of posture were exhausted.

Angevin Churches.

The Angevin style is altogether rather curious than beautiful. The main difference between Mediæval and Classic art is commonly said to be that the one follows the multiplying, the other the magnifying principle. A Gothic building, and to some extent a Romanesque building also, is composed of a vast number of small parts, of tall and narrow divisions, stages on stages, ranges of arcades and windows one over another. An Angevin nave altogether forsakes this principle. It consists of a few large members instead of many small ones. The usual threefold division of height and of width is lost. Instead of nave and aisles, we have one enormously wide body. Instead of pier-arch, triforium and clerestory, instead of the soaring pillars of many churches where the triforium is left out, an Angevin elevation consists of a broad sprawling arch, with its imposts remarkably near the ground, and over it most probably a couplet of windows, of the form usual in the later Romanesque style, but of extraordinary size. There may be tastes to which these seem elements of grand simplicity, but they seem little more than an elaborate mode of destroying the effect of the building in every way. A single body of this extraordinary breadth must have extraordinary height to match or it will look positively low.

Established Types in Egyptian Art.

According to a passage in Synnesius, the profession of an artist was only allowed to be exercised by persons properly qualified, lest in ignorance they should transgress against the old laws which regulated the representation of the gods and sacred subjects. Plato also says the artists were not allowed to innovate, "hence the art remains the same, the rule of it the same." This, then, may be taken as the real cause of the

ong duration of Egyptian art under its peculiar form or style. Some stress has been laid on the recorded fact that: the Egyptians were ill-favoured in point of personal attractions, and that they were without the advantages enjoyed by the Greeks of having public games and exercises. But even if these statements of the want of beauty among the general population are trustworthy, they are insufficient to account for the stationary condition of their sculpture. The true ground of the unprogressive character of their art as regards its style is found in the nature of their institutions. That the Egyptians were not incapable of conceiving an ideal of beauty is shown in some of the heads of colossal and other statues that have reached us, where within the limits to which we have adverted a very decided character of beauty of expression and even of form is met with.



Statutory Registration of Qualified Architects.

SIR,—This subject has been under consideration in this country for upwards of twenty years, and whilst the general body of the profession have been in favour of the principle of statutory registration, side issues have from time to time been raised that have prevented the attainment of the main object.

Feeling that this was the case, a circular was recently issued only to fully recognised members of the profession, asking in each case for their individual approval or disapproval of the principle of the statutory registration of duly qualified architects.

The response has been most gratifying to the supporters of the principle. Something like two-thirds of the entire profession have responded, numbering thousands; and of these, only 168 are against registration, and all the remainder for it. A considerable majority of members of the Royal Institute itself are in favour, and most of its allied provincial societies almost unanimously so. Of the remainder of the profession, some are too distant to reply in time, others do not take the trouble to reply at all, but personally express themselves to be in favour of the movement.

With these facts before me, as one who signed the original circular letter, I ventured at the annual meeting of the Royal Institute of British Architects to question the wisdom of the attitude assumed by the Council of this body, as expressed in the circular issued by them to the Allied Societies in the provinces. I was supported in my contention to the extent of being nominated there and then, directly from the meeting, for a seat on the Council, so that all provincial and other members might have the opportunity of officially recording their verdict upon the subject by voting in support of my candidature if they desire registration and against it if they do not.

It is for the purpose of explaining precisely how matters stand that I issue this circular. I have no quarrel with the Council of the R.I.B.A., nor with any of its members. I recognise that they have a right to their opinions on this or any other question, as much as I and those who think with me have a right to ours. And it is only when they give quite a different rendering to what I believe to be the general wish of the profession, and say that they do so in their representative capacity, that I join issue, and place my services at the disposal of my professional confrères, that the question may be fairly tested.

So that the issue may be quite clear, I beg to announce myself as a strenuous advocate for the statutory registration of properly qualified architects. The details I do not attempt to go into at present, nor is it necessary; but when they have to be considered, I desire that the Royal Institute shall have the chief place assigned to it, in the consideration and promulgation of them.

Upon this issue I ask for the vote and interest in my candidature of every Fellow and Associate who desires to give the subject of registration their active and practical support.—I am, Sir, yours faithfully,

SILVANUS TREVAIL, F.R.I.B.A.

Palace Chambers, Westminster, S.W.:

May 14, 1903.

GENERAL.

Mr. James Guthrie, R.S.A., has received a knighthood in connection with the King's visit to Scotland. He was born in 1859 at Greenock, and has been a frequent exhibitor at principal exhibitions in Great Britain and on the Continent. He was made an Associate of the Royal Scottish Academy in 1888, and four years later was elected an Academician, being the first of the young Glasgow artists to be so honoured. He

succeeded Sir George Reid in the presidency of the Academy this year.

The Prince and Princess of Wales, as a result of their inspection of the collections of Irish marbles and building-stones exhibited at the Imperial Institute by the Department of Agriculture and Technical Instruction for Ireland, have ordered some columns of Irish marble for the decorations of Marlborough House. The marbles are Connemara or Irish green, Galway black, Irish grey (Cork), Sunset (Middleton) and Clonowen Fossil.

An Exhibition of works in ivory is about to be opened in the Musée Galliera, Paris. One of the purposes of the display will be the revelation of the best examples by the carvers of Dieppe. Several sculptors who employ ivory will also contribute.

The King of the Belgians has conferred the distinction of Officer of the Order of Leopold upon Lord Balcarras, M.P., F.S.A., Mr. Isidore Spielmann, F.S.A., and Mr. James H. Weale, for their services in connection with the Exhibition of Early Flemish Art recently held at Bruges under the auspices of the Belgian Government.

M. Rodin has completed the model of the memorial of the late Puvis de Chavannes, and the committee, on which there are several painters, have approved of it.

The French Commission for the Reconstruction of Hospitals has appointed a sub-committee to investigate the question, "Whether it will be necessary to institute special hospitals for cases of tuberculosis, similar to that built at Brévannes, or whether it will be sufficient provision to build in the new hospitals isolated pavilions reserved for such cases."

Mr. John Temple Leader, of Florence, has bequeathed to the committee of the Association "Per Erigere la Facciata del Duomo di Firenze," for the central door in bronze, 7,200*l.*; and it was his request that the inscription, the conjoint gift of Giovanni and Luisa Temple Leader, with their coat of arms, should be inscribed on the central door of the Duomo.

A Petition has been presented to the Legislature of Massachusetts, U.S.A., praying that the standard dimensions for face bricks shall be fixed at 8 $\frac{3}{8}$ by 4 $\frac{1}{4}$ by 2 $\frac{1}{4}$ inches, and for common bricks 8 $\frac{1}{4}$ by 4 by 2 $\frac{1}{4}$ inches.

The International Society of Sculptors, Painters and Gravers have elected the following Associates of the Society:—M. Bauer, A. K. Brown, C. H. Shannon, William Strang and William Witsen.

Mr. Percy Fitzgerald, F.S.A., designed and modelled the memorial to Cardinal Manning which has been set up in the church of Corpus Christi, Maiden Lane. It is a large tablet of rouge royal marble, with a profile and other decorations in gilt copper.

The Visit paid on Saturday last by the members of the Architectural Association to the new Gaiety Theatre was a record one in point of numbers, there being close on 200 members present, who were courteously received by Mr. Ernest Rüntz, the architect of the building.

The Birmingham City Council resolved on Tuesday, by fifty votes to fifteen, to take over the tramway system at the expiration of the present leases, the last of which falls in in 1911, and consequently to reject the offer to lease put forward by the British Electric Traction Company.

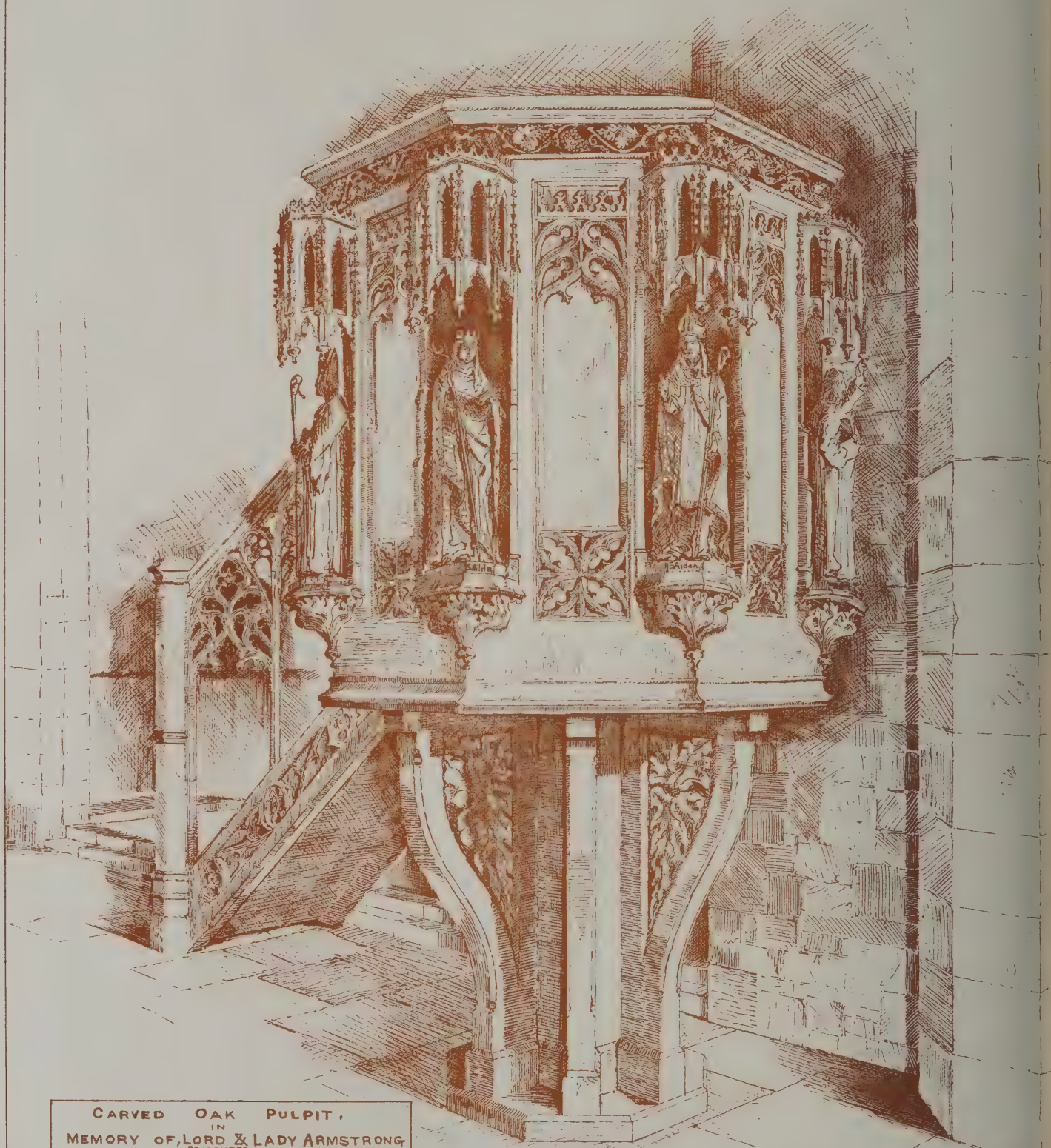
Mr. W. H. Patchell, member of the Council of the Institution of Electrical Engineers, has been appointed by the Home Secretary a member of the committee to inquire into the use of electricity in mines, in the place of Mr. James Swinburne, resigned.

A Canadian National Exhibition is to be held this summer in Toronto. The Dominion Government have made a grant of 50,000 dollars, and it is expected that the Government of Ontario will also vote a large sum. This promises to be the largest exhibition ever held in Canada, and it is hoped that the visitors from the British Houses of Parliament, in whose honour the Government of Ontario is arranging a reception at the Parliamentary Buildings in Toronto, will, on the day following, pay a special visit to the exhibition. The city of Toronto last year made a large grant of money for the erection of buildings of a permanent character, including a new art gallery, a dairy building, and one for manufactures and liberal arts. Altogether, it is estimated the city will spend a million dollars on the exhibition.

The Trial respecting the ownership of the Irish gold ornaments, purchased a few years ago for the British Museum, will probably begin on June 11. The leading counsel for the Government against the Trustees is likely to be the Solicitor-General, Sir Edward Carson.

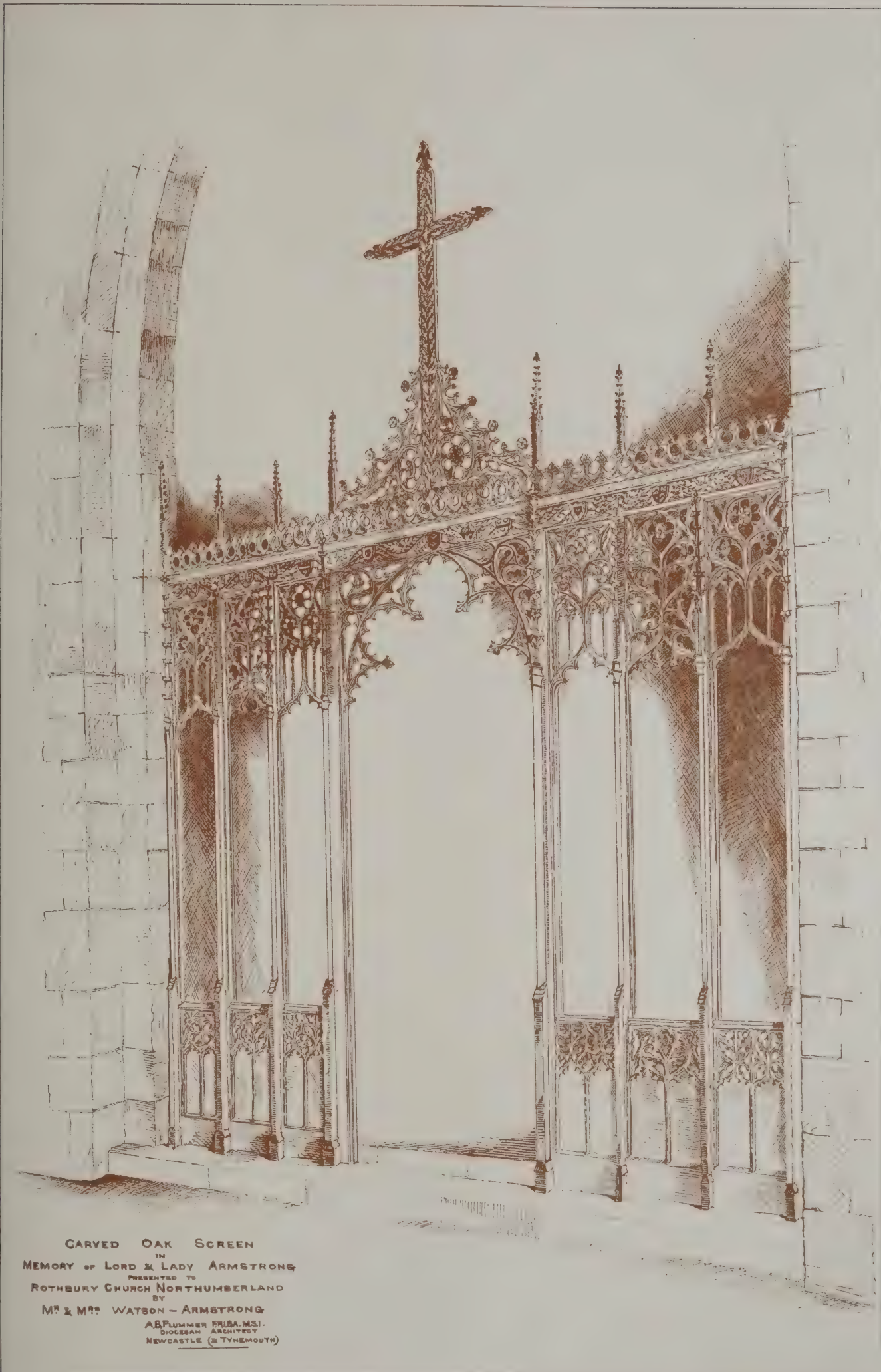
The Lord Provost of Edinburgh has been created a baronet. Sir James Steel is a native of Cambusnethan, Lanarkshire, but started business in Wishaw as a builder and became a member of the Police Commission there. Going to Edinburgh thirty-five years ago he engaged largely in building and other contracts.





CARVED OAK PULPIT,
IN
MEMORY OF, LORD & LADY ARMSTRONG
PRESENTED TO
ROTHBURY CHURCH, NORTHUMBERLAND
BY
MR & MRS WATSON - ARMSTRONG,

A.B. PLUMMER, F.R.I.B.A. (M.S.),
DIOCESAN ARCHITECT,
NEWCASTLE & TYNEMOUTH.

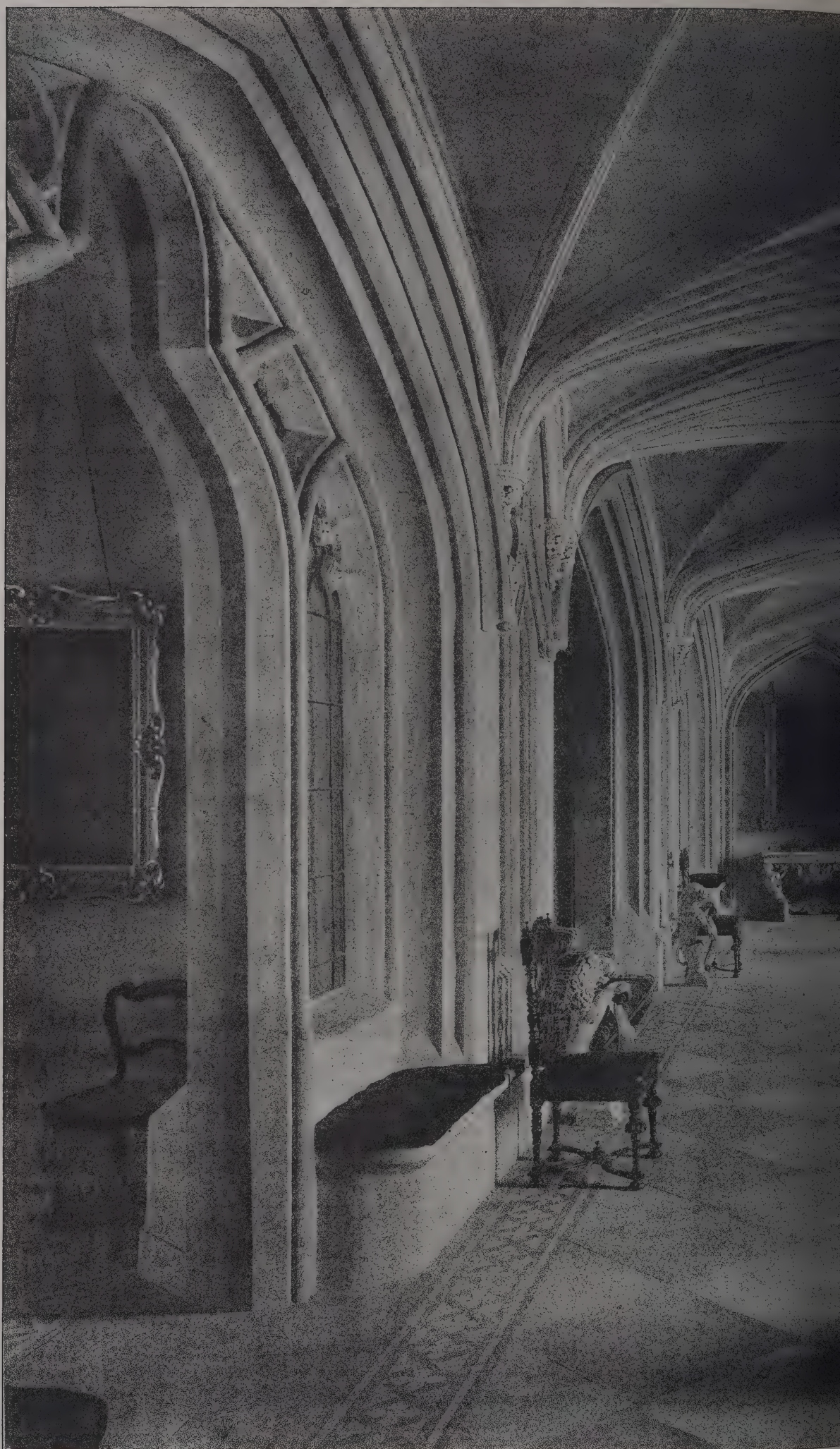


CARVED OAK SCREEN
IN
MEMORY OF LORD & LADY ARMSTRONG
PRESENTED TO
ROTHBURY CHURCH NORTHUMBERLAND
BY
M^{rs} & M^{rs} WATSON - ARMSTRONG
ABPUMMER FRIARS MS.
DIOCESAN ARCHITECT
NEWCASTLE (& TYNEMOUTH)



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W. HARGREAVES BOURNE, A.R.I.B.A., Architect.



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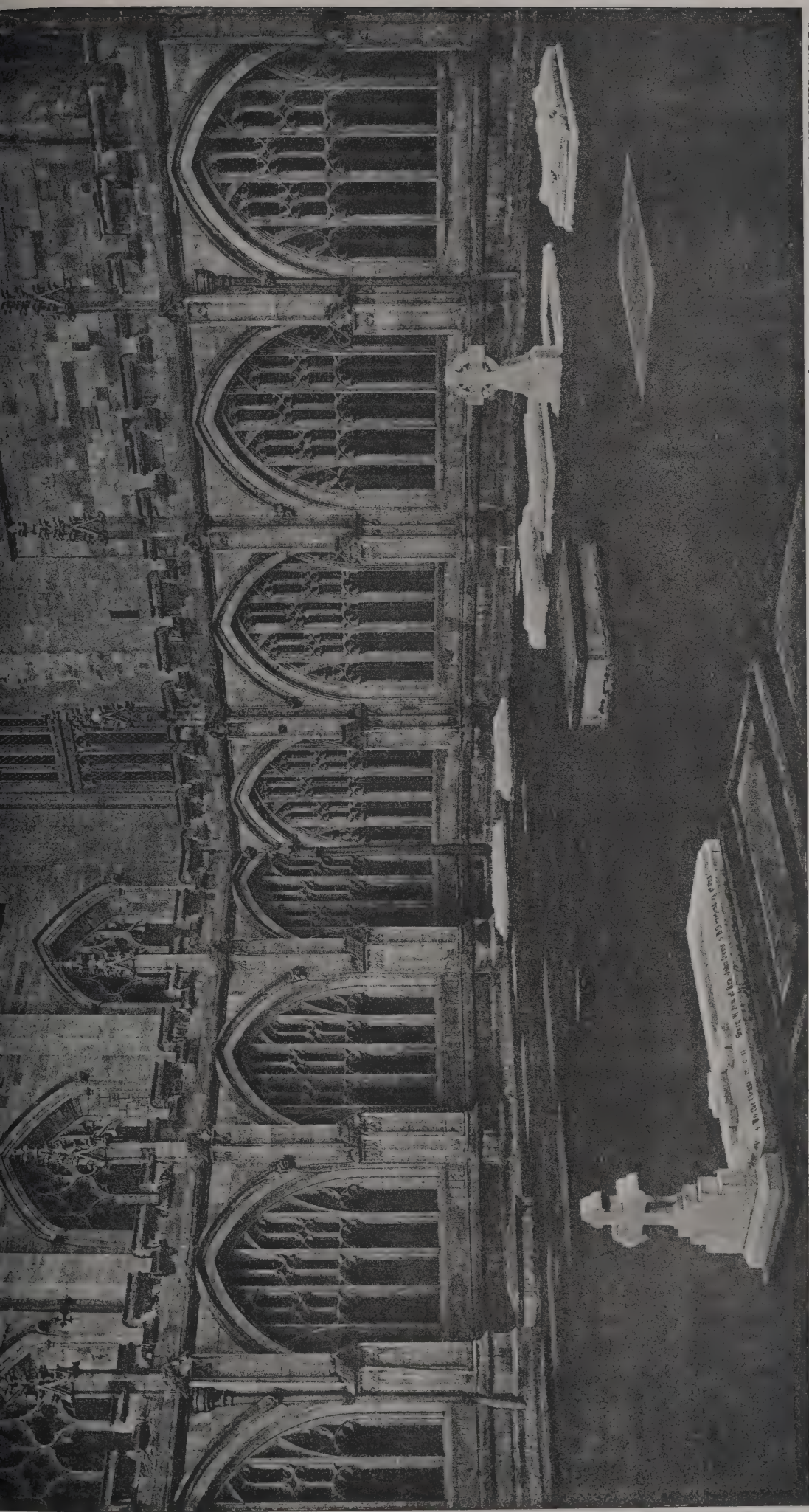


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THE ENTRANCE HALL.

The Architect, May 15th 1903





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THE
Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

IRELAND.—June 18.—The Trustees of the Limerick free library and museum invite designs from architects in independent practice for the proposed Carnegie library and museum to be built in the People's Park, Limerick. Prizes of 75*l.* and 25*l.* respectively will be awarded to the designs placed first and second in the competition. Mr. W. M. Nolan, town clerk, Town Hall, Limerick.

NEW BROMPTON (KENT).—May 30.—Designs and plans are invited in competition for public swimming and slipper baths to be erected in Windsor Road, New Brompton. Three premiums are offered, one of £20 to the author of the design which is considered to be the first in order of merit, one of £10 and one of £5 respectively for the second and third. Mr. F. C. Boucher, clerk, New Brompton, Kent.

POPLAR.—June 23.—Competitive designs are invited for a public library to be erected in Cubitt Town, Poplar, E. A premium of 75*l.* is offered for the design accepted by the Council, which will be deducted from the architect's commission should he be employed as architect in the execution of the work. Mr. Leonard Potts, town clerk, High Street, Poplar.

WALES.—June 2.—A premium of 20*l.* is offered for the best plan and design for a library at Abergavenny, Monmouthshire. Mr. E. H. Restall, librarian.

CONTRACTS OPEN.

ATHERSTONE.—May 19.—For additions and alterations at the Atherstone workhouse. Mr. J. W. Godderidge, architect, 4 Bolebridge Street, Tamworth.

BANBURY.—May 18.—For the erection of receiving wards at the workhouse, Neithrop. Mr. E. Lamley Fisher, clerk, Union Offices, Banbury.

BARROW-IN-FURNESS.—May 22.—For the erection of Wesleyan chapel, Walney Island, Barrow-in-Furness. Mr. John F. Curwen, architect, 26 Highgate, Kendal.

BARROW-IN-FURNESS.—May 25.—For supplying and fixing the whole of the fittings required in the chemical and metallurgical laboratories and class and lecture-rooms, &c., at the new technical school, Abbey Road. Particulars may be obtained from the Town Clerk.

BATLEY.—May 18.—For additions and alterations to nine houses in King Street, Batley, Yorks. Mr. John H. Brearley, architect, Branch Road, Batley.

BIRMINGHAM.—May 18.—For additions to the kitchen and sculleries at the workhouse infirmary, Dudley Road, Birmingham. Mr. W. H. Ward, architect, Paradise Street, Birmingham.

BRADFORD.—May 18.—For the erection of Wibsey Board school; the erection of playsheds, Thackley Board school; alterations to Thornton Board school; alterations to Otley Road Board school; and drainage and ballasting of playgrounds, Horton Bank Top Board school. Mr. Tho. Garbutt, clerk, School Board Office, Manor Road, Bradford.

BRADFORD.—May 19.—For widening Church Bank, Bradford. Mr. J. H. Cox, city surveyor, Town Hall, Bradford.

BRADFORD.—May 22.—For the erection of shop and dwelling-house, with stabling, &c., at Oakenshaw, near Bradford. Mr. Medley Hall, architect, 1 Harrison Road, Halifax.

BRADFORD.—May 23.—For the erection of a shop and house, High Street, Great Horton, Bradford. Mr. Sam Spencer, architect, Old Bank Chambers, Great Horton, Bradford.

BRENTFORD.—May 19.—For the erection of a free library building in Clifden House grounds, Boston Road, Brentford. Mr. Nowell Parr, architect, Clifden House, Boston Road, Brentford.

CANTERBURY.—May 20.—For alterations to premises in the Parade. Mr. Arthur C. Turley, city surveyor, Guildhall Street, Canterbury.

DARLINGTON.—May 21.—For the erection of an infants school for 290 children in Corporation Road. Mr. G. Gordon Hoskins, architect, Court Chambers, Darlington.

DIPTON.—May 18.—For the erection of one self-contained and two tenemented houses at Dipton, Durham. Mr. George Nicholson, contractor, Dipton.

EGREMONT.—For the erection of a large engine-pillar and engine-house at Oregill, Egremont, Cumberland, for the Wyndham Mining Company, Limited, High Mill, Egremont.

EGREMONT (CHESHIRE).—May 20.—For the erection of an engine and boiler-house, together with foundations for engines and boiler, and other work at Seacombe Ferry. Messrs. Wood & Fowler, engineers, 3 Cook Street, Liverpool.

GLASS HOUGHTON.—May 18.—For extensions and alterations to Board school, Glass Houghton, Yorks. Mr. R. M. McDowall, architect, Carlton Street, Castleford.

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HENDON.—May 26.—For the erection of a newspaper repository for the British Museum. Mr. J. B. Westcott, at H.M. Office of Works.

IRELAND.—For the erection of two priests' houses and offices in Bandon. Mr. M. A. Hennessy, architect, 74 South Mall, Cork.

IRELAND.—May 19.—For additions to the church and school buildings, Dunmurry. Messrs. Young & Mackenzie, architects, Scottish Provident Buildings, Belfast.

IRELAND.—May 20.—For the erection of a dwelling-house at Castletownbere. Mr. M. A. Hennessy, architect, 74 South Mall, Cork.

IRELAND.—May 27.—For additions and alterations to school-house, and fitting work and furniture in connection with technical department. Messrs. J. J. Phillips & Son, architects, 61 Royal Avenue, Belfast.

IRELAND.—June 1.—For the erection of fifteen cottages in Nicholas Street, Limerick. Mr. John F. Power, Carr Street, Limerick.

KEIGHLEY.—May 19.—For the erection of ten dwelling-houses, Bradford Road. Messrs. Barber, Hopkinson & Co., architects, Craven Bank Chambers, North Street, Keighley.

KNIGHTSBRIDGE.—May 26.—For the erection of a post office. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, Storey's Gate, S.W.

LANCS.—For extensions to the Crompton Conservative Club. Mr. Charles T. Taylor, architect, 10 Clegg Street, Oldham.

LANCHESTER.—May 23.—For the erection of house and smithy on Ford Lane, Lanchester. Mr. Thomas E. Taylor, architect, Prospect House, Lanchester.

LEEDS.—May 20.—For the erection of stabling off Kirkgate, Leeds. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

LEEDS.—May 22.—For the erection of a woollen manufactory at Bramley, Leeds. Messrs. John Kirk & Sons, architects, Huddersfield.

LEWISHAM.—May 19.—For the erection of boundary walls, cart-shed, store, &c., on ground at rear of the town hall, Catford. Particulars can be obtained of the Lewisham Borough Council.

LEYLAND.—May 18.—For the erection of new school and alterations to the existing schools at Golden Hill, Leyland,

Lancs. Messrs. Garlick, Sykes & Catterall, architects, 33 Winckley Square, Preston.

LINDAL-IN-FURNESS.—May 18.—For rebuilding the Anchor hotel, Lindal-in-Furness. Messrs. J. W. Grundy & Son, architects, Brogden Street, Ulverston.

LONDON.—May 19.—For erection of Patent Office, Quality Court Block, for the Commissioners of H.M. Works and Public Buildings. Mr. J. B. Westcott, H.M. Office of Works, Storey's Gate, S.W.

LONDON.—May 19.—For the foundations of the new parcel office, Union Street, S.E., for the Commissioners of H.M. Works and Public Buildings. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

LONDON.—May 19.—For the demolition of the Atlas Works, Woodfield Road, Harrow Road, W. Mr. Fras. J. Smith, architect, Parliament Mansions, Victoria Street, Westminster.

LONDON.—May 22.—For structural and other alterations at the town hall, Marylebone Lane, Oxford Street. Mr. J. Paget Waddington, surveyor, Town Hall, Marylebone Lane.

LONDON.—June 24.—For widening and enlargement of Victoria station, for the London, Brighton and South Coast Railway Company. Mr. J. J. Brewer, secretary, London Bridge Terminus, S.E.

LONDON, N.—May 26.—For the erection of fourteen rows of cottage dwellings for the working classes on the White Hart Lane Estate, Wood Green. Particulars at the Housing Section of the Architect's Department, 19 Charing Cross Road, W.C.

MACCLESFIELD.—June 1.—For the erection of a laundry, chimney-shaft and lavatory accommodation at the workhouse. Messrs. Whittaker & Bradburn, architects, 19 King Edward Street, Macclesfield.

MANCHESTER.—May 22.—For the pulling-down of twenty-two cottages in Tame Street, Ancoats, Manchester. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

NEWCASTLE-UPON-TYNE.—May 18.—For the erection of blocks of dwellings for the labouring classes in Walker Road and Albion Row, Newcastle-upon-Tyne. Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley Street, Newcastle-upon-Tyne.

NORTH SOMERCOTES.—May 20.—For the erection of a Wesleyan chapel and schoolroom, &c., at North Somercotes, Lincs. Mr. W. H. Dinsley, architect, Chorley, Lancashire.

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OTLEY.—For the erection of Wesleyan church buildings, lecture-hall and Sunday-school at Otley, Yorks. Messrs. Danby & Simpson, architects, 10 Park Row, Leeds.

PORTLAND.—May 26.—For the erection of a new station at Portland, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

RAMSGATE.—May 25.—For the erection of superstructure of pavilion, shelter, &c., at Harbour Parade. Mr. E. B. Sharpley, town clerk, Albion House, Ramsgate.

REDDITCH.—May 20.—For the erection of a bridge at Dagnall End, Beoley. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath.

ROCHDALE.—May 20.—For repairing and reslating a portion of the retort-house roof at the gasworks. Mr. T. Banbury Ball, the manager, Gasworks, Dane Street.

ROYTON.—May 18.—For the erection of a police station and court-room at Royton, Lancs. Mr. Henry Littler, architect, County Offices, Preston.

SCOTLAND.—May 19.—For the reconstruction of the farm-house on Caputhall, 1½ mile from Livingston station on the Bathgate Railway. Messrs. Dagleish & Bell, 1 Rutland Square, Edinburgh.

SCOTLAND.—May 21.—For alterations and repairs to farm-steading, Wester Alves; the erection of cottages at Wester Alves; and alterations and repairs to farm-house and steading, Wester Alves. Messrs. A. & W. Reid & Wittet, architects, Elgin.

SCOTLAND.—May 23.—For additions to farm offices at Bridgefoot, Wardhouse, Aberdeen. Mr. John Craigen, solicitor, 193 Union Street, Aberdeen.

SCOTLAND.—May 23.—For the erection of joint isolation hospital for the upper district of Banffshire and burghs of Dufftown and Aberlour at Dufftown. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND.—May 25.—For additions to the cottages at Glencorse and Loganlea, Edinburgh. Mr. E. C. Carse, architect, 38 Leith Walk, Edinburgh.

SEIGHFORD.—May 20.—For the restoration of St. Chad's Church, Seighford, Stafford. Mr. W. D. Caröe, architect.

SHEFFIELD.—For the erection of shops and houses at Walkley. Mr. W. J. Taylor, architect, Bank Street, Sheffield.

SILLOTH.—For the erection of business premises at Silloth, Cumberland. Mr. Geo. Armstrong, architect, 24 Bank Street, Carlisle.

SOUTHAMPTON.—May 18.—For erecting the superstructure of the new electricity-supply station on the Western Shore. Mr. R. R. Linthorne, town clerk, Municipal Offices, Southampton.

STOKE GABRIEL.—May 20.—For alterations and additions to the Church House inn, Stoke Gabriel, near Totnes. Mr. W. F. Tollit, architect, Totnes.

TILBURY DOCKS.—May 26.—For the erection of a school for 400 boys and a caretaker's house at Tilbury Docks, Essex. Mr. James Thompson, architect, 12 St. Vincent's Road, Southend-on-Sea.

WALES.—May 18.—For the erection of a cottage hospital at Tredegar, Mon. Mr. E. A. Johnson, architect, Merthyr.

WALES.—May 19.—For the erection of a church in Holton Road, Barry Dock. Mr. Geo. E. Halliday, architect, Cardiff.

WALES.—May 20.—For altering and renovating Bethel Baptist church, King Street, Blaenavon. Mr. Geo. C. Hillard, architect, Market Chambers, Aberthaw.

WALES.—May 21.—For the construction of new lavatories, fire staircases, &c., providing and fixing new eaves, gutters, down spouts and various other works at the workhouse, Bangor Road, Conway. Mr. T. B. Farrington, architect, Trinity Square, Llandudno.

WALES.—May 21.—For the erection of a house and shop at Caerphilly. Mr. Rees Williams, draper, Taff's Well.

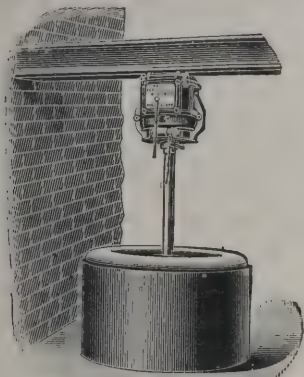
WALES.—May 22.—For the erection of a farm-house at Penymynydd, about two miles from Pyle station. Mr. Howells, Penymynydd.

WALES.—May 23.—For extensions and repairs at Tabernacle chapel, Pontardawe. Mr. Charles S. Thomas, architect, 63 Wind Street, Swansea.

WALES.—May 23.—For the erection of three houses, with outbuildings, boundary and retaining-walls, and alterations and additions to other houses at Hopkinstown, Pontypridd. Messrs. Lewis & Morgan, architects, Pontypridd.

WALES.—June 24.—For the erection of the superstructure and other works for the new lunatic asylum at Whitchurch, near Cardiff. Messrs. Oatley & Skinner, architects, Edinburgh Chambers, Baldwin Street, Bristol.

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WALES.—May 25.—For the erection of forty-two houses at Caerphilly. Mr. G. L. Watkins, architect, Station Terrace, Caerphilly.

WARWICK.—May 18.—For the erection of nurses' accommodation, extensions to wards and a porter's lodge at the Warwick joint hospital. Mr. F. P. Trepess, architect, 1 Church Street, Warwick.

WEST DRAYTON.—For the erection of a steel-foundry at West Drayton, Middlesex. Messrs. Tapp & Jones, surveyors, 1 Prince's Street, Great George Street, Westminster.

WICKHAM MARKET.—May 30.—For stripping-off the old lead, recasting same and repairing and re-covering the spire of Wickham Market Church, Suffolk. Mr. John S. Corder, architect, Wimborne House, Ipswich.

WOOLWICH.—May 21.—For the erection of a public library on a site adjoining 230 High Street, Plumstead. Mr. Frank Sumner, borough engineer, Maxey Road, Plumstead.

WORKINGTON.—May 18.—For the erection of a public library. Mr. W. A. Mellom, architect, City Chambers, York.

WYKE.—May 21.—For the erection of seven houses at Carr House Gate, Wyke, Yorks. Mr. Raymond Berry, architect, Commercial Street, Halifax.

IN honour of the King's visit to Scotland the premises of the leading business houses, clubs and banks in Edinburgh and Glasgow have been decorated by Messrs. Defries. On the occasion of the visit of the Prince and Princess of Wales, Hull was gaily decorated, the principal part of the work having been executed by Messrs. Defries, of London. At Victoria, where the ceremony of unveiling the late Queen's statue took place, an artistic floral canopy was provided beneath which the Prince and Princess took up their position. Velvet drapery fringed with gold hung in graceful festoons from the edge of the canopy, Prince of Wales's plumes being fixed at intervals in the design. The standard supporting the structure was covered with garlands interspersed with Tudor roses. The Hull Exchange, the leading banks, insurance companies and hotels were also decorated by Messrs. Defries, who have quite recently been appointed decorative illuminators to the Prince of Wales in addition to their appointment to H.M. the King.

TENDERS.

ACTON.

For the erection of the Central schools for the School Board for Acton. Messrs. EDWARD MONSON & SONS, architects to Board, Acton Vale, W., and 22 Buckingham Street, Adelphi, W.C. Quantities by Mr. F. T. W. MILLER, Dartmouth Street, Queen Anne's Gate, S.W.

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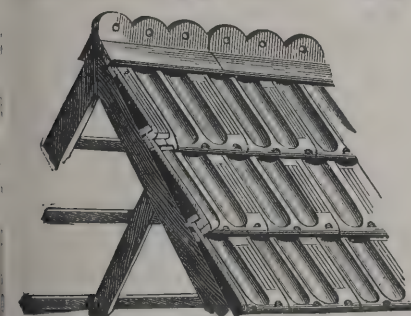
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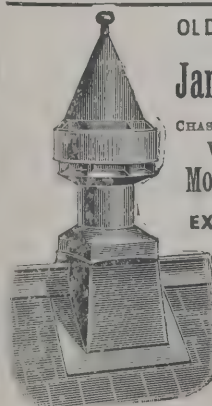
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For the enlargement of Chester Park schools, Fishponds, Bristol.

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G. Daltry	£4,991 0 0
E. Walters	4,060 0 0
S. Williams	3,995 0 0
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J. E. B. James	3,760 0 0
R. Wilkins & Sons	3,649 0 0
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E. Clarke	3,440 0 0
E. Love	3,419 0 0
C. A. Hayes	3,387 0 0
G. Humphreys	3,259 0 0
J. BROWNING, Bristol (<i>accepted</i>)	3,200 0 0

Plumber.

A. W. Hawley	368 0 0
Slade & Bridgman	365 0 0
A. S. Scull	335 10 0
S. H. Pavey	319 0 0
J. E. B. James	319 0 0
A. E. Wilkins	318 0 0
G. F. Tuckey	309 0 0
J. Wilkins & Sons	305 0 0
A. & J. TUTCHER, Bristol (<i>accepted</i>)	302 10 0

BRIDGWATER.

For sewerage works and the construction of a septic tank in connection therewith. Mr. W. A. COLLINS, engineer, 120 West Street, Bridgwater.

Gleed Bros.	£292 9 0
A. Streep	277 11 7
A. Webb	223 0 0
T. Stockham	201 8 0
C. BRYER, Bridgwater (<i>accepted</i>)	175 0 0

CANTERBURY.

For outside painting, &c., at the Beane Institute. Mr. ARTHUR C. TURLEY, city surveyor, Guildhall Street, Canterbury.

J. Dutton	£53 11 0
F. E. Crouch	47 0 0
G. BROWNING, St. George's Place, Canterbury (<i>accepted</i>)	38 10 0

CLACTON.

For the erection of Board schools in Holland Road.

Dupont & Co.	£7,120 0 0
J. T. Ward	7,100 0 0
H. Everett & Son	7,000 0 0
S. F. Halliday	6,967 10 0
H. W. Gladwell	6,875 7 0
Hammond & Son	6,813 0 0
H. Potter	6,725 0 0
F. & E. Davey, Ltd.	6,617 0 0
H. Smith	6,565 0 0
E. West	6,463 0 0
Ellis & Turner	6,460 0 0
Myall & Upson	6,400 0 0
J. MCKAY (<i>accepted</i>)	6,300 0 0

CLEATOR MOOR.

For raising roof, making an additional storey and erecting additional out-premises at 79 High Street, Cleator Moor, Cumberland.

H. Tilbeck	£166 1 4
CHAPPEL & SON, Moor Row (<i>accepted</i>)	154 10 0

DERBY.

For the construction of sewage-disposal works.

J. BYROM, Bury, Lancs (<i>accepted</i>)	£85,473 17 5
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DEWSBURY.

For the erection of two semi-detached residences in Birkdale Road, Dewsbury. Messrs. JOHN KIRK & SON, architects, Dewsbury.

Accepted tenders.

J. Crossley, jun., Crackenedge Lane, mason.
E. Chadwick & Sons, Staincliffe, joiner.
J. Shepley, Northgate, plumber.
T. Brear & Son, Sharpe Street, slater.
E. Richardson, Marriott Street, plasterer.
M. Ramsden, Victoria Road, painter.

EARLSHEATON.

For painting the public lamps and rail fences within the district of the Soothill Nether Council. Mr. H. WARD, surveyor, Earlsheaton, near Dewsbury.

J. Dutton	£38 19 2
J. R. Fozard	16 17 10
E. OLDROYD, Earlsheaton (<i>accepted</i>)	15 15 0

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ESH WINNING.

For the erection of a Wesleyan Methodist minister's house, Esh Winning, co. Durham. Mr. H. T. GRADON, architect, 22 Market Place, Durham.

G. T. Manners	£1,167	0	0
D. D. Hall	1,056	0	0
Draper & Son	1,043	0	0
G. C. Young	1,035	17	6
J. G. Bradley	1,014	0	0
J. ROBSON, Waterhouses (accepted after revision)	940	0	0

HARROGATE.

For plastering two shops, Cold Bath Road, and one cottage in Valley Mount. Mr. JOHN C. CLARK, architect, 42 Station Parade, Harrogate.

F. & W. BARKER, Pannal, Harrogate (accepted) .	£75	0	0
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HOLLINGBOURNE (KENT).

For the repair and erection of way-posts.

W. T. CROUCHER (accepted)	£109	12	9
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HOLLOWAY.

For renovation and repairs to St. David's Church. Mr. EDWARD P. LAYCOCK, architect, 26 Arundel Square, N.

J. Langham	£1,099	0	0
DOVE BROS. (accepted)	595	0	0
Love & Co.	595	0	0
T. Cole	531	0	0

HORNSEA.

For the erection of two shelters at Hornsea, near Hull. Mr. W. E. WARBURTON, surveyor, Public Rooms, Hornsea.

F. Bilton	£285	0	0
H. & W. K. Barr	268	0	0
H. Hulse	261	12	0
J. O. PICKERING, Eastgate, Hornsea (accepted) .	195	0	0

HOUNSLOW.

For the construction and sewerage of six roads on the Warren estate. Mr. W. A. DAVIES, engineer, Town Hall Chambers, High Street, Hounslow.

R. SWAKER, Whitton (accepted)	£4,813	8	0
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Huddersfield.

For the erection of twenty-three dwelling-houses in Longwood Gate and Prospect Street, Longwood. Mr. J. BERRY, architect, 3 Market Place, Huddersfield.

Accepted tenders.

J. Haigh & Sons, Golcar, mason.
C. Ainley, Crosland Moor, joiner.
T. Armitage, Huddersfield, plumber.
J. Walker & Sons, Slaithwaite, plasterer and painter.
Pickles Bros., Huddersfield, slater.
J. E. Dyson, Lindley, concreter.

Hyde.

For taking-down and rebuilding the Queen's hotel. Messrs. JOHN EATON, SONS & CANTRELL, architects, Stamford Street, Ashton-under-Lyne.

Accepted tenders.

S. Robinson & Sons, Hyde, near Manchester, builder.
G. H. Coop, Ashton-under-Lyne, plumber, painter and glazier.

IRELAND.

For painting the workhouse, Stranorlar.

J. McManus, Letterkenny	£29	0	0
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KING'S LYNN.

For repairs and constructing new roofs at the Lynn Arms, Setch, King's Lynn. Mr. HERBERT TILSON, architect, 16 Railway Road, King's Lynn.

Bardell Bros.	£128	0	0
M. Bone	126	15	0
Tash, Langley & Co.	120	0	0
E. Knappe	110	0	0
J. W. Collins	108	0	0
R. Melton	100	0	0
J. Medwell	93	10	0
Lawn & Allflat	87	8	6
S. Thurston	85	0	0
A. F. FOREMAN, King's Lynn (accepted)	82	4	0
W. F. Smith (withdrawn)	79	0	0

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Harvey, Conie & Co.	415	0	0
C. G. Jones	250	0	0
E. Antill & Sons	250	0	0
E. Mills	245	0	0
J. Burke	227	0	0
F. Glanfield	215	0	0
R. Athey	193	10	0
J. MITCHELL, Deptford (accepted)	170	0	0

LOWER CUMBERWORTH.

For pulling-down and rebuilding the Foresters' Arms inn, Lower Cumberworth. Messrs. J. B. ABBEY & SON, architects, 34A New Street, Huddersfield.

Accepted tenders.

- H. Wood, Shepley, mason.
J. Holmes & Sons, Denby Dale, joiner.
G. Lindley & Sons, Shepley, plumber.
T. Longbottom & Sons, Lockwood, plasterer and slater.
J. Macdonald, Denby Dale, painter.

MERTON PARK.

For the erection of seven pairs of semi-detached houses in Wilton Crescent, Wimbledon, for Merton Park Estate Company, Ltd. Mr. H. G. QUARTERMAIN, architect, Merton, Surrey. Quantities by Mr. W. W. DEARLE, Broad Street House, New Broad Street, E.C.

W. Johnson & Co., Ltd.	£14,490	0	0
Bulled & Co.	14,307	0	0
Duncan Stewart & Son	14,200	0	0
Smith & Son, Ltd.	13,397	0	0
Holliday & Greenwood, Ltd.	13,250	0	0
Garrett & Son	12,978	0	0
W. H. Lorden & Son	12,222	0	0
J. BURGESS & SONS, Wycliffe Road, Wimbledon (accepted)	11,200	0	0

MORTLAKE.

For erecting three houses. Mr. WILLIAM H. BURT, architect, 10 Bush Lane, Cannon Street, E.C.

J. A. STAYNER (accepted) £1,950 0 0

For erecting three houses. Mr. WILLIAM H. BURT, architect, 10 Bush Lane, Cannon Street, E.C.

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R. & J. DEMPSTER, LTD., Manchester (accepted) £550 0 0

NEWHAVEN.

For the construction of about 1,500 feet of new surface-water sewer, together with manholes, gullies, &c. Mr. F. J. RAYNER, surveyor, Newhaven.

A. C. Soan	£799	10	0
Pierce & Co.	757	17	0
H. Chambers	681	0	4
D. H. Porter	619	0	0
R. W. Swaker	610	0	0
Peerless, Dennis & Co.	578	0	0
E. H. King	573	18	4
Cooke & Co.	564	15	1
Roberts & Co.	494	18	2
W. Smith	398	12	8
REDMAN BROS., Newhaven (accepted)	320	9	0

NORWICH.

For the erection and maintenance for six months of two blocks of workmen's dwellings in Angel Road, one to comprise twelve dwellings arranged in flats, the other to comprise four self-contained dwellings. Mr. ARTHUR E. COLLINS, architect.

T. H. Gill	£2,167	0	0
F. R. Hipperson	1,981	4	10
J. Youngs & Son	1,950	0	0
J. S. Smith	1,875	0	0
Burton & Son	1,838	12	4
W. J. Hannant	1,831	0	0
A. C. Taylor	1,830	0	0
Lincoln & Bush	1,822	0	0
S. Chapman & Son	1,799	0	0
Southgate Bros.	1,770	0	0
H. C. Greengrass	1,740	0	0
A. D. BODY & SON, Norwich (accepted)	1,730	0	0

For the erection of a public convenience at the corner of Distillery Street and Dereham Road. Mr. ARTHUR E. COLLINS, city engineer.

J. S. SMITH, City Road (accepted) £193 0 0

For erection of twelve tenement buildings in Angel Road.

BODY & SON, Norwich (accepted), about £2,000.

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PADDINGTON.

For sewerage and other drainage works, with manholes, &c., in Bishop's Road and Porchester Square and Terrace.
Mr. E. B. B. NEWTON, surveyor, Town Hall, Paddington.

E. Young & Co.	£704	11	3
D. R. Paterson	629	8	8
E. Rogers & Co.	625	0	0
B. Nowell & Co.	613	0	0
C. Ford	594	0	0
Lowe's Sanitary Engineering and Patent Pipe Joint Co., Ltd.	576	19	4
W. Neave & Son, Bannister Road *	443	0	0

* Recommended for acceptance.

For sewerage and other drainage works in Clarendon Gardens, W. Mr. E. B. NEWTON, borough surveyor.

C. Ford	£687	0	0
R. Ballard	679	0	0
Davis & Bennett	598	0	0
W. Neave & Son	468	0	0
D. R. Paterson	465	4	5
C. P. Roberts *	415	0	0

* Recommended for acceptance.

PORTISHEAD.

For sewerage works in Down Road for the Urban District Council.

W. Thomas	£89	10	0
J. COLES (accepted)	50	0	0

PRESTON.

For the construction of a new skew masonry and brick bridge, 24 feet between parapets and 10-feet span, with the approaches thereto, and diversion of the stream to carry the secondary road from Carr House Green to Woodplumpton, Lancs, over the Woodplumpton Brook.

R. HALL, Forton, near Garstang, Lancs (accepted)	£1,119	17	11
--	--------	----	----

For the erection of a stone base for a bandstand, Avenham Park, Preston, Lancs.

T. & R. COLLEY, Fletcher Road (accepted)	£142	0	0
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For street works in Tulketh Crescent and Poulton Street, Ashton.

R. BASHALL, 3 Holstein Street (accepted)	£31	19	0
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ROCHDALE.

For the erection of two bridges in ferro-concrete over the river Spodden.
D. JONES & Co., Park Lane, Leeds (accepted).

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For supplying and laying complete of about 1,100 square yards concrete *in situ* paving, 520 square yards tar paving, 970 yards lineal York kerb, with granite sett channels and crossings complete. Mr. A. H. FORBES, borough surveyor.

J. Custerson	£772	0	0
Wallis & Inns	762	14	9
Grounds & Newton	724	13	9
STUART'S GRANOLITHIC STONE CO., Millwall (accepted)	718	19	5
Bateman & Sons	700	15	0
Goddard & Co.	680	2	9
Crouch Valley Brick Co.	665	0	0
G. Burgoyne	611	9	7

SALOP.

For the erection of eight semi-detached villas, Newport, Salop, for Mr. J. C. Brown, Shakespeare hotel, Newport, and ten houses for the Fountain of Peace Lodge, Newport, Salop. Mr. MYLES MORLEY, architect and surveyor, Charlton House, Wellington, Salop.

Eight villas.

Treasure & Son	£2,998	0	0
Thomas Healey	2,786	2	0
Waugh & Son	2,750	0	0
A. Roper	2,700	0	0
G. J. MUIRHEAD, Newport, Salop (accepted)	2,597	17	5
Stretton & Gibson	2,592	5	7
W. Skelthorne	2,591	0	0

Ten houses.

Treasure & Son	2,850	0	0
Thomas Healey	2,539	16	11
A. Roper	2,520	0	0
Whittingham	2,400	0	0
Stretton & Gibson	2,303	13	0
W. Skelthorne	2,231	0	0
G. J. MUIRHEAD, Newport, Salop (accepted)	2,195	11	4
Waugh & Son	1,820	0	0

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For the supply of galvanised wire racks for clothing store, for the Glasgow Parish Council. Messrs. MACWHANNELL & ROGERSON, architects, 58 West Regent Street, Glasgow.

J. BAXTER & SONS, 20 Catherine Street, Parliamentary Road (*accepted*) £456 10 0

For furnishing and laying 280 yards or thereby of 3-inch iron pipe from the West Port to Hawthorn Bank Mains, Haddington.

A. Runciman, Haddington £49 17 0

A. Watson, Haddington 46 0 0

Consideration postponed.

SOWERBY BRIDGE.

For extensions at the Luddenden Foot gasworks.

R. DEMPSTER & SONS, Elland (*accepted*).

WALES.

For the erection of shop premises in Cowbridge Road, Canton, Cardiff. Messrs. VEALL & SANT, architects, Cardiff.

G. Couzens & Co. £1,300 0 0

F. Small 1,295 0 0

J. Allan 1,289 0 0

Melhuish Bros 1,279 0 0

Tucker Bros 1,276 0 0

S. Shepton & Son 1,275 0 0

J. Haines 1,250 0 0

W. T. Morgan 1,235 0 0

Blacker Bros. 1,230 0 0

W. Symonds & Co. 1,200 0 0

A. W. Cadwallader 1,170 0 0

KNOX & WELLS, Cardiff (*accepted*) 1,123 0 0

For additions to St. Margaret's House of Mercy, Roath, Cardiff. Messrs. VEALL & SANT, architects.

S. SHEPTON & SON (*accepted*) £725 0 0

No competition.

For erecting ten houses at Hengoed. Mr. P. VIVIAN JONES, architect, Hengoed.

J. H. JAMES, 13 Kinraig Street, Cardiff, 195l. per house (*accepted*).

Received too late for Classification.

LONDON.

For the erection of public baths and washhouses, Old Kent Road, for the borough of Camberwell. Mr. E. HARDING PAYNE, architect, 11 John Street, Bedford Row, W.C. Quantities by Mr. R. C. GLEED.

	Baths and Washhouses.	Extra for Portland Stone.
W. Lawrence & Son	£48,300	£2,800
Balaam Brothers	45,000	1,100
B. Nightingale	44,500	2,200
Shelbourne & Co.	42,910	1,723
G. Godson & Sons	42,354	736
W. J. Maddison	42,329	1,256
J. Shillitoe & Son	42,270	970
E. Lawrence & Son	41,975	998
Battley, Sons & Holness	41,757	1,119
C. Ansell	41,500	999
R. Jones & Son	41,035	—
H. L. Holloway	41,000	955
Holliday & Greenwood	40,644	1,032
W. Pattinson & Sons	40,133	1,068
J. Greenwood, Ltd.	40,086	1,000
W. Wallis	39,999	1,500
W. King & Son	39,792	1,266
Galbraith Bros.	39,675	1,426
Kilby & Gayford	39,633	1,220
A. N. COLES, Plymouth*	37,433	1,630

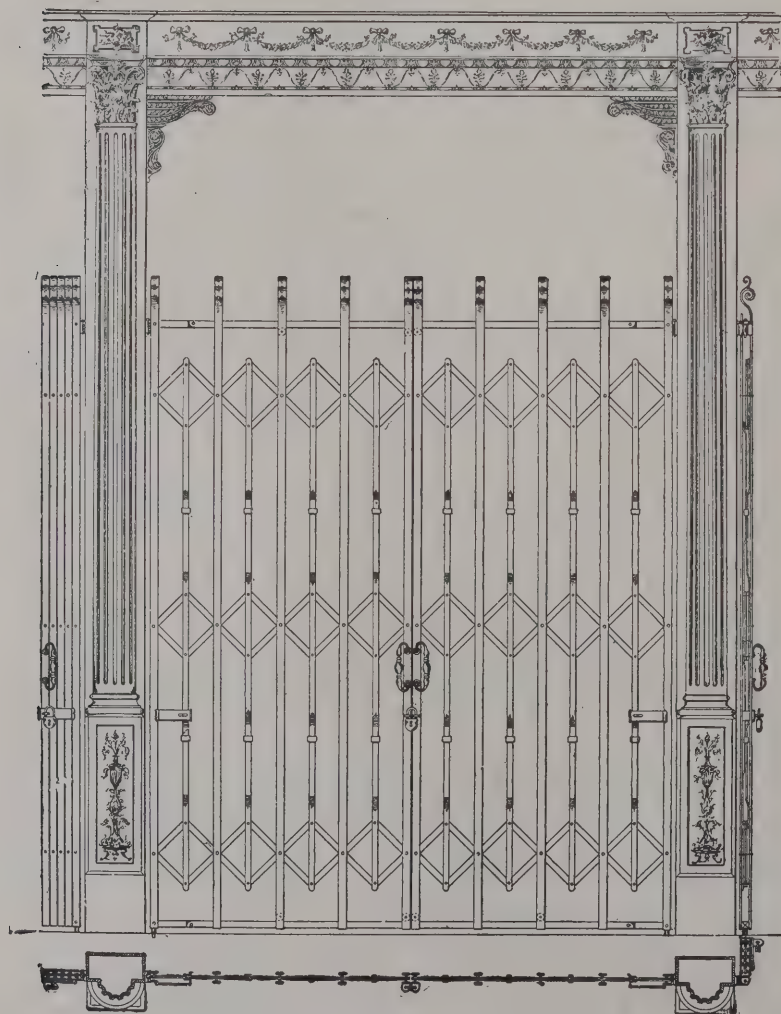
* Provisionally accepted.

SIDMOUTH.

For alterations and additions to the Knowle hotel, Sidmouth, Devonshire. Mr. R. S. BALFOUR, architect.

Kilby & Gayford	£14,126	0 0
Holloway Bros.	13,716	0 0
Cowlin & Sons	13,300	0 0
J. Marsland & Sons	13,295	0 0
Stephens, Bastow & Co., Ltd.	12,886	0 0
J. Chessum & Sons	12,880	0 0
STEPHENS & SONS, Exeter (<i>accepted</i>)	10,770	0 0
W. E. Blake, Camberwell	10,626	0 0

THE Wing Rural District Council have instructed Messrs. Elliott & Brown, civil engineers, Nottingham, to report upon the sewerage of Dagnall, Bucks.



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ILLUSTRATIONS.

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CARVED OAK PULPIT AND SCREEN, ROTHBURY CHURCH, NORTHUMBERLAND.

THE RAILWAY HOTEL, NORTHALLERTON, YORKS.

CHICKSANDS PRIORY, SHEFFORD, BEDS THE ENTRANCE HALL.

THE "CIL-REST" CASEMENT.

WITH all the improvements that from time to time have been introduced in the designs of casement windows there has remained one objection that so far has not been successfully overcome, namely, the difficulty of cleaning them on the outside when so placed that it is necessary it should be done from inside the building. In the "Cil-rest" Reversible Casement, however, to which our attention has been recently drawn, by the adoption of a new principle in its construction this difficulty is not only obviated, but other advantages secured, while not in any way altering the character or appearance of the casement, as will be seen by the following brief description and illustration:—

On the outer face and within the same sight line a third but skeleton frame is hung to the fixed frame, and to this frame at the other side the glazed frame is hung, on the inner edge of which a bolt is attached to fasten the two opening frames together.

To clean the outer face of the glazed frame the casement is opened in the ordinary way; the bolt is then drawn to release it from the hanging side of the skeleton frame, and is carried along the sill, bringing the outer face towards the room. Besides enabling the casement to be reversed for cleaning, this extra frame provides a much-needed support to the outer edge of the glazed frame, and as the inner edge rests upon the sill it is held in a position that prevents any strain on the hinges, and renders sagging or dropping an impossibility. Further, as by its means the casement can be opened against the wind either right hand or left hand, so a considerable economy may be effected. In a three-light window are generally fitted two casements and one fixed light in the centre, the two outer opening from opposite sides of the fixed frames, so that one may be opened against the wind according to the direction from which it comes. By the use of the "Cil-rest"

reversible casement if necessary one casement only need be placed in the centre, as it can be opened in either direction for ventilation, and enables the two fixed lights to be easily cleaned.



A great recommendation for the adoption of these casements is their simplicity, and added to this the ease with which they and the adjoining lights can be cleaned, the absence of sagging and also saving in cost, they should meet with general approval, whilst the great support afforded by the skeleton frame enables them to be made in any width with perfect safety. They are made of any desired section, or can be adapted to existing casements, or the fittings supplied to fit wood casements, and are manufactured by the patentees, Messrs. Williams Bros. & Co., at their works, Kaleyards, Chester, and can be seen at their London showrooms, 81 Endell Street, W.C. These premises have been occupied for many years by Messrs. Pepper & Co., artists in stained glass, which business has now been acquired and is carried on by Messrs. Williams Bros. & Co.

IN the recent open competition in connection with the St. Mellons infectious diseases hospital, the assessor, Mr. P. Gordon Smith, placed the design of Mr. John Robt. Nichols, M.S.A., of Newhall Chambers, Newhall Street, Birmingham, first, and the Council at their meeting last week confirmed the assessor's award, and instructed Mr. Nichols to meet the representatives of the Council and their medical officer of health in London for a conference with the assessor and the Local Government Board.

HEWETSONS

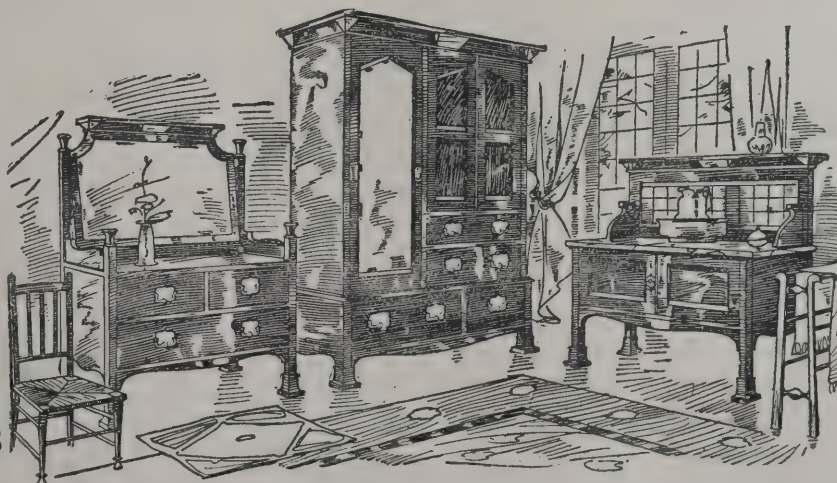
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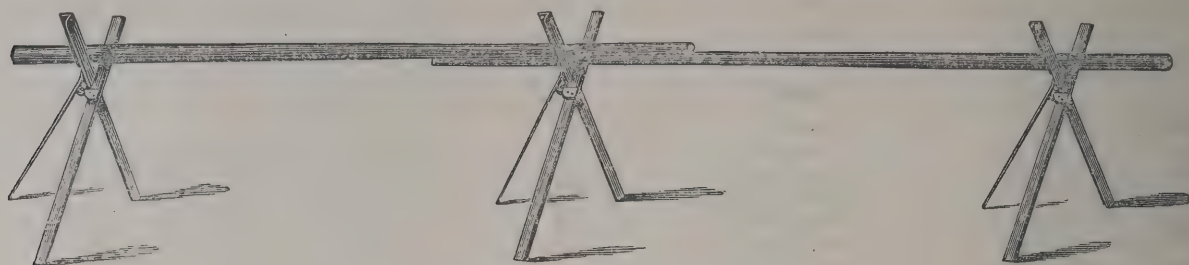
Opposite Goodge Street.

AN IMPROVED CONTRACTOR'S TRESTLE.

AN undoubted improvement over the old-fashioned wooden trestle has been introduced by Messrs. Bradshaw & Co., of 52 Queen Victoria Street, E.C.

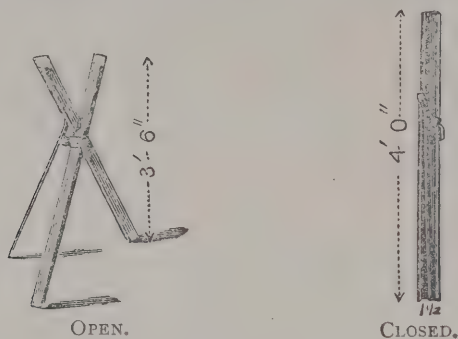
The new trestles, of which we give illustrations, are con-

others by many public bodies, including those of Westminster, York, Woolwich, Barnsley, Nottingham, Rochdale, Middlesbrough, Ramsgate, Godalming, Maidstone, Southend-on-Sea, Hove, Wandsworth, Chelsea and East London Waterworks, and by numerous contractors.



ANGLE IRON CONTRACTOR'S TRESTLE.

structed of $1\frac{1}{2}$ inch by 3-16th-inch angle iron, and while being much stronger, are light, rigid, durable and cheap. They have other advantages, one of the most important being the saving effected in freightage, cartage and storage, owing to their light weight and the small space they occupy when closed.



OPEN.

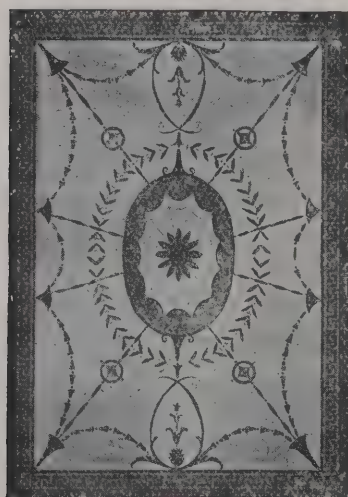
CLOSED.

One dozen when packed measure only 4 feet by 1 foot by $4\frac{1}{2}$ inches, and 180 trestles weigh less than 30 cwt.

Although only placed on the market during the present year they have already been extensively adopted, amongst

THE DIFFERDANGE BEAMS.

WE have already explained some of the advantages arising from the use of the Differdange beams. They are not confined to bearing capacity, for, as we have pointed out, there is often a saving of depth, which is important in the eyes of an architect. From a purely scientific point of view, the principle adopted in them is remarkably economical. A correspondent informs us of his having the moments of inertia about each axis per pound per foot of ordinary joists calculated. Similar calculations were made for the Differdange beam. The results show to what extent the metal has been distributed in the sections in order to give a high carrying capacity per pound of metal employed. The results of this comparison show that the average carrying capacity of Differdange beams compared with their weight is greater than that of standard joists by $12\frac{1}{2}$ per cent. when used as girders, and still more when used as stanchions. Obviously a still higher ratio of carrying power to weight of metal would be shown if Differdange beams were similarly compared with built-up girders and stanchions.

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TRADE NOTES.

THE additions to the St. William's infectious hospital, Rochester, are being warmed and ventilated by means of Shorland's patent Manchester stoves with ornamental tiled sides by Messrs. E. H. Shorland & Brother, of Manchester.

MR. SAM DEARDS'S patent glass roofing has been lately adopted in the new School of Arts, Peterborough, the new drill hall, Chelmsford, the electric-power station and car-sheds at Bexley, Messrs. Homan & Rodgers's new works at Ware, and the electric-power station and car-sheds, Sheerness-on-Sea. Mr. Deards has also extensive contracts for the War Office at Woolwich.

MESSRS. G. WOOLLISCROFT & SON, LTD, Hanley, Staffs, ask us to mention that they have opened an office and showroom at No. 33 Examiner Buildings, Strutt Street, opposite the Royal Exchange, Manchester. Mr. I. Richmond Dixon, of West Didsbury, has been appointed their representative, and will be in attendance at the showroom every Tuesday, or any other time by appointment. A clerk will always be in attendance.

MESSRS. WM. AUG'S GIBSON, LTD, electric, hydraulic and hand-power lift manufacturers, of Temple Bar House, 28 Fleet Street, inform us that among the recent contracts taken by the company are one electric passenger lift, one hydraulic pavement lift, one hand lift, for the Royal London Friendly Society's large new building in Finsbury Square, E.C.; an electric passenger lift with complete push-button device for the Victoria Hospital, Chelsea; an electric passenger lift for Evelina Hospital; an electric passenger lift for Home Hospitals Association, 16 Fitzroy Square; while among orders completed are ten hydraulic passenger lifts and twenty-six service lifts at Coleherne Court, S.W., and one electric passenger lift for Temple Bar House, 28 Fleet Street, E.C.

BUILDING AND BUILDERS.

THE Cleethorpes District Council have adopted plans for new municipal offices. The cost of the buildings will be 5,600*l.*, and the land 893*l.*

FOUNDATION-STONES of a new Congregational church have been laid at Eastbourne. The new building will seat 750 persons, and the estimated cost, including site, is 8,000*l.*

THE memorial-stones of the new Hospital for Women were laid on Tuesday on the site of the building at the corner of Connaught Road and Park Road West, Wolverhampton, by the Hon. Miss Wrottesley and Mrs. J. L. Gibbons.

THE Mayor of Woolwich laid on Wednesday the foundation-stone of new municipal buildings for the borough. The site has cost 15,000*l.*, and the contract price for the buildings is 50,000*l.* A prominent feature will be a clock-tower, 140 feet in height, having four faces, each 10 feet in diameter.

THE Skegness Urban District Council have adopted the report of Messrs. Elliott & Brown, of Nottingham, upon the sewerage system, and have instructed them to prepare working drawings. The scheme embraces bacterial filters at the present sewage farm, new pumping station, and the drainage of the Seacroft estate. The estimated cost is 8,750*l.*

THE foundation-stone of a new Episcopal church for Kelvinside, Glasgow, was laid on Saturday in Hyndland Road. The church, which is to be dedicated to St. Bride, will when completed take the place of the present wooden edifice. It will be of Gothic design, and contain seating accommodation for a congregation of 750. The cost, with enrichments, is estimated at about 25,000*l.*

AT a provisional order inquiry held under the Private Procedure (Scotland) Act, sitting in Glasgow, the Glasgow Corporation granted authority to borrow 1,000,000*l.* extra in connection with the purification of the Clyde, the sum previously granted by Parliament being 1,100,000*l.*, thus exceeding the original estimate by 1,000,000*l.* During the hearing, which occupied the attention of the Commissioners for four days, in which the leading counsel of the Scottish Bar were engaged, the Mersey and similar schemes in the West Riding of Yorkshire were instanced by Sheriff Guthrie for the objectors, but the Commissioners held these to be river pollution as against a purification scheme.

TO meet the increasing demands of Wesleyan Methodism on the Rotton Park side of Birmingham a new edifice has been erected in the City Road. The new building is a school and chapel, with six large rooms running parallel with the main building. The design is Free Gothic, and the building is substantially erected in red brick with stone dressings. It has an open-timbered roof, with a solid wood-block floor. The present building is only a part of the scheme, and it is so arranged that it may be enlarged from time to time. The present portion, which will seat 500 persons, will cost 3,000*l.*

MERRYWEATHER

On Fires in Tall Buildings and Water Supply to Mansions.

MERRYWEATHER'S PATENT LIFT SPRINKLERS, as at Whitehall Court, Grosvenor Hotel, &c.

MERRYWEATHER'S FEMALE FIRE DRILL PAMPHLET.—How to Form Private Brigades.—How to Escape from Tall Buildings.

MERRYWEATHER'S HOUSE FIRE DRILL PAMPHLET, Illustrated.

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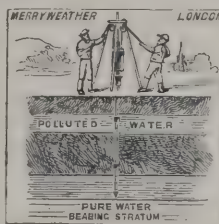
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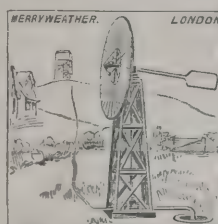
MERRYWEATHER'S PATENT METROPOLE FIRE HYDRANTS.—Will not set fast. Occupies very little space. These Valves have been in use at the Hôtel Métropole for nearly 20 years, and have not cost 1*d.* for repairs. Architects should call and see this Valve.

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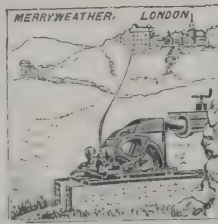
Until now many householders have avoided Electric Light owing to damage from fire. MERRYWEATHER & SONS are the pioneers of Safe Electric Lighting, their knowledge of fire prevention enabling them to combine highest efficiency with safety from fire. Write for Pamphlet. MERRYWEATHER'S, 65 Long Acre, W.C.



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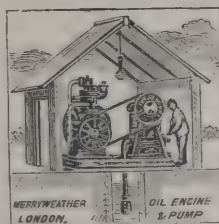


Wind Power Pump.

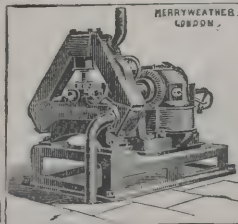


Water Wheel Pump.

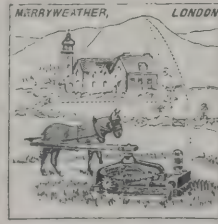
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66 GOLD MEDALS AND FIRST AWARDS.

MERRYWEATHER & SONS, 63 LONG ACRE, W.C. Works: Greenwich, S.E., London.

THE foundation-stone of the new church to be erected to the east of St. Swithin's parish, at Lincoln, has been laid. The rapidly-increasing population in that part of the city was a few years ago met by the erection of a mission church, for which Mr. Alfred Shuttleworth contributed the funds. The accommodation having become inadequate, Mr. Shuttleworth offered to build a new church at a cost of 8,000*l.*, and to give 5,000*l.* towards its endowment. The new building is to be designated All Saints Church, and it creates a new ecclesiastical parish, formed by Monk's Liberty parish and part of St. Swithin's parish.

THE new reservoirs and filters in connection with the Crieff water extension scheme from Loch Turret, erected on the Knock Hill, and situated on the north-west side of the town, have been formally opened. The new reservoir is circular in shape, being 100 feet in diameter and 20 feet in depth to top water level, thus holding 981,750 gallons, or between three and four days' supply. The filters, two in number, are each 60 feet by 40 feet by 5 feet 6 inches. The cost of the present water extension scheme, including erection of reservoir, filters and laying of new piping from Loch Turret, &c., is about 12,000*l.*, while the total cost of the works, since the beginning in 1872, has been upwards of 22,000*l.*

At a meeting of the joint committee of the Kirkcaldy Town Council and Harbour Commission appointed to consider the question of harbour extension the sub-committee reported that they had made inquiry as to the trade which might be expected and also the financial aspect. After consideration it was unanimously agreed to recommend to the Town Council and Harbour Commission that 100,000*l.* should be spent on harbour extension, and that they employ Sir A. N. Randell, C.E., to report upon the whole undertaking, and to take into consideration the present situation of the harbour. They also proposed that he should be asked to prepare plans showing the best method of extending the harbour, and if possible to do so in such a manner as it could be added to in detachments, so as to make a large coal harbour at completion if so desired.

THE foundation-stone was laid on the 7th inst. of a new church which is intended to serve the needs of the growing district of Dob Park, Old Basford, Notts. The building is being erected by the Nottingham Spiritual Aid and Church Extension Fund, and the committee in their anxiety to increase the spiritual agencies in the city found their course made easy in this instance by a generous bequest in the will of the late

Mr. G. Waterall, who left 11,000*l.* for the purpose of establishing a church in some part of Nottingham. For the present only the nave and aisles are to be erected, leaving the chancel, choir vestry and organ chamber to be completed at a later period. The architects (Messrs. R. Evans & Son) have adopted the traceried style and the nave will be divided into five bays with traceried windows. The church, which is to be 80 feet long and 60 feet wide, will be built of Bulwell stone faced with Coxbench stone, and will accommodate 500 persons.

THE Church Institute, which has been erected in Church Street, Stoke-on-Trent, at the corner of Booth Old Road, has now been opened. The building is to be known as the Victoria Institute, as a memorial of the late Queen. It has cost altogether about 4,000*l.* Among the subscribers to the building fund was His Majesty the King, who sent a donation of 105*l.* in token of his interest in the district, of which he is lord of the manor, and of his gracious wish to support the movement for a memorial to his august mother. The Institute has been erected by Mr. T. R. Yoxall from the designs of Messrs. Lynam, Beckett & Lynam, and forms a handsome addition to the public buildings of the town. On the Church Street side is a restaurant and a look-up shop, and between them the entrance to the parish-room, gymnasium, &c. In connection with the restaurant, dining-rooms and kitchens are provided. Part of the first floor is occupied by a tea-room and billiard-room. The second floor is entirely taken up by accommodation for the Girls' Friendly Society.

ELECTRIC NOTE.

MR. JAMES WILSON, town clerk of Marylebone, has received the opinion of Mr. Asquith, K.C., M.P., with regard to the powers of the London County Council to lend the Marylebone Borough Council the money needed to complete the purchase of the local property of the Metropolitan Electric Supply Company. The learned counsel suggests a form of letter to the County Council, and pending the sending of this and the reply of the Council, the electric-supply committee of the Borough Council recommend that Mr. Asquith's opinion should not be made publicly known. The omission of certain words from the special Act which authorised the arbitration proceedings accounts for the present hitch. About a million and a half sterling is involved.

THE "CIL-REST" CASEMENT

Is the ONLY REVERSIBLE Casement in the Market which enables the Outside of the Casement and adjoining Casements to be cleaned from the Inside with Perfect Safety.

CAN BE SUPPLIED IN ANY METAL AND OF ANY SECTION.



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CASEMENTS, SASHES, STAINED GLASS, LEADED LIGHTS.

VARIETIES.

THE chapel to the new schools of the Royal Masonic Institution for Boys at Bushey, Herts, will be consecrated by the Bishop of St. Albans on Tuesday, the 19th inst.

MR. ALBERT WARBURTON, A.R.I.B.A., announces that he has removed from 11 Lyme Street Chambers to 2 Bold Street Chambers, Warrington.

THE Urban District Council of Heath Town, having received the sanction of the Local Government Board, have instructed their engineer, Mr. R. E. W. Berrington, M.I.C.E., of Westminster and Wolverhampton, to proceed with the carrying out of the additional sewerage works.

THE estimates for the Dumfries drainage and sewage purification works are fourteen in number, and range from a little over 20,000*l.* to a little over 36,000*l.* The lowest is from Messrs. M'Kay & Son, Broughty Ferry, and there are several only slightly higher.

A NEW infants' school was opened at Clay Cross on the 18th inst. It stands on one acre of ground and provides accommodation for 665 infants. The total cost was 7,700*l.*, and it contains four babies' rooms, eight classrooms, central hall, two cloak-rooms, two teachers' rooms, &c. It is the largest single department in the county except one, which accommodates 670.

THE Rev. Kenelm Vaughan, brother of Cardinal Vaughan, has collected 14,000*l.* in Spain and South America towards the erection and decoration of the Blessed Sacrament chapel in the new Westminster Cathedral. He is now in the city of Mexico, where he hopes to raise another 4,000*l.* to complete the sum required.

THE report of the Aberdeen city architect on the proposed reconstruction of the interior of the municipal buildings states that the whole rearrangements have been designed to have the departments so placed in conjunction with one another that the rapidly increasing volume of work may be carried on expeditiously and efficiently. One of the principal alterations would be the removal of the present staircase, which begins inside the tower doorway, and the substitution of a new marble stairway leading up to the third floor. The town hall would be enlarged about 6 feet, and on the third floor there would be a library, smoking-room and luncheon-room. The alterations are estimated to cost 10,000*l.*

ON Friday last Lord Wenlock opened a new dormitory wing at the York Bluecoat School. For some years the committee have felt the necessity of providing additional accommo-

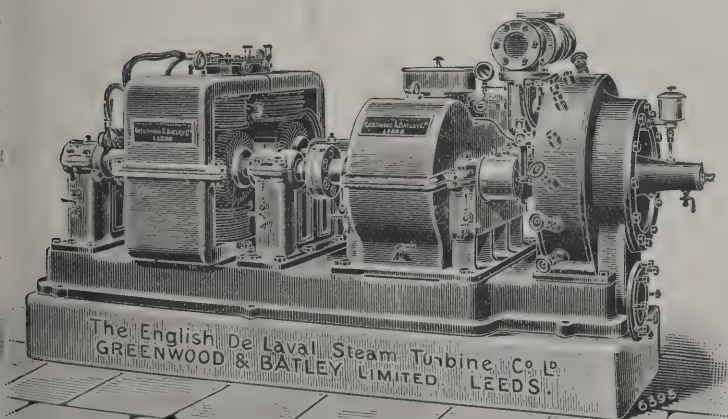
modation, especially in the dormitories, and having secured the adjoining property it was decided in 1901 to proceed with the scheme. They accordingly instructed their architect, Mr. Brierley, to prepare plans and estimates, and the present building is the outcome. The accommodation provided consists of—on the ground floor, workshop, coal storage, bake-house, bread store; and on the upper floor two large dormitories with a separate stone staircase. With the additional accommodation the cubic air space in the dormitories is increased from 350 cubic feet per boy to 600 cubic feet. The additions are of fireproof construction and the rooms are well lighted and cross-ventilated. The elevation to Aldwark is of a quiet, simple character, and is executed of hand-made bricks, with wooden windows painted white and leaded glazing, and is in harmony with the rest of the school. The extension has also enabled other improvements to be made for the better provision of light and air, chief of which is the enlargement of the courtyard, which has been trebled in area and laid with concrete paving. The total cost has been kept within the estimates, and is about 1,400*l.*

AT the meeting of the St. Pancras Borough Council the following resolution, moved by Alderman D. McGregor was adopted, thus settling in a satisfactory manner an important question:—"That, inasmuch as the London County Council has communicated to this Borough Council its desire to link up its northern and southern systems of tramways by continuing the present tramway from the terminus at the southern end of Hampstead Road along Tottenham Court Road, Charing Cross Road and Northumberland Avenue to the Embankment, and as the County Council appears unwilling to widen the southern end of Hampstead Road without obtaining the Borough Council's consent for a tramway along Tottenham Court Road, and as the continuance of the present congested state of traffic at the southern end of Hampstead Road is not only a constant peril to life and limb, but a disgrace to the Metropolis, the Borough Council is of opinion that the County Council should be informed that the former, with a view to linking up the northern and southern systems of tramways, subject to any street widenings that may be necessary, is prepared to give its statutory consent to the construction of a tramway along Tottenham Court Road, such consent to be contingent upon the County Council obtaining the consent of the City of Westminster Council to continue the same class and description of tramway along Charing Cross Road and Northumberland Avenue to the Embankment."

GREENWOOD & BATLEY, LIM.,

ALBION WORKS, LEEDS,

ELECTRICAL AND GENERAL ENGINEERS.



MOTORS and DYNAMOS.

DE LAVAL'S PATENT STEAM-TURBINE MOTORS, TURBINE DYNAMOS, PUMPS and FANS.

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Small Space Occupied.
No Vibration.
No Special Foundations Required.
Economy in Steam Consumption.

No. 6395, DE LAVAL PATENT STEAM TURBINE DYNAMO.

SEND FOR CATALOGUES.

ELECTRICITY CONTRACT, WORTHING.

At the meeting of the Worthing Town Council on the 5th inst., the electricity committee presented a report which stated that Messrs. Burstall & Monkhouse, writing on April 21, enclosed a copy of a letter received from the Receiver and Manager of the British Power Traction and Lighting Co., intimating that he had decided to close the battery department of their works, and that he was consequently unable to proceed further in respect of the contract with the Corporation. The consulting engineers added that the battery was not yet satisfactory, as it did not give the specified output, and they suggested that the two guarantors to the contract should be called upon to provide such sum of money as might be necessary to put the battery into proper order. The contract price was 984/4s., the sum of 689/4s. having already been paid by the Council on account thereof, and the engineers estimated that to put the battery into proper order will require the sum of 500/4s. The committee resolved that formal notice be given to the contractors under the general conditions annexed to the contract, requiring them to make good all defects in the works comprised within their contract within seven days, and intimating that failing compliance therewith the Council will take possession of the works, plant and materials belonging to them, and take such steps as may be necessary to complete the work by other persons, and that any outlay in excess of the contract price incurred by the Corporation consequent on the default of the contractors as aforesaid, and any completion of the works by other persons will, as provided by the contract, be payable firstly out of the sale of the contractors' plant, secondly out of the contractors' resources, and thirdly out of the resources of the contractors' sureties. The report was adopted.

NEW LIBRARY, WAVERTREE.

THE new branch free library and reading-rooms, Picton Road, Wavertree, were formally opened on Tuesday evening. The institution occupies the site of Davies's nurseries, and will serve as an interesting landmark in so far as it stands on a spot which once upon a time was known as the commencement of Wavertree village, but is now rapidly assuming a city

aspect. Some time ago the City Council bought 5,000 square yards of land hereabouts, and the library and reading-rooms take up about 1,500 square yards. A portion of the remaining site is to be occupied by public baths, now under consideration, and when completed the whole will become a splendid centre for Wavertree inhabitants for physical cleanliness and mental improvement. Externally the building is imposing and artistic. It stands back about 40 feet, and the space between the road and the front elevation will be taken up by refreshing green lawns and charming floral beds. The composition of the building as it fronts Picton Road is an example of modern Renaissance. It is built of red pressed bricks and Cefn stone, whilst the roof is covered with green Westmoreland slates. The building is divided from the road by strong iron railings and handsome gate piers, the main entrance being from the centre of the attractive pile. Particular attention has been paid to the lighting of the rooms both by day and night. By a skilful use of "lantern lights" in the roof a volume of light is emitted which makes the interior of the building quite as light during the day as it is in the adjoining streets or open spaces. This is a commendable feature, and one upon which Mr. T. Sheldermine, the city surveyor, is to be complimented, seeing that he superintended the designing and the carrying-out of the work. Entering the building the visitor finds himself in a magnificent vestibule, on each side of which the various departments we have alluded to are located in a most convenient manner. The staff have not been overlooked, and various rooms, including lavatories, have been constructed for their use in the basement. The principal reading-room has the appearance of a spacious hall, and might be used for lectures if necessary. It is 47 feet by 26 feet 6 inches wide. All the rooms, including the vestibule, are lined with green dado, whilst the vestibule floor is of white marble mosaic, surrounded and divided by strips of black marble. The appearance is handsome. The furniture and the fittings in the different rooms are of fumed oak, whilst the woodwork about the roof and the windows is stained green and beautifully varnished. The whole arrangement in form and colour has been made to please the eye and to have a bright and soothing effect upon those who frequent the premises. The cost of the building and the furnishing amounts to over 8,000/4s. The rooms are heated by hot-water, and everything has been added to the institution necessary to the comfort of those who may use it. At night the interior will be illuminated by powerful electric lights.

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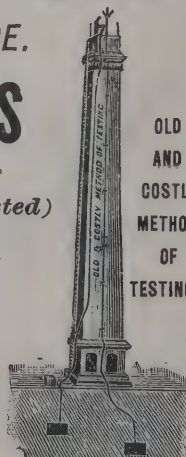
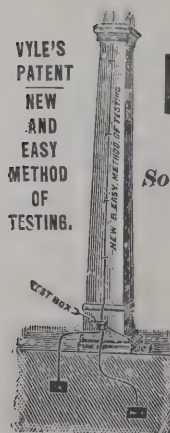
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For Index of Advertisers, see page x.

THE WIDENING OF PICCADILLY.

THE improvements committee of the London County Council have just issued a report recommending the Council to sanction a scheme for a considerable widening of Piccadilly between Arlington Street and the Green Park. The opportunity for such a widening has presented itself owing to the rebuilding of Walsingham House and the Bath Hotel. The committee have been in negotiation with the company who are the owners of the property, and they have agreed to surrender, upon certain conditions and at a price very much below the market value of the vacant land and without any compensation for trade disturbance, the land necessary to secure a width of 85 feet for this part of the thoroughfare, provided their offer is at once accepted by the Council, so that the rebuilding scheme may not be delayed.

These conditions are as follows:—(1) The owners are to have the right to build over the new footway upon the first-floor level and above up to the height of the present buildings, the new buildings being supported by a colonnade; (2) the line of piers of the colonnade is to be built on a give-and-take line; and (3) the Council are to take the necessary steps to obtain possession of the portions of the premises at present occupied by lessees, the company contributing 2,000*l.* towards the cost of obtaining such possession. As far as the company's interest in the freehold is concerned, they have agreed to accept half value, but a higher price is being paid for the combined leasehold and freehold interests in the particular land of which Lord Walsingham is the freeholder. It will also be necessary to acquire the freehold interest in a strip of land at present forming part of the garden adjoining Walsingham House, so that the widening of the thoroughfare may be continued as far as the Green Park. Upon the basis suggested, the gross cost to the Council of the property needed for the improvement will be about 43,000*l.*, or, deducting the 2,000*l.* to be contributed by the company, 41,000*l.* The cost of the paving works is estimated at 2,000*l.* The Westminster City Council is to be asked to make a contribution of 4,000*l.* towards the cost of the improvement.

Having regard to the recent views expressed in the Council against new financial commitments, the committee state that they would hesitate to advise the Council to incur further expenditure at the present time, but the immediate rebuilding of the premises where the widening will be effected left them no alternative but to submit the scheme to the Council at once. They believe that the method of securing the additional width

by the formation of a colonnade will introduce a very pleasing architectural feature in that part of London.

COST OF ELECTRIC TRAMWAYS.

THE highways committee of the London County Council have issued a statement relating to tramway construction. They say having regard to the altered position of affairs caused by the adoption, for the generating station, of the Greenwich site instead of that at Camberwell, and the provision of a new car-shed, we carefully revised the estimates, and on July 22, 1902, we asked the Council to approve the revised estimates, amounting to 981,497*l.* In doing so we stated fully the reasons for the increase, amounting to 357,997*l.*, over the amount of the original estimates. The revised estimates were approved by the Council on July 29, 1902. It cannot be too clearly stated that both these estimates covered the cost of a great deal more work than was required for the Tooting lines. For instance, both provided for the first section of a large generating station more than sufficient for the requirements of the lines in question, and the provision included for this purpose in the later estimate was considerably greater than that included in the earlier estimate. The Clapham car-shed, too, will provide for other than the Tooting lines.

We have obtained from the responsible officers reports of the cost, as nearly as can be at present ascertained, of the Tooting lines. This includes the cost of rails and roadwork, after making allowance in respect of work done under the same contracts, but not properly chargeable to the Tooting section, the whole cost of the temporary power station at Loughborough Junction, a proportion of the cost of sub-stations and car-sheds, and the necessary cables, &c. On this basis the total cost of the Tooting lines is approximately 440,120*l.*, made up as follows:—

Expenditure for	Total. £	Rate per Mile. £
Rails and roadwork	224,020	13,660
Cars (6·1 to the mile)	72,500	4,420
Power station and cables	74,000	4,510
Sub-stations	20,600	1,255
Car-sheds and workshops	34,000	2,075
Incidentals, including Dr. Kennedy's commission and proportion of salaries of Council's officers	15,000	915
	440,120	26,835

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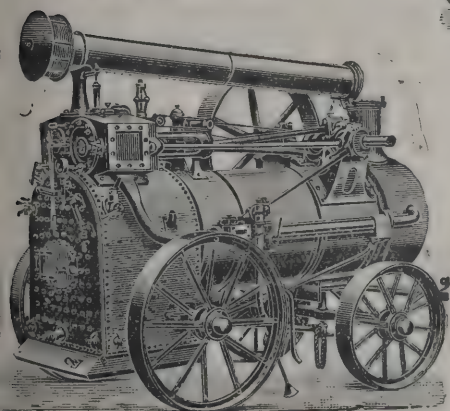
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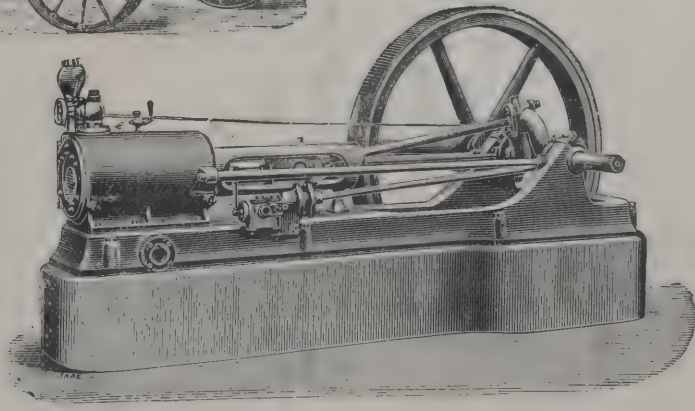
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We anticipate that the temporary station will supply current for the working of the tramways which are now in course of construction between Camberwell Green and Vauxhall, and in that case the capital cost chargeable to the Tooting to Westminster sections will be proportionately less. The full cost of the station is, however, included in the above table. In arriving at the above figures as to the power supply, regard has only been had to the cost of the temporary station at Loughborough Junction. We may state that at present it is impossible to judge what will be the effect of substituting for these figures, figures based on the cost of the permanent station at Greenwich, together with the transforming plant which will eventually be required at the sub-stations (as the current to be supplied from the permanent station will be of high tension, while that supplied from the temporary station is of low tension), and the cables to be laid for permanent use when the station is in operation. We therefore ask the Council to accept the figures in so far as they relate to the supply of power as being subject to revision at a later stage. At the same time, we would point out that the tramways are completely equipped in every detail, and that they could be run by power supplied from the temporary station for an indefinite period.

We come now to a consideration of the cost per mile. In evidence given before the Select Committee of the House of Commons in 1900 in support of the London County Tramways (Electrical Power) Bill, the estimate of the cost of reconstruction of approximately 200 miles of single track was stated at 3,000,000 £ , averaging 15,000 £ a mile, in which sum was included provision for cars at the rate of 2 $\frac{1}{2}$ per mile and a corresponding provision for plant; but it was pointed out that no provision was made for car-sheds and workshops. This rate was intended to apply to the whole of London, and it was supposed that a considerable proportion of the lines, especially in suburban districts, would be constructed on the overhead system. In December 1901, in the light of the tenders received for the reconstruction of the Tooting, &c., sections, we were advised that, assuming a service of 2 $\frac{1}{2}$ cars per mile, the average estimated cost per mile of single track for the conduit system was equivalent to 17,800 £ , and that for every additional 2 $\frac{1}{2}$ cars per mile 3,880 £ per mile must be added to cover the cost of additional cars and extra power to work them. On the Tooting lines 6.1 cars per mile have been provided, and the amount on the same basis for this number of cars per mile works out to 23,387 £ per mile. In comparing this figure with the approximate actual cost of the Tooting lines—26,835 £ per

mile, as shown above—allowance must be made for car-sheds at 2,075 £ per mile and for credits by sale of old rails, &c., as the estimate of 17,800 £ a mile was a net figure after bringing these to account. After making these allowances, the difference between the estimated and actual cost is less than 1,000 £ . A large part of this may be attributed to the fact that this is the first line to be reconstructed for electrical traction, and to special expenditure having been incurred in expediting the work by employment of night and Sunday labour. It should be added that there will ultimately be credits of considerable amount in respect of the sale of horses and old materials from the discontinued horse lines, and of the disposal of properties no longer required. These have not been brought into account.

COLINTON HOSPITAL, EDINBURGH.

THEIR Majesties the King and Queen drove through Edinburgh on Wednesday on their way to Colinton Mains for the purpose of formally opening the magnificent suite of buildings which have been erected from the designs and under the supervision of Mr. Robert Morham, the city architect. The site has a gentle southern slope, with an uninterrupted view of the Pentland Hills. The buildings are arranged with special regard to getting as much sunlight as possible in the wards and homes, and are of substantial construction, the stone used being of a light red colour. There are two main entrances, one from Comiston Road on the east and the other from Colinton Road on the west. On the right of the former entrance, reached by a long avenue, is the medical superintendent's house. Further within, and directly facing the principal entrance, are the general offices, and in rear of these the stores, kitchen and dining-room block; beyond these the nurses' and servants' homes. These buildings form a group nearly central in the hospital grounds, the ward pavilions being arranged in double rows to east and west—those on the east being entirely for scarlet fever, while those on the west contain provision for diphtheria, typhoid, erysipelas, measles, chicken-pox, whooping-cough and typhus. Reception and observation wards—the latter for uncertain cases—are placed on either side, near the principal entrance, and isolation wards for complicated or special cases towards the further extremities of the respective groups. At the north-east corner of the grounds are the education block (for students

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nurses), the chapel and mortuary, and also a general workshop. Further south are laundry, boiler, disinfectant and incinerator buildings. There is ample space for separate recreation-grounds, &c. The size of the wards is regulated on one hand by the number of patients that can be properly nursed in one ward, with due regard to the cubic space to be allowed for each patient; and on the other with reference to the convenient subdivision of the total number to be provided for in the respective classes of disease, ranging from 329 for scarlet fever to 10 for typhus fever—the former requiring large two-storey pavilions, while one of much less than ordinary size, and of only one storey, is expected to suffice for the latter. A system of covered passages connects all the larger pavilions on the ground floor, and also connects these with the stores, kitchen and dining-rooms, as well as with the nurses and servants' homes. Accommodation has been provided for 150 nurses, and in the servants' homes there are 60 bachelors in four large dormitories, separate rooms for head-nurses, &c. A most elaborate system of drainage, heating and ventilation has been installed, and the experience of hospital treatment in all countries has been brought to bear on this the newest and probably the most up-to-date home for the sick in the world.

FORESHORE PROTECTION.

At the last meeting of the Irish Institution of Civil Engineers Mr. R. G. Allanson Winn read a paper on "The Youghal Foreshore Protection Works." The paper dealt with the recent works made to arrest the inroads of the sea between the Youghal Esplanade and the Rifle Butts. Early in 1900 the work was started, not however before a breach of 500 feet wide had been formed and 600 acres of land flooded. The erection of an embankment was then a necessity, and seventeen case-pynes and an open sluice run were erected. The works were finished in April 1901. The author described the results brought about by the protective works and the exceptional tides of January 15 and 16, which caused a breach in one of the long walls of the main embankment. An illustrated description of the repair works, which were carried on by night and day from January 19 to February 1, followed, and the very important question of the height to which embankments with backing (as distinguished from sea-walls) should be carried

discussed, allusion being made to exceptional circumstances, such as the Galveston tidal wave. Passing from the question of embankments facing the open sea, the lecturer next considered those embankments which have only to resist the waters of estuaries, back-waters, &c., and gave a description of the embankment works carried out in 1815-20 by the then Lord Headley, who reclaimed some 400 acres of the finest alluvial land from the sea. The causes of the failure of this important work about the year 1842 were gone into, and the paper concluded with some remarks on travelling shingle, and was illustrated by means of plans, sections and photographs, as well as large scale diagrams. During the course of the lecture Mr. Winn dealt with deep-sea erosion. There were, he said, two distinct erosions going on, that which was visible between high and low-water marks, and that which was invisible below low-water mark and far down into deep water. They could deal with the former class of erosion and were powerless to arrest the progress of the latter; at least no system had yet been devised which would stop the formation of deep-sea gulches, often running parallel to the shore, and it was to the tidal and storm action in such submerged channels as may be found between the Kish Bank and the Dublin and Wicklow shores, or between the Dogger Bank and the East Coast of England, that they owed much of the erosion now going on below the lowest level they could protect.

THE AUCTIONEERS' INSTITUTE.

THE annual general meeting of the Auctioneers' Institute of the United Kingdom was held at the offices of the Institute, 57 and 58 Chancery Lane, on Friday afternoon. The president (Mr. John Hepper) was in the chair.

The report of the Council for the past year and the statement of accounts showed that 136 new members had been elected, fifteen associates became fellows and eight students became associates. On February 28 there were 1,485 members on the register. The alteration in the articles of association, which came into force on May 29, 1901, had proved advantageous and generally acceptable to members, and increased the usefulness of the Council. The continued prosperity of the Institute was indicated by the increase in its investments, which now reached the sum of 3,441*l.* 12*s.* 3*d.*, as compared with 2,998*l.* 1*s.* 3*d.* for the previous year. There was an in-



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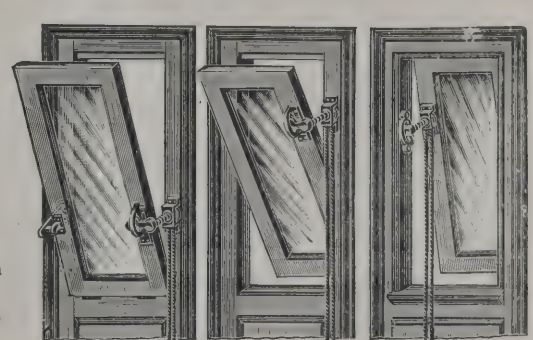


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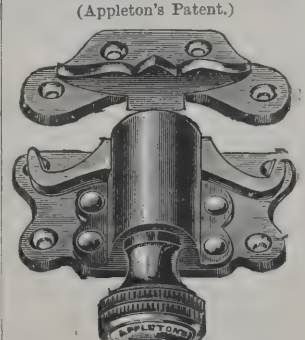


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crease of 4,240*l.* 12*s.* 4*d.* in the balance carried to revenue, in comparison with 3,569*l.* 9*s.* 1*d.* for the previous year. The sum standing to the credit of the benevolent fund on February 28 was 1,481*l.* 10*s.* 4*d.*, as against 1,363*l.* 7*s.* 3*d.* at the same date in 1902. The Council hoped that members would largely strengthen the fund, so that its usefulness might be extended. For the encouragement of examinees the Council were offering, in addition to medals, special prizes for certain subjects, and it was believed that as these examinations became more known and their advantages were better understood, further prizes would be given by individual members. The hopes which the Council had of being able to congratulate the members on receiving a Royal Charter had not, they regretted to say, been realised. The application was made and was refused, no reason for such refusal being given. No doubt another application would be made at a suitable time. During the year two new provincial branches had been sanctioned and inaugurated—one for Liverpool, North Wales and district, and the other for Birmingham and district. There were now ten provincial branches holding regular meetings, and they all appeared to be thriving and doing very useful work. The Institute was becoming more and more a centre of inquiries upon a great variety of professional subjects, and arrangements were under consideration for increasing the efficiency and usefulness of this valuable branch of work. There was a balance in hand of 736*l.* 8*s.* 4*d.*

The President, in moving the adoption of the report and accounts, referred to the consolidation and advancement which had marked the history of the Institution during the past year. The alteration in the articles of association had, he was glad to say, been a decided improvement. It had made the work of the Council more easy, because in certain directions their action had been rendered more elastic. Additional members were elected in March last, bringing the total up to 1,509; the increase during five years had amounted to 72½ per cent., which he regarded as eminently satisfactory. There had been an alteration in the subscription, and they expected that during the present year it would have the effect of preventing a certain class from joining, and also of increasing the prestige of the Institute; the quality of the members would be greatly improved thereby, though the number of incoming members might diminish slightly. They had 4,240*l.* to their credit, which showed an advance since the last stock-taking of 666*l.* They had 3,441*l.* invested in gilt-edged securities, whereas at the end of 1898 they only had 199*l.* This was a splendid

proof of the interest the work of the Institute had created, and of economical management. The first of the provincial branches—which were very important—was established by Yorkshire in 1892; in 1894 Manchester and district started one, and six other branches followed in the course of a few years. Now there were ten branches scattered up and down the country, with 466 members. He looked upon this as a great stride, and he was very glad to find there was a very healthy spirit among these provincial branches. During the year more candidates had been examined than ever before in the history of the Institution, and the number of candidates in March last showed an increase of 53·44 per cent. on the year 1902. Referring to his past year of office, the President said he hoped that the Institution would prosper more and more in the hands of each succeeding president.

The motion was seconded by Mr. Allen Drew, and the report and accounts were adopted.

The retiring members of the Council were re-elected, with the addition of Mr. A. G. Watney (London). The meeting concluded with votes of thanks to the Council and to the Chairman.

The annual dinner of the Institute was afterwards held at the Hôtel Cecil. The President was in the chair, and the company numbered about 300.

The toast of "The Imperial Parliament" was proposed by Mr. Balfour Browne, and responded to by Lord Allerton; and that of "The County and Municipal Councils of the United Kingdom" was given by Mr. James Green, Lord Monkswell replying.

Mr. Justice Kekewich, in responding to the toast of "The Legal Profession," proposed by Mr. W. M. Battersby, said he not only heard a good deal of auctioneers in his judicial capacity, but he also heard them a good deal, and, without flattery, he might say that he had never dealt with a more pleasant class of witness.

Mr. Boyle, K.C., also responded.

Mr. Gerald Balfour, who met with a hearty reception on rising to propose "The Auctioneers' Institute of the United Kingdom," said that until he had the pleasure of listening to Mr. Justice Kekewich he thought there was nobody present who knew less of all that pertained to the work of auctioneers than himself. But his ignorance in this respect did not carry with it any want of respect—quite the contrary. The auctioneers' profession was an ancient, honourable and necessary profession. It was at least as old as the ancient Romans



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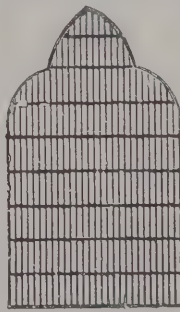
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and he believed he was right in saying that the original auctioneers were soldiers, and that the original auctions were sales, on the field of battle, of booty captured by the conquerors. But if the profession had a military origin, auctioneers were now men of peace, and had discovered that union meant strength, and that many things could be effected by combination and organization. He took it that was the principle on which the Auctioneers' Institute had been founded. He noted that its objects included not merely the promotion and protection of the interests of its members, but also the work of elevating the status of the entire profession. That was a worthy aim, because everything tending to increase the status and dignity of such a profession was good, not only for the profession, but for the public at large. He also was pleased to observe that one of the tasks of the Institute was the establishment of a benevolent fund, from which donations and advances could be made to necessitous members and to the widows and children of deceased members and others connected with the profession. Everybody must sympathise with such objects. That they had the support of the profession at large was evidenced by the growth of the Institute, the membership of which, he understood, had nearly doubled within the last ten years. Politicians and auctioneers might be said to have this in common—that they were supposed to know a good deal about a great many things. He coupled the toast with the name of their President, with whom he had been for many years intimately acquainted. The President, in replying, dwelt on the flourishing state of the Institution, and urged that auctioneers should, as far as possible, article their clerks to themselves, with a view to their advancement in life and to their entering for examinations. Other toasts followed.

CITY IMPROVEMENTS.

THE report of Mr. D. J. Ross, the engineer to the Public Health Department of the Corporation of London, on the works executed during 1902 describes several improvements by setting back frontages in order to widen streets. The question of forming a new line of thoroughfare from the western end of Fore Street, across Aldersgate Street and Bartholomew Close, West Smithfield, was, it is said, again under consideration, and the London County Council have been approached with a view to obtaining a contribution towards the cost of the proposed thoroughfare. The improvements and finance com-

mittee of the Corporation are now waiting to have a conference upon the subject with the Council; and, in the meantime, fresh plans and estimates have been prepared by the engineer in connection with the subject.

The widening of Leadenhall Street is still under consideration, the London County Council having been approached several times by the Corporation with a view to their agreeing to contribute towards the cost of the improvement and leaving the Corporation a free hand to at once open negotiations whenever a favourable opportunity might occur, thus avoiding a repetition of what took place in the year 1900, when the premises Nos. 57, 58 and 64 were rebuilt before the London County Council had decided as to their mode of procedure with regard to the proposed widening, though intimation of the fact that the premises were about to be pulled down and rebuilt was given them at the first opportunity. In spite of a long correspondence upon the subject, they have declined to receive a deputation from the Corporation, and they will give no assurance as to any contribution.

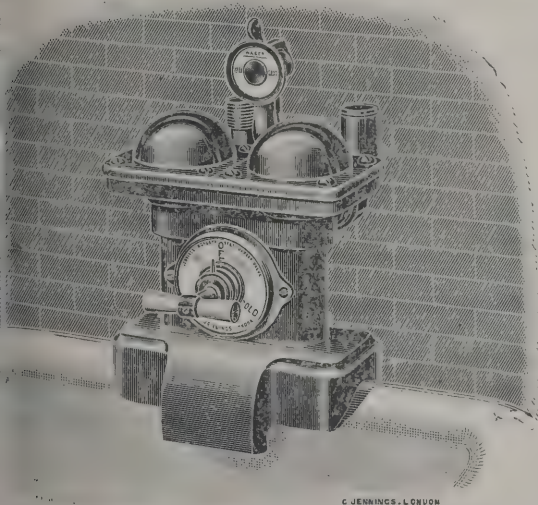
Negotiations have been entered into for the formation of a new street, leading from Giltspur Street to King Edward Street, across the site of Christ's Hospital. Also with the owners of the surrounding properties for the formation of an opening leading from Bridgewater Square to Fann Street. The surplus land remaining after the improvement at the western end of Cheapside had been completed was put up for sale by public auction, but not sold. It will again be put up by auction, for letting on building lease.

The leasehold portion of the surplus land forming part of the site of No. 9 Newgate Street and No. 1 Warwick Lane, which had been acquired in connection with the widening of the latter thoroughfare, was put up by auction, but not sold. As the arrangements made with the freeholder compelled the Corporation (as leaseholders) to build on the surplus land within a specified time, the necessary drawings and specifications were prepared by the engineer, and a contract has been entered into for the new building which is now in course of erection, and, when completed, will be let or otherwise disposed of.

The premises Nos. 1 to 6 Fore Street (formerly known as "The Four Shoppes") having been acquired for the widening of that thoroughfare—at the request of the inhabitants of the Ward of Cripplegate—negotiations have been completed for the disposal of a certain portion of the surplus land to the authorities of the church of St. Giles's, Cripplegate, so as to

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enable the north side of the church to be restored and exposed to view. In connection with the widening of Fenchurch Street, the surplus portion of the premises No. 129 was disposed of to the adjoining owner on a building lease. The freehold and leasehold interests in No. 4 St. Paul's Churchyard, which were acquired in 1901, were, by arrangement, disposed of to the owner of No. 3, adjoining, he agreeing to give up that portion of No. 3 required for the widening of St. Paul's Churchyard, and making a money payment in addition. The surplus land, formerly part of the site of No. 35 Basinghall Street, and that at the corner of Fleet Street and Bride Lane, were sold by public auction.

Some idea of the magnitude of the improvement business carried out by the improvements and finance committee may be gathered from the fact that claims amounting in the aggregate to about 223,172*l.* have been negotiated during the past year. The sum these claims were settled for was about 142,737*l.* Freehold land to the value of 35,750*l.* was disposed of. At the end of the year claims to the extent of 147,668*l.* were under negotiation.

Under the provisions of the Local Government Act, 1899, the boundaries of the City were, in several places, rectified, and the ratings in consequence readjusted. The most noticeable instances were in connection with the boundary abutting on the district of the borough of Stepney, in the Minories; in the borough of Finsbury, where a compensation amounting to 9,940*l.* was paid; and in Holborn, where the Holborn Borough Council paid the sum of 9,362*l.* 5*s.* 8*d.* in respect of the Saffron Hill area.

The regulations made by the Corporation with regard to the dimensions of projecting boards and signs in many cases not having been complied with, it was decided to have all those that did not accord with the regulations removed; 1,548 notices were served with this object, and many of the signs were removed by the parties to whom they belonged; about 200 were removed by inspectors to the City Greenyard, but there still remain a few to be taken down.

ELECTRIC-POWER SCHEME.

A COMMITTEE of the House of Lords, presided over by Lord Glenesk, is considering a Bill to incorporate a company for the supply of electricity and power-gas. The proposed capital is in shares, 1,500,000*l.*, with borrowing powers of half a

million, and the area of operations extends over Cheshire, Flintshire, Denbighshire, and parts of Derbyshire and Staffordshire. The chairman of the company is Mr. T. W. Twyford, managing director of Twyford's, Limited, Newcastle-under-Lyme, and the engineer for the scheme is Mr. John Sturgeon, of Manchester.

It was explained by Mr. Balfour Browne, K.C., that the company proposed to supply electricity and power (or Mond) gas over a very wide area, the generating stations being at Runcorn, Macclesfield, Ruabon and Stone, in Staffordshire. It was hoped that other stations might become necessary in future. Originally no fewer than forty-nine petitions were presented against the Bill, but in many cases the opposition was now either reserved or had been settled. The petitions of the four county councils had been practically settled, and those of six railway companies. Several of the local authorities asked to be left out of the area of supply. On that point he contended that when corporations became traders they became subject to the competition of traders. It was provided by the Bill that the company should not enter into competition with any local authority or company which was established for purely lighting purposes, but at the same time they could not refuse to give a manufacturer electricity. If he chose afterwards to use some for lighting they could not, of course, prevent him. The company could not supply electrical energy in any area which now formed part of the area of supply of any authorised distributors without consent, which, however, was not to be unreasonably withheld, any question that arose on this point being determined by the Board of Trade. There was to be a united competition. If, for instance, Stafford or Hanley was in a position to give traders electricity for power they might refuse to give the company their consent, but any proposal to bind the traders to go to the local authority and take their electricity, whether this was cheaper or dearer than the company's, would, he contended, be a detriment to the trade of the district, and in this respect he asked the committee to give the company the power which had been given to similar companies in Yorkshire and South Staffordshire. Although the proposed capital was large, he should be able to show that the money could be easily raised by the influential syndicate at the back of this Bill. The area of the district proposed to be covered was 2,000 square miles and the population 1½ million. In this area there were ninety-nine local authorities, many of which had powers for the supply of electricity already, but their works were chiefly laid out for lighting purposes.



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The Architect.

THE WEEK.

It is difficult for anyone in England to understand thoroughly the relations between employers and employed in the United States. The Labour Commissioner at Washington informed the Mosely delegates that he was about to publish statistics proving a restriction of output. An endeavour on the part of workmen to diminish the normal amount of work on which a contractor had calculated when he prepared his estimates must everywhere have a serious effect in promoting discontent. On the other hand, the English representative of the bricklayers says that through the existence of the joint Board of employers and workmen a friendly spirit prevails in his trade, "and disputes which might otherwise develop into serious ruptures are generally, indeed almost invariably, avoided, which is certainly to the advantage of both sides." The efforts of the American builders at the present time are evidence that, in spite of joint boards and councils, the trade organisations are sufficiently powerful to control the men and to prevent the carrying out of contracts. In New York there are apprehensions that the interference of delegates will cause building operations to stand still. Many builders have therefore decided to take steps in order that they may become "more secure in the conduct of their business, workmen more secure from interference with their opportunity to work, and the public generally more secure from interruptions to business resulting from strikes and lock-outs in the building trades." It is now believed that 100,000 workmen are on strike in New York alone, and in consequence between 200 and 300 buildings are left incomplete. So serious a state of affairs must be perplexing. It should be remembered, however, that by the conditions imposed by employers the labour market is restricted. The American workman, as was shown by the Mosely Commission, is thrown out of work at an early age, and his average life is shorter than that of the English workman. A plasterer's career is over before he reaches his fiftieth year, and among carpenters there is very little employment for men over middle age. As the building workman's life is therefore short, there is some excuse for him when he seeks for relaxation and amusement by means of strikes.

THE Council of the University of the Cape of Good Hope invited architects to send in designs for new buildings. Premiums of 400*l.*, 200*l.* and 100*l.* were offered. Mr. ASTON WEBB, A.R.A., accepted the task of examining the designs, and has reported as follows:—"I have carefully considered each of the sixty-two designs submitted in this competition, amongst which are a large number of very excellent designs. A great variety of treatment is shown both in the architecture and the planning. I am of opinion, taking plan and elevation together and with a due regard to the conditions of the competition, that the design marked No. 35 is the best, and entitled to the first premium. It is an excellent design, well and economically planned, and I place No. 30 second and No. 24 as third." Design No. 35 is the work of Mr. W. HAWKE, London; No. 30 came from Mr. J. EDWIN FORBES, Birmingham; and No. 24 is by Messrs. E. W. WIMPERIS & HUBERT S. EAST, London. The designs will be exhibited in the North Gallery of the Imperial Institute until May 30 between the hours of eleven and five o'clock.

THERE was a time when examples of Greek art were supposed to be indispensable in any English collection which the owner aspired to have considered as valuable. The Arundel marbles form one example of this ambition, the Townley another. At Petworth, Woburn, Wilton and Chatsworth we can see a survival of the class of work which was once prized. So much ancient work was found to be a comparatively modern fabrication, it is no wonder the taste for the antique died out. Pictures are now found to give more pleasure, and they are a better investment. The delightful exhibition at the Burlington Fine Arts Club may be taken as evidence that there are more votaries of Classic art than had been supposed. A

sufficient number of works in marble, bronze and terra-cotta, coins, gems, vases and other treasures have been contributed to require a voluminous catalogue to describe them. This has been mainly prepared by Mrs. ARTHUR STRONG, who deserves credit for the fine judgment shown in organising the exhibition. Assistance has been rendered by other specialists, and the small gallery in Savile Row is enough to suggest the existence of fields in England which the organisers of loan collections and winter exhibitions have not explored. The Petworth collection was obtained by GAVIN HAMILTON, but a large amount of restoration was necessary. The *Aphrodite* from it was long neglected, but it is so remarkable an example, although it may not be the work of PRAXITELES, it ought to have a place in the British Museum. There are other rivals to it. The fragment of the Parthenon frieze recently described at the Institute can also be seen, with much else which will make an invitation to view the collection valued as a favour.

THE theatre known as the Folies-Marigny, near the Avenue Champs-Élysées, is one of the minor class. However, like the larger buildings it is under the surveillance of the Municipal Council. Several works were reported to be necessary, and a committee was constituted to inspect the structure. M. RENÉ PIAULT, one of the members who was an advocate and formerly President of the Council, was appointed to prepare the report. After examining the structure, M. PIAULT with MM. BOUVARD and FORMIGÉ, the architects, with two municipal councillors ascended to the roof. It is partly covered by a domical sky-light. The inspection over, M. PIAULT followed his colleagues, but as he was short-sighted he must have stood on the glass and fell for a depth of 26 feet. He was terribly injured, and in the course of a few hours died without regaining consciousness. He was only thirty-five years of age. A case of this kind should be taken as a warning by amateur inspectors of buildings. As municipal authorities they make rules and regulations relating to construction, and by a natural weakness they conclude that their knowledge about construction is thorough and practical. It is not unusual for such gentlemen to venture into dangerous positions, and the wonder is there are not more fatal accidents among them. The meeting of the Municipal Council was adjourned out of respect to the late councillor, and it was decided that the expenses of the funeral should be borne by the city funds, which is the rule each time a municipal councillor dies in the discharge of his duty.

THE amended design for the new Vauxhall Bridge was discussed at the meeting of the London County Council on Tuesday. The elliptical arch structure had been abandoned, and the bridges committee recommended the adoption of a steel segmental arch structure, but that the pylons should be omitted from the architectural part of the superstructure. The reasons which have induced the committee to decide on the omission of the pylons are on account of the additional cost which they would entail, and also of the amount of space which they would occupy and the consequent interference with traffic. It was also recommended that a vote of 22,690*l.* should be approved, as that sum was required for decorative masonrywork, for panels over the piers and for additions to the engineer's estimate of 170,000*l.*, rendered necessary in consequence of the alterations of design. An amendment was proposed that the new design should be referred back to the bridges committee in order that the pylons, balustrades and piers should receive further consideration. A second amendment was to the effect that the omission of the pylons should be deferred until the committee had further reported. Mr. EMDEN considered that the pylons should be only of a height sufficient to serve as basis for statuary. Mr. JOHN BURNS also suggested that they should only be carried up to the level of the parapet. Upon that foundation they could cheaply erect plaster pylons to the height suggested in order that their effect might be considered before permanent structures were placed there. The amendment was approved, and the bridges committee will therefore decide upon the form which the pylons are to assume. There is a general belief that the construction of the bridge has been too long delayed, especially as it is hopeless to expect unanimity on the subject, even if three or four years were devoted to the preparation of a design.



TYPES OF COSTUMES:—GRACES AND HORÆ

SCULPTURE AT THE ROYAL ACADEMY.

AMONG the arts sculpture is the most likely to suffer through political disturbances or economical depression. The aim of JOHN FLAXMAN in his lectures on sculpture was to prove that outward circumstances alone prevented Englishmen from excelling in the art. It was therefore to be expected that the difficulty of carrying on a war in a remote country, followed as it was by diminished trade and increased taxation, should be suggested by the character of the sculpture in this year's exhibition. All must hope the effect will be only transitory, for there is no doubt the art of sculpture had received a fresh impetus, and the collection in Burlington House during recent years would have astonished FLAXMAN by its merit and convinced him that his anticipations were not exaggerated. Especially there were signs of his desired union between architecture and sculpture.

In *Music and Poetry*, by Mr. PAUL MONTFORD, which is a model for a group on the Cardiff town hall, we observe an indication of the new spirit. In PAN and HOMER we have a return to the ancient world which will always be present to the minds of sculptors, and the spectator can gain an idea of the arts of music and poetry from the two figures which is as expressive as any elaborate allegory. Mr. PEGRAM'S monument, a relief which has attained the marble stage, recalls HENRI REGNAULT'S in Paris. But that is not a defect. CHAPU'S figure of *Youth* in it raises the left arm. Mr. PEGRAM represents the woman stretching upwards the right arm. The figure is admirably modelled. Mr. WHEATLEY'S *Sons of Poseidon*, two swimmers apparently racing, deserves the credit which should be given to invention. FLAXMAN recommended "Paradise Lost" to the Academy students as a treasury of subjects, although up to his time it had been neglected. The Temptation since that day has been a stock subject. Mr. A. G. WALKER in his interpretation does not give the demon the form of a serpent. A more insidious enemy in human shape takes its place. The low relief imposes less difficulty in its comprehension. An excellent group by Mr. BERTRAM MACKENNA, and called *The Truth Seeker*, is likely to be accepted at first sight by all visitors as the familiar ADAM and EVE. The bust of the late Lord RUSSELL OF KILLOWEN, by Mr. J. W. SWYNNERTON, is well adapted to be placed in the town hall of Newry, in order to suggest the greatness of the man who was at one time an attorney in that small town. With the judicial robes, chains and badges it suggests no less omnipotence than we see in some of the busts of LOUIS XIV. But the Celtic "clear the way" manner to which the barrister mainly owed his amazing success was cast aside, "his falser self slipped from him like a robe" when he reached the Bench, and the colossal bust is less expressive of the Lord Chief Justice of England. There is marvellous power shown in a bust of a different kind by Madamé BROMET,

The Harpy Celano, but it would serve for either of her sisters. It is remarkable what an inspiring effect classic themes have for the sculptor. Signor SCOTTO'S *Bacchante* is a surprising example of dexterous manipulation. Mr. GILBERT BAYES has a finely-modelled horse's head in his *Pegasus*, and his *Fountain of the Zodiac Belt* is of unquestionable beauty. Mr. HORACE MONTFORD'S *Hymn to Demeter*, a girl with a lyre, would probably have been still more attractive in marble. It is rare to see a figure of a Chinaman in a collection that is reminiscent of Greek mythology. The figure to be executed in bronze for the Engineers' Institute, Penang, of CHENG KENG LUIE, by Mr. BENJAMIN CRESWICK, of Birmingham, is a realistic representation of figure and costume. Here it may be observed that the difference between Japan and China in respect of art is indicated by the rarity of Chinese visitors to the annual exhibitions of the Academy as compared with the Japanese. The representatives of the older race appear to go through the galleries like Stoics enduring self-inflicted punishment; their rivals seem to take more pleasure in what they see than the majority of Englishmen.

The Lecture Room suffers this year from the absence of dominating works. Busts are in profusion. There are statuettes and examples of *objets d'art*, but for so large a space something more is needed to produce an impressive effect. Mr. GEORGE FRAMPTON of late has displayed so many novelties that he has made visitors expect a continuance of them. He contributes as his principal work a bust of *Chaucer* intended for the Guildhall, in which, of course, the stereotyped portrait had to be faithfully imitated. There is consequently no opportunity for creation. His *Sir Walter Besant* is a bronze memorial to be placed in St. Paul's. The bust is so low as to be suggestive of an example in *repoussé*, but the likeness is faithful. Opinions will differ about the twisted band introduced. The lettering below is so well executed it would have been an advantage if the titles of BESANT'S books were inscribed instead of the band. A work of like character is Mr. PEGRAM'S memorial of *Sir John Stainer*. It also is to be set up in St. Paul's. The use of coloured materials may now be said to be established. Mr. PICKFORD MARRIOTT has produced an *Adoring Angel*, in which mother-of-pearl, precious stones and gesso are combined. Mr. W. REYNOLDS STEPHENS has made his mark by decorative paintings, but this year he sends part of a church screen in metal, mother-of-pearl, marble, &c. The massive upright square gilded bars are in strong contrast with the ornament in the upper part of the composition. The screen is somewhat allied to the "new art" but is without its extravagance. Various metals are also employed to produce *Love's Crown* by the same artist. There are three busts of the KING, viz. by Mr. DRURY, Mr. MERRETT and Mr. LANIER. Mr. THORNYCROFT has a bronze statuette, *The Sandal*, a small model of another statue of the late Mr. GLADSTONE, and another illus-

trative of Education. By Mr. ARMSTEAD, who has been exhibiting for over fifty years, and may, therefore, be considered the NESTOR among British sculptors, is a figure of *Remorse*—a woman wringing her hands, which in height comes between a life-size statue and a statuette. It suggests tragedy, and might be Lady MACBETH asking, "Will these hands ne'er be clean?" Mr. A. J. LESLIE'S *The Birth of Aphrodite* departs from the usual arrangement, for the goddess is seen seated on a rock as if wondering at the ocean around her instead of rising from the water. Mr. VON HERKÖMER in his *Child of the Sea*—"a phantasy in copper and enamel"—shows one of the original works of the year, for in the shell and figures colour is liberally and skilfully used, and it might be considered as a painting in the solid, or a combination of painters', sculptors' and metal-workers' crafts.

Devotional feeling is expressed with a delicacy and subtlety that are not always found in modern Italian art in Signor CANONICO'S *Communicants*, a group of the busts of two girls at the altar-rail. By the *Roadside*, a work of M. LÉON SOLON, is characteristic of his style, which retains many of the qualities of the finest French pottery. *The Triumphs of Art and Science* is part of a frieze by Mr. WILLIAM MIDGLEY, and has the rhythmical qualities desirable in a work of the class. Another vigorous work is *Sledge-hammerers*, which is also a portion of a frieze by Miss RUBY LEVICK.

The busts are very numerous. Among them are *Sir John Williams* and *Prince Christian Victor*, by Mr. GOSCOMBE JOHN; *Sir William Abney*, by Mr. LANTERI; *My Mother*, by Mr. A. GILBERT; the *Right Hon. W. Court Gully*, by Mr. V. BONANNI; *Luke Fildes*, by Mr. HERBERT HAMPTON; *Monsignor Nugent*, by ANIZA MCGEEHAN; *H. H. Armstead*, by Mr. W. ROBERT COLTON; the late *Sir William MacCormac*, by ALFRED DRURY; the *Dean of St. Albans*, by BASIL GOTTO. It may also be noted that this year the vestibule is adorned with some portrait-busts of deceased Academicians who were painters or sculptors. They are out of place. There would be no objection to them in the winter exhibitions. But in a display of the works of living artists their appearance is disturbing. Probably it is only an experiment in order to ascertain the effect of using the vestibule for busts, and by that means diminishing the monotony caused by the long shelves in the Lecture Room. The old busts vary in quality; the most interesting is one of THOMAS STOTHARD.

METZ CATHEDRAL.

It is generally believed that in Mediæval times architectural sculptors were accustomed to employ for their figures on ecclesiastical buildings portraits of dignitaries of the Church or other distinguished individuals. Italian painters are also known to have introduced their patrons and friends as scriptural personages in pictures. There is an abundance of precedents for making the figure of the prophet DANIEL, which is one of those adorning the new porch of the cathedral of Metz, assume the lineaments of the German EMPEROR. Many other German potentates were employed in the past to give character to other Gothic figures. The Mediæval sculptors were allowed exceptional privileges at a time when men were severely punished for a slight irreverence. They were permitted to gibe at the ecclesiastical system, and a great number of misereres that have survived to the present time reveal the extent of the license. A more severe code of criticism now prevails, and it is adverse to the perpetuation of portraits unless under exceptional circumstances, and we suppose they existed at Metz, or Herr TORNOW, the architect of the new work, would not have selected an imperial model for one of the prophets.

A War Memorial, designed by Mr. Alfred Gilbert, R.A., is to be erected in front of the entrance to the Victoria Park, Leicester. The height of the column will be about 25 feet, and it is proposed to engrave the names of the Leicestershire officers and men round the base of the column. It will be surmounted by a figure of Victory,

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER XI. (continued).

A.

SYMBOLS AND THEIR SIGNIFICANCE (see fig. 75)

Saints:—

Andrew (leaning on saltire cross)	Scotland (Patron Saint).
Anthony (holding Tau cross with bell at end, and accompanied by a pig)	Butchers' sign.
Apollonia (female holding a tooth and palm branch)	Dentists' sign.
Blaise (iron combs)	Hairdressers, woolcombers.
Catherine (wheel)	Patron Saint of girls;
Crispian and Crispin (two shoemakers at work)	Shoemakers.
Cuthbert	Smiths.
Denis (holding his mitred head in his hands)	France (Patron Saint).
Dunstan	Goldsmiths.
George (cavalier tramp—ling dragon).	Piety, England's Patron Saint (illustrated at m).
Giles (old man with arrow in his knee and a hind by his side)	Cripples' Patron Saint.
Hubert (hunter kneeling to a crucifix, borne by a stag)	Huntsmen.
Ives (judge or doctor of laws, with widows and children)	Lawyers' Patron Saint.
James of Compostella (the Greater), with pilgrim's staff, and cloak covered with scallop shells	Spain's Patron-Saint.
James the Less, with fuller's club	Fullers.
John the Baptist (holding lamb, with nimbus round its head)	Baptist chapels and colleges.
John the Evangelist (represented by an eagle)	Lectern (illustrated at j).
Joseph (aged man with budding staff)	Carpenters.
Jude (with club or staff, and a carpenter's square)	Carpenters.
Lawrence (with gridiron, illustrated at g)	Curriers.
Loy (with crozier and hammer)	Smiths.
Luke (a bull, or the saint seated at a desk with a bull's head beneath)	Painters, doctors.
Martin (giving alms to a beggar, illustrated at k)	Charity.
Nicholas (as a bishop holding three golden balls or purses, or with three children)	Boys and scholars, sailors, Russia.
Olaf (carrying a loaf, and a halbert or sword)	Bakers.
Pancreas (treading on a Saracen, and with symbols of martyrdom)	Children.
Patrick	Ireland (Patron Saint).
Paul (with sword and open book)	Preachers, tent-makers.
Peter (cock, triple cross, keys, illustrated at a)	Fishermen and fishmongers.
Sebastian (bound to a tree and pierced with arrows)	Archers, pinmakers.
Simon (with saw and fish)	Fishmongers.

Stephen (with stone and book)	Hungary (Patron Saint).	Authority	Mace, truncheon.
Thomas the Apostle (with builder's square)	Architects (Patron Saint).	Bakers	Owl, Saint carrying a loaf.
Salamander	Fire.	Baptist chapels, &c.	Pale green, Saint carrying a nimbused lamb.
Screw, Archimedean	Eternity.	Baronets	Blood-red hand.
Scroll (open) read by lamp-light	Study.	Barristers	Lion sejant.
Scythe	Time.	Battle	Red flag.
Seal (animal)	Canada.	Bishop	Curved crook.
Serpent casting its slough	Resurrection.	Blacksmiths	Anvil, forge, Vulcan.
Serpent discharging its virus into chalice held by a maiden	Health (illustrated at <i>u</i>).	Boys' schools, &c.	Bishop accompanied by three children.
Serpent holding its tail in its mouth	Eternity.	Bravery	Horse, leopard.
Serpent (winged) rising from a chalice	St. John the Baptist.	Brewers	Tun, barrel.
Shamrock (illustrated at <i>w</i>)	Ireland.	Butchers	St. Anthony's Cross; Saint holding a Tau cross with a bell at the end, and accompanied by a pig.
Sheaf of corn	Plenty.	Callicpe	Stylus and wax tablets.
Ship (illustrated at <i>z</i>)	Navigation.	Canada	Seal (animal).
Silver (tone)	Purity.	Carpenters	Saint holding a club (or staff), and a carpenter's square.
Skull and crossbones	Mortality.	Charity	Flaming heart; pelican; red; woman suckling children; St. Martin giving alms to a beggar (illustrated at <i>k</i>).
Sphinx	Mystery.	Chemists	Red lamp, phoenix.
Spider's web	Prison.	Children's institutions	Saint treading on a Saracen.
Stag (in Christian art)	Christ.	Christ	Cross, fish, lamb, pelican, stag.
Stag bearing crucifix, &c.	St. Hubert (<i>q.v.</i>), Shooting-boxes.	Comedy	Mask, Thaleia the Muse.
Sticks, Bundle of	Strength in union.	Concord	Myrtle, pomegranate.
Stylus and wax tablets	Calliope the Muse.	Confession	Saffron colour.
Sundial	Time.	Consolation	Swallow.
Sunflower	Devotion.	Conviviality	Bacchus.
Swallow	Consolation.	Counsel	Lion sejant.
Sword	Military buildings.	Courage	Horse, leopard.
Sword and open book (in Christian art)	St. Paul, preachers, tent-makers.	Courtship	Cupid.
Tablets (see Stylus)		Cripples	Saint with arrow in his knee, and a hind by his side.
Terpsichore the Muse	Dancing.	Cunning	Fox.
Thaleia the Muse	Comedy.	Curriers	Gridiron.
Thistle (illustrated at <i>w</i>)	Scotland.	Cycle-depôt	Winged wheel.
Toad	Inspiration.	Dairies	Yoke, cow.
Tongs, Smith's	St. Dunstan (<i>q.v.</i>), goldsmiths.	Dancing	Terpsichore the Muse.
Torch, Bridal (see Hymen)		Deity, The	Hand issuing from clouds.
Torch flaming (illustrated at <i>z</i>)	Knowledge.	Denmark	Raven.
Trumpet	Newspaper offices.	Dentists	Female saint holding a tooth and palm branch.
Truncheon	Authority.	Devotion	Sunflower.
Tun	Brewers.	Diana (for Shooting-boxes)	Female with bow and arrows.
Unicorn (as supporter on Royal Arms)	Scotland (illustrated at <i>d</i>).	Doctor	Red lamp.
Venus	Love.	Earth, The	Cow; globe (illustrated at <i>e</i> and <i>l</i>).
Violet (colour)	Mourning.	Egypt	Crocodile.
Violet (flower)	Innocence.	Electric cable	Man with winged heels (Mercury); globe (<i>l</i>).
Vulcan (at his forge)	Blacksmiths.	Electricity	Electric bolt grasped in the hand.
Wheel, Female saint with	Girls' schools, St. Catherine.	Empire	Banyan tree, eagle.
Wheel, Winged	Cycle depôts, &c.	Empire, Dual	Double-headed eagle.
White	Purity.	Endurance	Camel.
Willow branch	Mourning.	England	Britannia (<i>y</i>), St. George's Cross* (<i>v</i>), St. George trampling on dragon (<i>m</i>), John Bull, Rose (<i>w</i>), Lion passant regardant (<i>d</i> and <i>w</i>).*
Woman with bow and arrows	Diana, Shooting-boxes.	Equinox	Balances.
Woman suckling children	Charity.	Eternity	Circle, globe, ivy, Archimedean screw, serpent holding its tail in its mouth.
Yew	Mourning.	Faith	Green.
Yoke	Dairies.	Fire	Salamander.

B.

SUBJECTS AND THEIR SYMBOLS (see fig. 75).

Africa	Camel.
Air	Chameleon.
Ambulance	St. George's Cross.
America, North (United States)	Flag (Stars and Stripes).
Apothecaries	Pestle and mortar.
Archbishop	Floriated crook; Mitre (illustrated at <i>f</i>).
Archers	Saint bound to a tree, and pierced with arrows.
Architects	Saint carrying a builder's rule or square.
Asia	Elephant.
Auctioneers	Hammer.
Australia	Kangaroo.
Austria	Double-headed eagle.

Fire insurance (illustrated at <i>r</i>)	Phoenix.
Fishermen and fishmongers	Cock, key or two keys.
Folly	Cap and bells.
Fortitude	Eagle.
France	Fleur-de-lys (illustrated at <i>z</i>), lily, Saint holding his mitred head in his hand.
Fruiters	Cornucopia.
Fullers	Saint holding a fuller's club.
Furriers	Bear.
Girls' schools, &c.	Female saint holding a wheel.
Goldsmiths	Saint with a harp.

* Drawn according to heraldic blazonry.

Grocers	Grasshopper.
Guardianship	Policeman, serpent.
Hairdressers	Pole with gilt knob at end, Saint with combs.
Health	Hygeia holding a salver, into which a serpent drops its virus (illustrated at <i>u</i>).
Holy Spirit, The	Dove.
Homœopathy	Hahnemann.
Hope	Anchor; blue.
Huntsmen	Diana hunting, Saint kneeling to a crucifix borne by a stag.
Hygiene	(see Health.)
Hymen	Man holding bridal torch and veil.
Ignorance	Ass carrying blindfolded person.
Immortality	Azure blue; green.
Incorruptibility	Peacock; rose.
Industry	Beehive.
Innocence	Violet (the flower).
Inspiration	Toad.
Ireland	St. Patrick's Cross* (<i>v</i>), harp (<i>d</i> and <i>w</i>), shamrock (<i>w</i>).
Isle of Man.	Three radiating legs.
Justice	Balances carried by blindfolded female holding a sword; purple.
Kennels	Dogs.
Kent	White horse.
Knowledge	Flaming torch (illustrated at $\frac{z}{c}$).
Lawyers	Judge; Doctor of Laws.
Leinster	Harp.
Liberty	Cat, blue cap with white border (England), red cap (France), cap on a pole ($\frac{z}{a}$).
Life, Tree of	Palm tree.
Locksmiths	Key, padlock.
Love	Venus.
Luck (good)	Horseshoe.
Marriage	(see Hymen.)
Martyrdom	Palm branch; rose colour.
Mary (Mother of Jesus)	Heart pierced with arrows; marigold.
Masonic Societies	Compasses, cube, equilateral triangles crossed.
Mercury	Man with winged heels.
Messengers	Mercury (as last).
Meteorology	Figures representing the winds (as on the Clepsydra at Athens).
Military	Cannon, gun, halberd, helmet, sword.
Mortality	Skull and crossed bones, broken column.
Mourning	Black, violet, cypress, yew, willow branch, laurel, oak, half-masted flag.
Munster	Three crowns.
Music	Apollo, lyre.
Mystery	Sphinx.
Navigation	Figurehead; ship (illustrated at $\frac{h}{c}$).
Newspapers	Cuttlefish; trumpet; globe (illustrated at <i>e</i>).
Painters	Palette and brushes, St. Luke.
Pawnbrokers	Three golden balls (illustrated at $\frac{z}{b}$).
Peace	White flag, olive branch.
Pinmakers	Saint pierced with arrows (see St. Sebastian).
Plenty	Cornucopia, quails, sheaf of corn.
Poetry (heroic)	Calliope the Muse.
Poetry (historical)	Clio the Muse.
Preachers	Saint with sword and open book (see St. Paul).
Printers	Cuttlefish.
Prisons	Handcuffs, spider's web.
Prosperity	Olive tree.
Providence	Hen and chickens, raven.
Purity	Silver (tone), white.
Regeneration	Lotus flower or plant, phoenix.
Resurrection	Box plant, holly, serpent casting its slough, green colour, phoenix (<i>r</i>).
Royalty	Purple.

Russia	Bear.
Sacrifice	Pelican.
Sanctity	Nimbus.
Schools	Owl (illustrated at <i>t</i>); beehive, &c.
Scotland	Lion rampant (<i>d</i> and <i>w</i>), St. Andrew's Cross* (<i>v</i>), Saint leaning on a saltire cross; thistle (<i>w</i>); unicorn (<i>d</i>).
Sea, The	Dolphin (<i>s</i>), Neptune with trident.
Security	Noah's ark (<i>c</i>), bulldog, portcullis.
Shoemakers	Two saints working at the trade; a boot-last.
Shooting-boxes	Diana, Saint kneeling to a crucifix borne by a stag.
Smiths	Hammer, Saint with crozier and hammer.
Sorrow	Heart pierced with arrows.
Sovereignty	Crown and sceptre (illustrated at <i>w</i>).
Spain	Pomegranate, Saint with pilgrim's staff and in cloak covered with scallop shells.
Speed	Horse.
Stables	Horse.
Stock Exchange, The	Bear, bull.
Strength	Hercules; bundle of sticks ("Strength in union").
Study	Open book, lamp, open scroll read by lamplight.
Tailors	Ram suspended round the middle.
Tentmakers	Saint with sword and open book.
Time	Hour-glass, scythe, sun-dial, old man with scythe.
Travel	Globe.
Trinity, The	Equilateral triangle.
Turkey	Crescent moon and star.
Ulster	Blood-red and erect hand.
Union	Myrtle; pomegranate; bundle of sticks ("Strength").
Valour	Lion saliant.
Victory	Laurel wreath, palm branch, parsley wreath.
Vigilance	Bulldog, cock.
Vintners	Barrel (<i>n</i>).
Wales	Dragon, goat, leek.
Wales, Prince of	Three ostrich plumes (badge).
Watchfulness	(see Vigilance.)
Weather, the	(see Meteorology.)
Wisdom	Owl (illustrated at <i>t</i>).
Woolcombers	Iron combs.
Youth	Hebe holding a cup. (To be continued.)

PRESERVATION OF HISTORICAL BUILDINGS.

ON Tuesday last the First Lord of the Treasury was asked by Mr. YOXALL whether he would consider the appointment of a Select Committee of the House of Commons to inquire into the desirability of establishing in the United Kingdom a system of national protection and conservation of buildings of historical or biographical interest, such as exists in France under the Loi du 30 Mars, 1887, whereby a Government grant of 1,427,000 frs. is available for the purpose this year. The reply of Mr. BALFOUR was:—"I should be very sorry to express any opinion on this question, or even go the length of saying that it is ripe for discussion before a committee of the House. I have looked at the French law, and I find that it entirely turns upon the discretion of a Minister who is competent, or understood to be competent, to deal with questions of this kind. I am not sure that I should like to add to the labours of the central Government in this country such addition to their responsibility as the copying of the French law would entail." We do not venture to say that the First Lord was in error. So little attention is given to antiquity or historic buildings in Parliament, it is unlikely he considered the French laws about historic monuments until it became necessary to give an official answer to the member for Nottingham. What was done by the French Chamber in 1887 was merely to develop and to impart more definiteness to arrangements which had been adopted

* Drawn according to heraldic blazonry.

* Drawn according to heraldic blazonry.

for about fifty-five years. It may, then, be an advantage for other men as well as legislators and officials to describe the efforts of various Governments in France to preserve architectural works having more or less relation to the history of that country.

The subject should be interesting to Englishmen, for although it may not be generally known in France, the preservation movement owed its origin to English influence. The love of architecture which is inherent in Frenchmen as in all the Latin races is exemplified mainly by the encouragement of living representatives of the art, rather than by vaunting the superiority of their predecessors. The past may have sentimental associations occasionally for Frenchmen, but the Revolution of 1799 was enough to show how easily all that is antique could be cast aside. In the excitement of that stirring epoch a spirit of vandalism was allowed to appear, and to it many a fine building succumbed. But fortunately the current of events turned the attention of Frenchmen from antiquity for a period. It is a remarkable fact that DUCAREL, who was the first Frenchman to write about the antiquities of Normandy, was only the agent of our Society of Antiquaries, and his book was brought out at their expense. There was a large collection of treatises produced in London on French Gothic before a single volume on the subject appeared in France. D'AGINCOURT's great work, which was completed in 1816, relates to the whole of Europe rather than to his own country. It was not until 1824 that essays by a few enthusiastic architects in Normandy were printed for the use of the public. At the time there was an official fear of an investigation of the past. In 1822 the course on the history of Europe at the Sorbonne by M. GUIZOT was suppressed. But the same year saw the revelation of a power that was destined to give charm to the past, for it witnessed the dawn of VICTOR HUGO as a poet. The glamour which WALTER SCOTT exercised over England and Germany was to some slight extent operative in France. The work of THIERRY on the conquest of England by the Normans was avowedly an effort to adopt SCOTT's system, and to make history picturesque and vivid as well as truthful. Then came the revolution of 1830 when LOUIS PHILIPPE was elected king. The queen was of a religious nature, and courtiers began to take an interest in the old churches of the country.

Another factor was the rise of romanticism. It might be described as an attempt to bring back the Middle Ages. It mattered little to the zealots whether it was the era of St. LOUIS and the Crusades, or the more remote Merovingian or the Carolingian time which was revived, so long as every trace of classicism could be held in subjection. So general was the new infatuation that in 1831 the French Chambers agreed to allow 80,000 francs towards the reparation of ancient buildings in urgent cases, and in order to encourage local administrations to tax themselves for the conservation of monuments in their districts. The distribution of the money was confided to the Department of Fine Arts, which was then one of many sections of officialdom belonging to the Minister of the Interior. Mr. BALFOUR's advisers, we imagine, must have informed him of the arrangement, and made him believe that since 1831 the restoration of old buildings was a task imposed on successive Ministers of State. Anyone acquainted with official life in France would at once realise the true meaning of what was done, for it may be laid down as a general rule that the creation of paid and honorary appointments has much to do with all French reforms.

The disposal of the 80,000 francs led to the engagement of inspectors, who acted under an Inspector-General. LUDOVIC VITET was the first to hold the latter office. He was a painstaking archæologist; but although he attained a seat in the Academy, he never could be said to have received the applause he merited. After a year or two he was supplanted by PROSPER MÉRIMÉE, the author of "Carmen" and several delightful tales, but who had a genius for statesmanship. In 1836 he procured an increase of the vote to 120,000 francs, and then to 200,000 francs. By 1837 he had persuaded the Minister of the necessity of an independent Commission to deal with historic monuments. The Director of Civil Buildings was appointed president; FÉLIX DUBAN, the architect, was one of the members, and PROSPER MÉRIMÉE became secretary, as well as inspector-

general, and was therefore the soul of the new authority. The first aim of the Commission was the preparation of a sort of Domesday Book. The historic monuments were registered and classified. Their condition was investigated, not very thoroughly, but sufficiently to allow of the despatch of circulars to prefects calling attention to the reparations which were necessary for the buildings in their districts. No less important was the order that no prefect was to sanction any work on one of the tabulated buildings until it had received the sanction of the new Commission. A central authority in Paris is sure to give rise to the voluntary creation of subordinate organisations in the provinces. A large number of departmental societies were founded to co-operate with the Commission. They were willing to confirm the wisdom of the instructions received from the Commission by their own conclusions. The general enthusiasm was not without its effect on the Chambers, and in the course of seven years the vote had grown from 80,000 to 400,000 francs. There was a proportionate increase of officials. Special inspectors were appointed for each department of France. In order that relics of various classes might not be dispersed, the Musée Cluny was founded for their reception. In spite of the numerous changes in government, the grants from the Legislature became more liberal. People may have been amazed when it was stated by Mr. YOXALL that a sum of 1,427,000 francs was devoted this year to historic monuments; but as far back as 1859 the vote was 1,100,000 francs, and that amount was regularly assigned for several years. It is needless to say that the votes had of necessity to be supplemented by much larger sums raised in the different districts where works were executed.

When the Commission was formed it was inevitable that, with masters of composition like VITET and MÉRIMÉE at the head of affairs, they would carry out the business of the Commission by means of documents. It is a weakness in all countries to associate the production of State papers with successful government. If style alone was the test, a selection from the archives of the French Historic Monuments Commission deserves to be considered as forming the most perfect example of official literature in existence. But there were politicians in France who believed circularising had been carried to excess. The initiative in schemes of restoration was imagined to be a privilege of the Commission, and local energy was sometimes subdued. The law of March 1887, to which Mr. YOXALL alluded on Monday, was introduced by M. ANTONIN PROUST, then Minister of Fine Arts, and was to give more of a compulsory character to the regulations, or, in other words, to make the preservation of monuments a public duty.

The first Commission consisted of about eight members; there are now thirty. Among them are several architects, a sculptor, a painter, an archæologist, directors of civil buildings, museums and cults, besides prefects and officials possessing special knowledge of all bearings of restoration. There has also grown up, as subordinate or auxiliary to the Commission, a department of diocesan architects, and in that way local knowledge of the most exact kind is obtainable. There are many other officials, and any proposed scheme of operating on a building has in consequence to be subjected to a manifold scrutiny. The Minister of Fine Arts is simply the chairman for the time being of a permanent body having thirty members, and although he may be influential, his power is minimised owing to the number of high officials who may be said to take a personal interest in the subject, while his can only be temporary, for it depends on his term of office. It was therefore inexact on Mr. BALFOUR's part to speak as if the whole work of restoration in France depended on a Minister's investigation of archæological problems. As we have said, the Minister's office, as relates to historic monuments, is mainly honorary. He approves of arrangements, but they are initiated and conducted to their completion by a Commission that in its constitution exemplifies the power of French organisation.

Mr. BALFOUR's alarm about such an addition to the duties of an English Minister as responsibility for restoration was justified. Whenever any project of the kind is proposed in this country it becomes a subject of controversy which is often acrimonious. There is no accounting for



GLASGOW TECHNICAL COLLEGE.

taste, it is said, and differences between men about the treatment of an old building are more frequent than in those arising in connection with other cases where taste is involved. What politician would care to accept office if he knew he was to be subjected to badgering about the erection of a public library in Stratford-on-Avon, the restoration of Exeter Cathedral, the search for the Ark of the Covenant at Tara, or the numerous controversial proposals raised every year? It is rarely, however, a question relating to restoration is discussed in the French Chamber. The Minister of Public Instruction and Fine Arts is no doubt responsible in all cases, and any subject may serve for an attack on Government in an emergency, but the extent of his power is known, and it is recognised that every proposal for restoration has been investigated by specialists from different points of view, and whatever is undertaken is the best settlement which fallible men can devise.

If restoration were included in the work of one of the English ministries and had to be controlled by ordinary officials there would not be much gained by the public in any sense. But a Commission corresponding as far as English peculiarities would admit with the Commission of Historic Monuments is likely to be as serviceable in England as the French institution has proved to be in France. Although renovation was too often carried to excess, we should judge results by French ideas of propriety. There would be little difficulty in making arrangements to enable a body of experts in England to investigate projects of restoration, and their conclusions could be made to hold a like relation to ministerial decisions that the awards of arbitrators related to the judgments of the High Courts. The members of the French Historic Commission discharge their duties mainly without fees, for the money expended is devoted to the execution of works and superintendence.

GLASGOW TECHNICAL COLLEGE.

THE new buildings, of which the memorial-stone was laid on the 14th inst. by the King, occupy a spacious site in George Street, and their cost, with the price of the ground, but exclusive of the equipment, is estimated at 210,000*l.*, towards which subscriptions have been received to the amount of about 180,000*l.* They will cover an area of nearly two acres, and will be the largest of the kind in Great Britain. The new buildings, which have been designed by Mr. David Barclay,

F.R.I.B.A., will consist of five wings, two being parallel to George Street, the other three at right angles to them and parallel to Montrose Street on the east. The style of architecture is a free treatment of Italian Renaissance. The main frontage to George Street has a centre block of three bays, slightly projecting, in which are three spacious arched doorways, each 16 feet wide and 20 feet high. The first-floor storey is 20 feet in height, and in the centre block and wings this storey is treated with solidity and breadth, forming a base to a columnar façade of columns in pairs 22 feet in height carrying an entablature, broken around pillars and surmounted by an attic storey of square disengaged pillars, upon which is the finishing pediment. The flanking wings are treated as quasi-towers, finished with a balustrade and corner turrets. The intermediate bays are divided by projecting buttress piers to give, with stability, great width of window openings. In the fenestration two storeys of windows are framed under semi-circled arches springing from imposts, the lower tier divided by circular pillar mullions carrying panelled transoms at the division of the floors. The same style and character is maintained in the elevation to Montrose Street. The main front to George Street is 346 feet long, over 100 feet in height, and contains five floors and a semi-basement. The following table shows the amount of space allotted to each of the seventeen departments comprised in the college:—

Department.	Area in sq. ft.
Mathematics	5,500
Natural philosophy	10,400
Chemistry	16,500
Technical chemistry	7,500
Mechanics	10,000
Machine design	10,000
Prime movers	15,100
Metallurgy	4,800
Electrical engineering	15,900
Practical engineering	4,000
Mining and geology	3,400
Architecture and building construction	7,700
Biology	3,200
Industrial arts	4,000
Workshops	7,900
Bakery school	2,100
Administration, library, general classrooms, &c.	37,000

The prime movers laboratory, the dynamo laboratory and the practical engineering laboratory will be placed at the bottom of the interior courts and will be lighted entirely from the roof. The chemical laboratory will occupy practically the whole of the top floor, and will contain several large laboratories and other rooms set apart for special purposes. Each of the departments will be confined to its own floor, with the result that the internal arrangements generally will be admirably adapted to promote efficiency and economy of working.

NOTES AND COMMENTS.

WHEN the London Building Act was first passed through Parliament buildings in flats were little known. They were, so to speak, an exception to established usage, and legislators were to be excused if they neglected them. As flats became more general many questions relating to them had to be brought before the magistrates. It might be supposed that in the Act of 1894 provision would be made for dealing with all difficulties; but it is evident that the amended Building Act is incomplete as regards flats. The case *GOODCHILD v. MATHEWS*, which came before the High Court on appeal last Saturday, exemplifies one of the problems of the Act. The respondent proposed to erect six blocks of flats in West Hill, St. Pancras. Mr. J. GOODCHILD, the district surveyor, served notice on him objecting that they were not in accordance with section 77, which states:—"Buildings shall not be united except where they are wholly in one occupation or are constructed or adapted to be so." The walls between the blocks were as thick as party walls, but were not carried up through the roof. Each block had its own staircase and entrance. There was, however, a passage under the roof which was continuous through the blocks. The district surveyor held that each was a separate building to be united by a corridor. The builder, on the contrary, maintained the blocks of separate dwellings constituted a single building. The magistrate came to the conclusion that section 77 referred to the union of buildings which originally had been separate structures, and did not apply in a case like that before him where the parts were intended to form one structure. The Lord Chief Justice said he would have arrived at the same conclusions as the magistrate. The "uniting" was not to be considered as accomplished by means of a covered way between two structures, for according to sub-sections 2 and 3, "Buildings shall not be united if when so united and considered as one building only they would not be in conformity with this Act. An opening shall not be made in any party wall or in two external walls dividing buildings, which if taken together would extend to more than 250,000 cubic feet." Mr. GOODCHILD's appeal was accordingly dismissed. Their lordships' decision is not convincing, and as leave for a further appeal was granted it is to be hoped the arguments will be heard at greater length in another Court.

THERE was only one bidding at the sale of Clifford's Inn by Messrs. FAREBROTHER, ELLIS, EGERTON, BREACH, GALSWORTHY & Co, under an order of the Court of Chancery. Although there were apprehensions of its transformation, the rental of the chambers and offices amounted to 2,550*l.* a year. Considering the capability of the estate, the auctioneer was justified in announcing it was worth 150,000*l.* Mr. W. WILLETT, the builder, offered 100,000*l.*, and for that sum acquired an estate that deserves to be considered as historic. Six centuries ago EDWARD II. made a gift of the property to ROBERT CLIFFORD, but there was an earlier possessor. This is evident from the patent which is dated 1310, viz.:—"The king granted to ROBERT CLIFFORD that messuage, with the appurtenances, next the church of St. Dunstan in the West, in the suburbs of London, which messuage was sometime MALCULINE DE HERLEY, and came to the hands of EDWARD I. by reason of certain debts which the said MALCULINE was bound at the time of his death to our sayde father, from the time that he was escator on this side Trent, which house JOHN, Earle of RICHMOUNT, did holde of our pleasure, and is now in our possession." The messuage was let to apprentices of the law by the widow of ROBERT CLIFFORD. Afterwards it fell into the king's hands, and at a subsequent time became once more the possession of the CLIFFORD family. When the property is appropriated to a different purpose we hope some means will be taken to continue the association of the name of CLIFFORD with it. The historical records and buildings committee of the London County Council have expressed deep regret that the historic buildings comprising the Inn, and especially the hall, should be about to be demolished. They were not, however, prepared, owing to the great cost involved, to recommend the purchase of the property by the Council. For the

purposes of record instructions were given for photographs of the buildings to be taken and drawings made of objects of interest in connection with the Inn. The oak panelling in one of the rooms was expressly excluded from the sale by auction, the vendors reserving to themselves the right to sell and remove it.

THE name of Abydos at first recalls the Greek legend of HERO and LEANDER, or Lord BYRON's poem. But Abydos in Egypt is of older date than the legend of the swimmer. In magnificence it used to rank next to Thebes, and was reputed to be the burial-place of OSIRIS. "There are many places," says PLUTARCH, "where his corpse is said to have been deposited, but Abydos and Memphis are mentioned in particular as having the true body, and for this reason the rich and powerful of the Egyptians are desirous of being buried in the former of these cities, in order to lie, as it were, in the same grave as OSIRIS himself." During the past winter Professor FLINDERS PETRIE has been at work at Abydos. In a paper which he read last week he described his operations. Owing to the condition of the Nile he had been able to get down to a lower level than had previously been the case, and from the excavations carried on had succeeded in making a plan of the temple, based on the foundations. It was interesting to find as the work went on that they were dealing, not with a single temple, but with a succession of temples, built one over another. There was stonework of about the eleventh dynasty, chiefly in the form of doorways, and as these were found inserted in brickwork, it appeared to be safe to conclude that the older temples were mainly of brick, with stone doorways. There were also remains of a brick wall surrounding a temple which seemed to be of the twelfth dynasty. Apparently, about every five hundred years the existing temple was razed and a new one built. The most remarkable point was that these temples differed in their orientation, which was sometimes east and west, and sometimes north and south. He was also able to identify the great hall of OSIRIS.

ILLUSTRATIONS.

HOUSE, WESTMINSTER ESTATE, BOURNEMOUTH.

THIS house is covered with red tiles, the walls finished with white stucco; the window frames painted green, the glazing with lead lights. The principal feature in the planning is the hall sitting-room. The architect is Mr. MILLS.

BLEAK HOUSE, BROADSTAIRS.

BLEAK HOUSE, Broadstairs, Kent, once the residence of the late CHARLES DICKENS, that incomparable master of English fiction, has been slightly altered and an addition made to same for Mr. THOMAS BARRY, as shown by the illustration. The portico, basements and other windows, and the old wooden oriel window to DICKENS's study overlooking the sea, have been removed owing to their rotten state, and a brick and stone oriel window substituted in the latter case, but practically the whole of the interior, with the old staircase, remains as of old. The new brickwork has been made to match the old work, and the whole of the stonework has been executed in patent Victoria stone by the Victoria Stone Co. The hot-water work has been done by Messrs. KEITH & BLACKMAN, LTD., and the electric-light installation, bells, &c., by the Alliance Electrical Co., Ltd. The builders are Messrs. GANN & CO., of Whitstable, and Mr. WILLIAM A. BURR, M.S.A., of 65 Chancery Lane, W.C., is the architect.

FIRE STATION, HIGH STREET, ACTON.

CAMBERWELL PALACE OF VARIETIES.

THE GRAND THEATRE, CLAPHAM JUNCTION.

CORONET THEATRE, NOTTING HILL.

GRAND THEATRE, FULHAM.



ANNUAL DINNER, SOCIETY OF ARCHITECTS.

Photographed by Fradelle & Young, 283 Regent St., W.]

THE SOCIETY OF ARCHITECTS.

THE nineteenth annual dinner of the Society of Architects was held in the Grand Hall of the Princes' Restaurant, Piccadilly, W., on Friday, May 15, the chair being occupied by the president, Mr. Silvanus Trevail, J.P., F.R.I.B.A., who was supported by a very large and representative gathering, including the Very Rev. Canon Vere, Rev. A. Mercer, M.A., Rev. H. Mills, Right Hon. Lord St. Levan, Right Hon. Viscount Clifden, Right Hon. Sir Arthur D. Hayter, Bart., M.P., Sir Edwin Durning-Lawrence, Bart., M.P., Sir Walter B. Foster, M.P., Right Hon. T. F. Halsey, M.A., M.P., Hon. W. Massey-Mainwaring, M.P., H. E. Duke, K.C., M.P., Cumming Macdonald, M.P., Edward Hain, M.P., F. Layland Barratt, M.P., D. J. Morgan, M.P., General Festing, C.B., F.R.S., General Hamley, C.B., Alderman Sir William Treloar (ex-Sheriff of London), Alderman Sir H. E. Knight (past Lord Mayor of London), Sir Robert Harvey, Sir C. Boxall, K.C.B., Sir W. H. Bailey, Hon. Geo. T. Lincoln (Consul-General U.S.A., Belgium), Sir C. J. Owens (general manager, London and South-Western Railway), Sir Henry Trueman Wood (secretary, Society of Arts), His Honour Judge Rentoul, K.C., LL.D., Right Hon. Lord Mayor of Liverpool (W. Watson Rutherford), Colonel C. Prideaux-Brune, Major Tremayne, Major F. B. MacCrae, Captain T. V. Kearn, U.S.A., Captain V. Millett, the Deputy Chairman of London County Council (R. A. Robinson), R. K. Causton, K.C., R. B. Blennerhassett, K.C., the Mayors of St. Pancras, Stoke Newington, Islington, Poplar, Deptford, Holborn, Wandsworth, Stepney, Hammersmith, Shoreditch, Hampstead, Hackney, Bermondsey, Camberwell, Paddington, Rochester, Southampton, Reading, Brighton and Greenwich, the Master of the Painters' Company (W. Dunn), the Master of the Carpenters' Company (Walter Smith), the President London Master Builders' Association (Ernest J. Brown), the President Surveyors' Institution (Arthur Vernon), the President Institute of Builders (William F. King), the Presidents of the Liverpool, Cardiff and Aberdeen Architectural Societies, the ex-High Sheriff of Berkshire (W. Walters Bond), Vice-Chairman Cornwall County Council (W. Cole Pendarves), the Architect London County Council (W. E. Riley, F.R.I.B.A.), the Clerk of the London County Council (G. L. Gomme), E. O. Sachs (Chairman British Fire Prevention Committee), Dr. Henry D. Martin, Dr. Venning Burgess, Alderman J. Glazier, Messrs. G. Gard Pye and Walter W. Thomas (vice-presidents), Ellis Marsland (hon. secretary), H. G. Quartermain (hon. treasurer), Edgar Farman (solicitor), T. R.

Richards, E. W. Cooper, R. G. Bare, H. Passmore Edwards, Thos. B. Bowring, George Tangye, J.P., C. Selby Lowndes, E. O. Preston, J. H. Oxley, H. H. Bartlett, Rashleigh Phipps, F. Hutchins, Alfred Cummor, W. Beck, A. A. Johnson, H. James, J. Lanyon, A. H. Campbell, A.M. Inst.C.E. (borough surveyor, East Ham), J. W. Jerram, A. A. Hudson, J. Miller Carr, Franklin R. Kendall (general manager P. and O. Steamship Company), J. W. Woodall, M.A., W. Vicary, J.P., C.C., J. Brotherton, S. Roberts, T. V. Forrest, A. Conder, F.R.I.B.A., R. Waldram, George Cory (secretary London Cornish Association), L. Schlenheim, C. Ingram Hayden, F. Phillips, J. R. Manning, C. Haslett, A. W. Wells, G. E. Bond, C. E. Skinner, E. R. Viney, C. H. Leavey, W. D. Driver, R. D. Batchelor, J. R. Leatherby, C. Day (borough surveyor, Chatham), Walter C. Williams, C. McArthur Butler (secretary), W. L. Cantrill, E. T. Ruthven Murray, D. Legat Fulton, E. Pye, C. Palmer, P. Condy, H. Warren, F. E. Warren, E. W. Dring, C. H. Child, O. Marsland, C. H. Mead, M. Zimmerman, C. Zimmerman, E. C. Beaumont, E. J. Gee, A. H. Quartermain, M. V. Cassall, C. Mason, A. A. H. Scott, E. G. Hanson, G. M. French, S. C. Hanson, P. Fraser, C. E. Jackson, G. Sharples, J. F. Stovell, A. Souttar, S. Herbert, A. Emslie, E. G. Sadgrove, E. C. Wotton, M. C. Meaby, A. A. Webbe, A. F. Goddard, H. Prosser, J. C. Jackson, C. D. Collins, G. Allen, A. E. Scanes, E. J. Naldrett, W. H. Linton, Tom Brown, R. Banks-Martin, A. Bethell, J. H. Richardson, T. G. Hart, W. H. Pertwee, W. Taylor, J. Lennard, J. P., A. H. Pethick, E. G. Kibblewhite, J. Littlejohn, C. Menhenwick, C.C., H. B. Comber, W. Windham, R. H. Spalding, A.R.I.B.A., H. Dennis, J.P., C.A., F. Parkyn, W. H. K. Wright, F.R.G.S., A. Carkeek, C.C., Vivian Thomas, A. Y. Mayell, H. W. Matthews, J. B. Paynter, Frank Dodd, J. Brewer (Great Western Railway, Swindon), Oscar Berend, C. S. Covington, A. K. Carlyon, J.P., C.C., Fred Hare, A. E. Collins, A.M. Inst.C.E. (city engineer, Norwich), F. G. Mansfield, D. E. Costigan (secretary London Master Builders' Association), W. Lees McClure, J.P., Edmund Carlyon, Edward H. Balydon, C. H. Heathcote, F.R.I.B.A., William Woodward, A.R.I.B.A., F. B. Hollis, A. J. Cornelius and Owen Owen.

The two first loyal toasts, "His Majesty the King," "Her Majesty Queen Alexandra, Their Royal Highnesses the Prince and Princess of Wales and the other members of the Royal Family," were passed with musical honours.

The Mayor of Paddington proposed "The Houses of Parliament." He regretted the fact that the fine arts in

England did not receive the same fostering care given to them by Governments in France and Germany. The fault was not so much with the legislature, because it was unreasonable to expect that the parties of government would do more for art than the average Englishman, who seemed rather ashamed of magnificent display. The average Englishman divided everything into two classes, the practical and the unpractical, and much that appertained to art was considered unpractical.

The Right Hon. the Lord St. Levan in a clever speech responded for the House of Lords. Sir Walter Foster, M.P., replied for the House of Commons.

"The Imperial Forces" was the fourth toast, proposed by Alderman Sir Wm. Treloar. General Festing, C.B., F.R.S., responded. He remarked that seventeen years ago such a toast as this would have referred only to the Army and Navy, but so many were the changes of recent years that the toast was incomplete unless titled the Imperial forces. This showed an absolute solidarity between the colonies and the Motherland.

Sir A. D. Hayter, Bart., M.P., proposed "The Society of Architects and Architecture." The toast would commend itself to all. He questioned whether there was any man with an intelligent eye who did not feel when passing through the towns and provinces of England that he owed an extraordinary debt of gratitude to the community of architects. London itself bore testimony to the ability of its architects, and the many new thoroughfares would afford them a still further opportunity for the legitimate use of their art. The Society of Architects was a business society, and he rejoiced to think that they had introduced a Bill into Parliament for the registration of architects. He trusted the Bill would receive the sanction of the legislature, and make the British architects a great profession. It was happily first intended to create a great central council in London with two sister councils in Edinburgh and Dublin. An examining board would be constituted, and no man who did not possess the diploma and certificate should be able to call himself an architect. In conclusion, he hoped that the numbers of the profession would be limited to those who could call themselves members of the registered profession, and those who had charge of the Bill in Parliament should do all in their power to assist the profession towards that end.

The President, in the course of his response to the toast, said:—At no period in our history as a people, a nation, or an empire was the work of the architect more important than it is to-day. Never before were there so many and so varied a collection of architectural problems to be solved, nor of such an exacting character. This applies no less to buildings of the commercial class than to those of the domestic, the ecclesiastic or the municipal, with all its subdivisions of hospitals, asylums, educational or other classifications that might be multiplied indefinitely. As one of Her Majesty's Lunacy Commissioners once observed to me, asylum planning and construction is a progressive science, and what may satisfy us to-day may not do so to-morrow, when we have the advantage of adopting an improved method. It will be seen that the scope of an architect's duties is a very wide one. It requires in the properly qualified practitioner a man of good education, a travelled man, a man of keen observation, a man skilled in the science as well as in the art of his profession, with a knowledge of the latest appliances and the latest developments of all those specialties which go to make a successful building, and at the same time a keen discrimination so as to weed out and to avoid in his client's interest the bad. In short, it requires a highly trained man with many years' experience before he can undertake the responsibilities of a principal. This means time and it means money. And what we say is that when a man possesses all this to the satisfaction of an examining body appointed by the State, he should be by the State registered as a qualified practitioner, just as much as is to-day the physician, the surgeon, the barrister, the surgeon-dentist, or the chemist. We don't say that a man not possessing the requisite qualifications and not registered may not design and superintend the erection of buildings, but what we do say is that the State shall, in its own interest, tell the general body politic who is so qualified, and then if they employ an unqualified man it will be their own fault, just as much as if they went to a quack doctor and got killed as the consequence. Now, with all the developments of sanitary science, for example, is it to be expected that the nearest auctioneer or estate agent or his clerk around the corner, who has to do all the cataloguing and ticketing of an auction sale one day, can design a mansion or a villa the next, and see to it that the drainage, its ventilation, traps and connections are all right, or tell you what is the exact entasis to give to a Doric, an Ionic, or a Corinthian column, and to say where the Greek standards may vary from the Roman in such orders? The thing is absurd, and what we say is that the man doing such work should, in the interest of the general public, be trained and skilled and afterwards duly registered by the State. This would protect the public, who are not always as discriminating upon such matters as they ought to be. To

this end the more active spirits among us have promoted an Architects' Registration Bill which is now before Parliament that will, I hope, commend itself to all the gentlemen I see around me, and eventually become the law of this land as much as it is already the law of almost every important state on the continents of Europe and America, and in our colonies. This is the principal subject that I wished to refer to to-night, being, in our opinion, the one of the day so far as the architects of this country are concerned. I recognise that this is not the place nor the occasion to go into a long dissertation upon either the art or the science of architecture. I have been preaching brevity to others, and so must practise it myself, but as we have so many municipal chieftains here I may perhaps be allowed to take this opportunity of congratulating them upon the great street and other improvements that are taking place all over the country. As a past municipal chieftain myself I well understand the difficulties attendant upon any advance in this direction, and often from those who will be most benefited by them in the long run. What we, as architects, say is, continue in this course, but now and then call to your aid the skilled trained mind to advise you as to how the improvement may be best made, and the space properly and artistically utilised afterwards. Often the very best opportunities are thrown away for want of this, and spaces and sites that might have been things of beauty and joys for ever given up to the advertising fiend, who does not, as a rule, care how many abominations he creates so that his pockets may be filled by the illicit puffing of some worthless nostrum. These huge letters on buildings destroy all sense of dignity, taste and proportion. These plasterings of public conveyances, so that the last thing that one can discover is the point of their destination, is an abomination and a scandal that England should be ashamed of, and which does not exist in the same degree in other civilised states. Soon to design a commercial building in a leading thoroughfare the chief problem will be, not a dignified sense of proportion, style and architectural balance with columns, entablature, cornices, mouldings, &c., properly adjusted and proportioned, but how much flat wall surface can be provided for these advertising monstrosities. Another reason has been mentioned for the bad architecture in England as compared with that of other countries in buildings of the ordinary class. Here we are tied down by the short lease system of ninety-nine years, or even less. There no one dreams of building excepting upon the actual freehold, or, like they have in Scotland, the perpetual feu. This, of course, means good design and good building, because the person who builds is secured in his holding. But under the short leasehold system the leaseholder, of course, builds so far as he possibly can only to last his lease out, and the effect is apparent all around us, and especially to those who compare buildings here with what they have seen abroad.

Mr. J. Woolfall, president of the Liverpool Architectural Society, also responded to the toast.

"The London and other Local Authorities" was proposed by Mr. H. E. Duke, K.C., M.P. There were three responders. Alderman Sir H. E. Knight (past Lord Mayor of London), the deputy-chairman of the London County Council (Mr. R. A. Robinson), and the Mayor of Rochester.

Mr. R. A. Robinson, in his reply, said the County Council would be very badly off without the help of London architects. As many knew, the London County Council had its own establishment of architects, with no less than 25 members of the profession and 150 students. The County Council had many opportunities of offering to architects exercises for their skill. At the present time the body was in need of a county hall. They desired a piece of land, which must be freehold, in extent about 3½ or 4 acres, not far from Charing Cross and not very far from the Houses of Parliament but yet not too near. The county hall when built should be able to accommodate about 1,500 officers, with good space for departmental work and from 137 to 200 members. The building would have to conform entirely with the London Building Act. Its architectural design would be submitted for approval to members of the County Council and the Society of Architects.

"Our Guests" was proposed by Mr. G. Gard Pye, vice-president of the Society. The Lord Mayor of Liverpool and Mr. W. C. Pendarves, J.P., responded.

"The Arts and Crafts allied to Architecture" was proposed by the Hon. W. Massey-Mainwaring. Mr. W. F. King, president Institute of Builders, responded.

After singing "Auld Lang Syne" the company dispersed.

The American Art Association, a benevolent society, held an amateur theatrical and musical performance in Paris on Saturday evening. Two pieces were played, "An American Dentist in Paris" and "A Matinée at the Julia Rosse Academy." In the latter the principal character was Careless-Dowrong (Carolus Duran). Among the audience were the British and American ambassadors and the Minister of Public Instruction.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. Aston Webb, A.R.A., president, in the chair. Sir MARTIN CONWAY read a paper on

The Beginnings of the Egyptian Style of Architecture.

The Egyptian style appears to have arisen about the time of the fourth dynasty, and to have rapidly developed during the fifth. Its elements existed earlier, but not till the fourth dynasty were they definitely compounded into an architectural style applicable to buildings in stone. Until recently it was commonly believed that the early dynastic Egyptians employed wood for small and costly edifices. In fact, however, no such Egyptian wooden architecture ever existed. Pictures and models which survive do look like representations of wooden structures—indeed, some of the slender columns depicted have more the appearance of metal than wood. It must be remembered that unpractised architectural draughtsmen, though for their day able artists, invariably represented columns with exaggerated slenderness. Numerous examples exist in the wall-paintings of Roman Italy; as a special illustration the lecturer showed a photograph of Giotto's painting of the façade of the Temple of Minerva at Assisi. The columns that represent tent-poles and the octagonal, or sixteen-sided, columns of the hieroglyphs were originally of wood. The rest were of reed-bundles plastered over with mud. Both kinds had been copied into stone at the date of the pictures referred to, and those pictures may actually depict stone buildings, little though they suggest that material.

The earlier Egyptian stone buildings had no architectural features whatever. It was mere building, not architecture. The chapel excavated by Professor Petrie was the simplest kind of stone building conceivable. The neighbouring mastabas were similarly destitute of architectural quality; their false doors were inscribed with beautiful hieroglyphs, but there was no attempt to arrange them architecturally.

Down to the middle of the fourth dynasty, then, the craft of building in stone had been carried to a high degree of perfection, but it had developed no architectural art. Building whose forms and features were determined by the desire to give pleasure to the eye was only carried out in the old materials of mud and reeds, with which the Egyptians had been familiar from the earliest prehistoric days.

The lecturer described the characteristic features of a stone building in the developed Egyptian style. The walls have an external batter, are surrounded or edged by the torus moulding and are crowned by the Egyptian gorge. The supports are either piers—square, octagonal, or sixteen or more sided—or clustered columns made in imitation of bundles of papyrus stems or reeds, with a flat circular stone for base and with a capital made in imitation of a group of flowers, buds or palm-fronds. There are porticoes and halls of columns and there are dark chambers and passages. Only the piers, the porticoes and the halls of columns can have descended in direct sequence from the early stone buildings, and it is not to be supposed that such elements were lacking in contemporary or even prehistoric mud buildings. It may therefore be safely declared that all the features and principles of Egyptian architecture were invented by the mud builders, and were afterwards directly translated into stone. The outward batter of the walls of stone buildings had no meaning in stone; it was borrowed from mud-brick. The Egyptian gorge copied the old fringe of palm-frond tips with which mud walls once habitually terminated. The torus moulding was a translation of the bundle of reeds that protected the tender angle of termination of a mud wall.

Discussing the question as to when this translation took place and in what kind of building, the lecturer said that the well-known sarcophagus of Khufu-anekh at Cairo throws a welcome light upon this problem. It represents a palace, apparently built of crude brick, with wooden fittings. The vertical grooving along the top of the lower part was, doubtless, intended to represent the gorge. If at that time the gorge had actually begun to be imitated in stone as a cornice to stone buildings, the mason who carved this sarcophagus would have known better than to represent it by flat grooving. The fact that he flattened it seems to prove that, though at the time the gorge was in common use as top member of a crude brick building, it had not yet taken its place in stone building. The sarcophagus of Menkaura, as compared with that of Khufu-anekh, shows a development. Like the latter, it imitates a building, usually said to be of wood, but really of mud and reeds, or mud-brick perhaps, with wood fittings. This building is surmounted by a fully developed gorge cornice, whilst each façade is surrounded by a torus moulding. Here, then, is the Egyptian style completely formed. It must have sprung into existence between the days of Khufu and Menkaura.

The fifth dynasty has left us several actual examples of stone architecture containing decorative features, such as a mastaba at Sakkara, where the architrave of a portico is decorated with a stone gorge rather tentatively employed.

The fifth dynasty tomb of Ptah-Shepses at Abusir, excavated in 1893, when fragments of lotiform capitals and columns were brought to light, yielded results of the highest importance for the present inquiry.*

The tomb was approached by a great court, which was surrounded by a colonnade of twenty square piers. At the end of the great court was a porch of two columns, whereof only fragments remained. In a lateral chamber, which contained the statues of the deceased, were fragments of the two columns that had supported the roof. The base and lower portion of the shaft of one were in place, and enough fragments of a capital were found to enable a complete restoration to be made. Column and capital in each case were hewn out of a single block of limestone. The circular base is simply bevelled off at a slope of about 45 degs. Its diameter was large in proportion to that of the shaft. Such large bases were required when they were used instead of a foundation to spread the pressure of a shaft over an area of ground large enough to support it. This column and capital are, beyond question, the finest that have come down to us from ancient Egypt, as far as workmanship and carving are concerned. The proportions of the capital are excellent. The abacus is a thin rectangular tablet. In the Middle Empire it was made thicker. It is only by comparing these Abusir fragments with later examples of the Lotiform order, such as the Middle Empire rose granite column in the British Museum, that its surpassing merit becomes obvious. The conclusion may be justified that the Memphite architecture of the fifth dynasty was highly meritorious, and may have been the finest ever produced in ancient Egypt, or even in the world before the great days of Greece. The date of the Abusir Column is about 3,600 B.C.

The pyramid field of Abusir is being systematically explored by the German Oriental Society. They have already laid almost entirely bare the pyramid temple of the fifth dynasty king, Ra-en-user, which is earlier in date than Ptah-Shepses's tomb. In Ra-en-user's temple the gorge cornice and the colonnade of clustered columns were fully developed. The courts were floored with basalt. In the great court was a red sandstone cistern to catch the rainwater. A drain led this out to another red sandstone cistern. The base of the walls was also of basalt (in places of granite), which explains the black-painted dado so frequently found in tomb chambers of the Old Empire. The walls above the basalt foot were all covered with fine plaques of white limestones, delicately carved and painted, whereof only fragments remain. The side posts of the magazine doors were of red sandstone. The only fragment of sculpture found was a noble head of a colossal granite lion. There were also remains of an alabaster altar embellished with reliefs of the various nomes.

Throughout the period when true stone architecture was arising in Egypt, pyramid building steadily lost its charm for the kings. Khafra's pyramid was smaller than Khufu's, Menkaura's than Khafra's; their successors were yet smaller. The reason evidently was because, as time advanced, less of the mass of human energy under the command of the king was devoted to pyramid building, and more to building of some other sort.

The lecturer next considered the character of the divine temples of the Old Empire. Fragmentary remains prove that Khufu and Khafra built temples of granite. The shrine was the chief feature, and its fossilised likeness is preserved as the Holy of Holies of almost every later temple. All of them possess one marked characteristic. Entering through the great pylon, and proceeding inwards from court to court and from chamber to chamber, there is a steady diminution in height the further you advance. The reason for this is plain. The normal temple plan resulted from a series of accretions. An Ancient Empire shrine received additions, mostly in front, in the Middle Empire, and successive further additions in the New Empire. Often the old parts were ruinous and had to be rebuilt, but, according to the general Egyptian way of doing things, the habit was to reconstruct the old parts on the old scale, and as far as possible in the old style, and to add the new parts in the new style. The Middle Empire built on a larger scale than the Ancient Empire, the eighteenth dynasty on a larger scale than the Middle Empire, and the nineteenth larger than the eighteenth. Thus a big temple, resulting from the accretions of various building periods, naturally grew in scale from shrine to pylon, and this feature was adopted into the style of temple design, so that even a wholly new temple was built in that fashion. From these considerations we may safely conclude that the Ancient Empire temples were small in scale. The best of them, the important royal temples, were probably built of the hard and precious rocks, such as granite, diorite, porphyry and alabaster. We have every reason to conclude that all the later types of column and capital were fixed at this time. The lotiform, palmiform and campaniform or papyrus orders are all represented in the painted reliefs of the Ancient Empire.

* Sir Martin Conway eulogised M. G. Foucart for his labours in connection with this important find, and passed high encomiums upon his *Histoire de l'ordre lotiforme*.

Describing the fifth dynasty divine temple revealed by the recent German excavation, the lecturer said that it was built near the Abusir pyramid field by the King Ra-en-user in honour of the sun-god Ra. Instead of a shrine its chief feature was an obelisk raised on a massive base covered with great blocks of granite at the foot, and with fine white limestone above. The outer walls were built of big blocks of hard, yellow limestone. The inner walls were badly built, but covered with plaques of finest limestone carved with delicate reliefs above a dado painted black. At important points the base of the decorated walls was of granite. The ceilings were painted with yellow stars on a blue ground. The relief carvings were admirable, in the style of the best reliefs in the almost contemporary tomb of Ptah-hotep.

The lecturer referred to the evolution brought about in temple building by changes in religious ceremonial, and by the gradual ousting of the laity from the temple services, and the rise of the priestly caste. Finally he considered the character of the sculptured decoration applied to Old Empire temples, and the system of its distribution. No Egyptian sculpture in the round ever surpassed that of the fifth dynasty. The mural decorative sculpture of the Old Empire was correspondingly excellent as far as it went, but it suffered from a great defect that sculpture in the round escaped. It was governed by faulty Egyptian perspective. A figure in the round could be absolutely copied from nature, but a figure in low relief could only be truthfully represented by the aid of conventions not yet invented. Quality of surface is the great test of bas-relief. The best fifth dynasty work in this kind is sometimes good, though seldom to any high degree. The best result is attained when the artist treats vegetable forms, especially thick growths of lotus and other luxuriously growing plants. It is evident that he relied strongly upon colour for decorative effect. Where the colours have survived an excellent effect is obtained. The Egyptians attained to perhaps the most perfect comprehension of how to design and carry out a decorative scheme in one logical style ever attained by any people. Every form they employed, whether in their architecture or their sculpture, their paintings, their writing, their decoration of every object, large or small, employed for whatever purpose, was the consistent outcome of a single artistic ideal. All parts therefore harmonised together.

Egypt has impressed the prestige of its mighty name as a country of great buildings and noble art upon the imagination of succeeding generations. We are only now beginning to realise that the reputation of Egypt as an ancient artistic nation, so far from being exaggerated, does not attain the level it deserves.

Mr. R. PHENÉ SPIERS proposed a vote of thanks for the paper. Professor BERESFORD PITE seconded the motion, which was supported by Mr. E. W. HUDSON and Mr. H. STANNUS.

THE CHURCH BUILDING SOCIETY.

ON Tuesday the Archbishop of Canterbury presided at the annual general court of the Incorporated Church Building Society. The Rev W. B. L. Hopkins, the secretary, read the annual report, which showed that during the year twenty-seven grants had been made towards building additional churches, four towards rebuilding churches, forty-one towards enlarging or improving church accommodation, and eleven towards mission and school churches or hamlet chapels. The additional sittings in the seventy-two churches would number 16,808, of which 15,268 would be free. The estimated cost of the works proposed was 219,405*l.*, of which 136,729*l.* would be devoted to the twenty-seven new churches. The Society's grants, including 365*l.* towards mission buildings, had amounted to 5,360*l.* The year's income had been 5,000*l.*, against 8,960*l.* in the previous year, when large legacies and special donations had been received. Since its formation the Society had granted 897,416*l.*, calling forth further contributions of 15,501,289*l.* from the public for building 2,392 new, and improving 6,280 old, churches and chapels. In this way more than 2,000,000 seats had been obtained, three-fourths of which were free. The funds now held in trust by the Society for the repair of churches were 382 in number and 104,568*l.* in amount.

The Archbishop of Canterbury said that for eighty-five years the Society had been doing a work of incomparable value to the Church of England. The way above all others by which this central fund benefited the Church was the eliciting of local effort. Then the indirect influence of the Society on the character of church buildings was enormous. People came grumbling to their bishops because the Society would not pass particular plans; but that was one of the most wholesome signs of the Society's usefulness. There were churches built sixty years ago which were now tumbling down, while a mile away a church 600 or 700 years old stood as firm as the rock on which it was founded. A very large number of churchwardens and others forgot the great additional cost of building nowadays

and the consequent risk of failure to replace a church adequately in case of accident. As to mission buildings, he was distressed to see how absurdly inadequate the subscriptions were for this object. People often said it was not bricks and mortar but men that the Church wanted. It was an easy taunt, but everyone surely knew the direct and indirect influence of a church building which was not merely good, but worthy in appearance and character of its high purpose.

LIVERPOOL CATHEDRAL DESIGNS.

A MEETING of the Liverpool Cathedral executive committee was held at the Church House on Friday last. Sir William B. Forwood presided, and there were also present the Bishop of Liverpool, the Hon. A. Stanley, M.P., the Ven. Archdeacon Madden, Canons Penrhyn, Spooner, Stewart and Willink, the Rev. C. Harris, Mr. W. Bartlett, Mr. A. Crosthwaite, Mr. R. Dart, Mr. A. Earle, Mr. R. Gladstone, Mr. R. A. Hampson, Mr. H. Douglas Horsfall, Mr. F. M. Radcliffe, Mr. John White, Mr. H. S. Woodcock, Mr. G. Bradbury and Mr. J. Alderson Smith. After a very careful consideration of the plans which had been sent in by the five architects, Messrs. Austin & Paley (Lancaster), Mr. C. A. Nicholson, Mr. Gilbert Scott, Mr. Malcolm Stark and Mr. W. J. Tapper (all of London), the committee decided that they could not accept any of them. In drawing up the conditions of the competition the committee made a strong point of securing ample accommodation within sight of the preacher for a large congregation in the proposed cathedral. The design (No. 1) approved by the advisory architects does not appear to the committee capable of fulfilling this condition. The following is the advisory architects' report:

"Gentlemen,—We have carefully inspected the five sets of designs submitted in competition for the proposed cathedral at Liverpool.

"It is with much pleasure that we bear our testimony to the great care and pains that the competitors have bestowed on their work and the admirable response they have made to the invitation of the committee.

"The drawings, as drawings, are most excellent, and show skill in the working out of many difficult problems.

"Almost without exception we see the hand of the master himself and not merely draughtsman's work. This makes the designs doubly valuable.

"Out of the five competitors, four of them had sent in designs for the cathedral in the first and unlimited competition. We note, with great interest, that the new drawings embody much general design and character as previously delineated by each competitor. This clearly shows that from the commencement all the four had decided views, and that the second competition proved no temptation to any to deviate materially from their original conception. This seems to us good evidence that from the commencement they had offered of their best.

"You may be sure that we, your assessors, feel the great responsibility of our judgment and the importance of this very rare occasion.

"What we had to find was not the best or the most beautiful drawings, but the best idea and the finest conception.

"Many of the drawings are attractive. But we had to look much further than that. We had to look at the real effect of the building rising to its final completion, at the dimensions and proportions of the different parts, such as the piers and arches of the great nave. We had to look at the practical and feasible aspect of the designs. We had to look for a sufficiently original conception. We had to look for a fine and a noble proportion, combined with an evident knowledge of detail. Lastly, we had to look for that power, combined with beauty, that makes a great and noble building.

"In the set of drawings marked 'No. 1' we find these qualities pre-eminently shown. We cannot but give it the first place.

"We should recommend that the quasi-east end should be drawn with the towers shown, and that a window of fine size and proportion should be shown for the gabled end, one suitable to receive the offered gift of stained glass, a gift that will greatly add to the beauty of the interior.

"We are, Gentlemen, faithfully yours,

"R. NORMAN SHAW, R.A.

"G. F. BODLEY, R.A."

The architect who sent in "No. 1" design is Mr. Gilbert Scott. Until to-morrow, the 23rd inst., all the designs will be on view to the general public at the Walker Art Gallery, Liverpool.

M. Foulard, who was one of the lieutenants of Baron Haussmann in the transformation of Paris, has died at Passy. Among the undertakings with which he was connected were the Avenue Dumesnil and the Boulevard Malesherbes.

COOPER'S HILL COLLEGE.

THE question of the expediency of maintaining the Engineering College at Cooper's Hill as a Government institution for the supply of officers to the Public Works Department in India has been raised, not now for the first time, in consequence of the large expenditure which will have to be incurred if the college is to be thoroughly equipped in all respects according to modern standards. The Secretary of State for India has therefore appointed a small committee to inquire and report to him on this subject. It will be composed as follows:—Sir Charles Crosthwaite, late Lieutenant-Governor of the North-Western Provinces and member of the Council of India, chairman; Sir James Mackay, G.C.M.C., Sir William Arrol, M.P., Sir Arthur Rücker, principal of the University of London, and Sir Thomas Higham, K.C.I.E., late of the Indian Public Works Department, with Mr. J. E. Ferard, of the India Office, as secretary. It is intended that the committee shall begin to sit at once, and shall report as soon as may be possible.

PREHISTORIC DWELLINGS IN SCOTLAND.

AT the last meeting of the Society of Antiquaries of Scotland for the present session, Mr. Ludovic Mann, Glasgow, reported the discovery near Stranraer of a series of prehistoric pile-structures of a curious if not unique type. Their sites are on the crest of a plateau about 50 feet above sea-level, in a wooded area apparently never disturbed by agriculture. Before excavation they appeared as shallow, oval and scarcely noticeable depressions, which on being explored were found to be the tops of pits silted up with vegetable mould. In the sitting, and chiefly in the lower deposits, there occurred many implements of greywacke, sandstone, quartz and quartzite, such as rubbing or smoothing stones, pounders, anvil and hammer stones. Many flints were also found, ranging from unwrought nodules to cores of various grades, one of the finished implements being a massive scraper with a finely worked edge of $4\frac{1}{2}$ inches. At a depth of about 7 feet vestiges of what seemed a flooring of wooden logs were detected, on which were found fire-fractured stones, traces of hearths, wood charcoal and fragments of a coarse hand-made rude pottery, with peculiar ornamentation. Below this level were remains of upright pointed piles of birch and oak, several dozens of which occurred in spaces of about 8 feet by 4. Mr. Mann offered the conjecture that these peculiar remains had been the sites of half or wholly subterranean huts, but the evidence was yet too scanty for well-established conclusions. The implements and other objects found and specimens of the piles were exhibited, and the paper was illustrated by large diagrams of the constructions.

Mr. M. M. Charleson, Stromness, gave an account of the excavation of a chambered mound near Breckness on the property of Mr. W. G. T. Watt, of Skail. The excavation was continued for two seasons, and resulted in the exposure of a construction consisting of two separate chambers, closely resembling each other in their quadrilateral shape, with a recess off the north side, the walls slightly concave in outline and converging upwards in the usual beehive form, each chamber opening by a lintelled passage into a long passage to the south, which led into a larger enclosure of a rounded form with a row of slabs on edge in the middle. The one chamber was roughly about 9 feet square, and the walls remained about 5 feet high at the highest point, the entrance passage being 4 feet long by 18 inches in width and the same in height. The other chamber was slightly smaller, and the passage slightly wider, but scarcely so much in height. Nothing was found except some pieces of very rude pottery and a rude implement of claystone of a type peculiar to the northern islands. The structure was of a different type from those with passage and chamber, having small chambers off the sides, which have usually been considered sepulchral. In this case also there were no human remains found, but only bones of the domestic animals, and the recess on the east side of the large chamber, which went down to a level of more than two feet and a half under the floor might have been a well. All the circumstances pointed to the probability that the chambers were occupied as dwelling-places, notwithstanding the exceptionally low and narrow entrances.

Mr. John Fleming, Glasgow, described three stone forts in Kintyre. That at Stron Namba is a large structure, with three parallel walls from 5 to 9 feet thick, enclosing an oblong space of a promontory on two sides, the other two being defended by the cliffs. One on the west side of the Mull, known as Innian Dunan, is similarly situated but more ruined, and a third on the point of Rhu Mharaiche is a great fort much ruined, with circular foundations of smaller size in close proximity. Photographs of the several forts were shown.

Mr. Harry F. Young, Cairnbar, New Deer, described a group of small burial-cairns on the farm of Hindstones, parish of Tyrie, which to the number of fifteen were removed in the

process of bringing a piece of waste land under cultivation. Like most other instances of such groups of small cairns there was nothing found in any of them, but in breaking up another piece of moorland close by a very interesting hoard of broken flint nodules and partially worked flakes was found. The flints were exhibited.

WALWORTH.

AN article on the "Etymology of Walworth," by Mr. W. F. Potter, architect, appears in the seventeenth volume of the "Surrey Archaeological Collections" recently published. The following extract will suggest the ingenious solution:—The question whether South London was ever in-walled will, I am afraid, always remain an archaeological conundrum; yet it is hard to believe that the Romans would have left it unprotected. If they had done so, I think it would have been the only town which they constructed that was never surrounded by a wall.

Ptolemy, the geographer, speaks of London as a city of the Kentish people, and that it was situated south of the Thames. If a South London wall ever existed it must have been completely destroyed by the Saxons and Danes, who came here after the Romans left. Assuming there was such a wall, we find that in 1695 a head of Janus in marble was dug up near St. Thomas à Watering in the Old Kent Road; this must have fallen from the entrance gateway in the said wall. East of this wall stood the village of Hatcham, which probably took its name as being the hamlet by the said gateway or hatch.

Carrying our supposition a little further, and assuming the wall ran along somewhere near the New Kent Road, and continuing along the London Road and Westminster Bridge Road, it would end at the old Stangate, or the old Stonegate. If this conjecture be correct it would have given South London a much larger area than in-walled London north of the river, and this would probably account for Ptolemy describing London as being situated south of the Thames. South of this wall which I have sketched out stands the ancient village of Walworth, spelt Walewrth, Wallwrth, Wallewurd, or Walewurd in the Surrey "Pedes Finium." May we not conjecture this to mean the village by the wall, as Walbrook means the brook by the wall?

ST. MARY'S ABBEY, YORK.

WE cannot congratulate the Yorkshire Philosophical Society, says the *Yorkshire Herald*, upon their method of dealing with the work undertaken by them at St. Mary's Abbey. The foundations of the old Saxon abbey of the eleventh century and those of the abbey of the thirteenth century have been exposed in such a manner as to disclose the beauty of the original designs. They now present a very forlorn appearance. Sir Joseph Sykes Rymer compared them at a recent meeting of the Society to "someone's back yard." There is not much poetry in a back yard, and the element of romance is absent. Antiquaries who are interested in the work of restoration should pay a visit at once to these ruins, where they will receive a useful object lesson in the art of "How not to do it." The labour of the excavators has been utterly spoiled by the unsightly covering of flagstones and common brick that disfigures and desecrates the splendid examples of Mediæval architecture beneath. We are informed that the object of the Council is to protect the foundations from the ravages of wind and rain. Is there no presentable material that when applied to this purpose is of equal value to brick and flagstone? In some large towns it is customary to level the stones in churchyards that are no longer required for purposes of interment, and the spaces thus treated have a most melancholy and forbidding appearance. Why St. Mary's Abbey, of all places in the world, should be treated in this way we are unable to conceive. A few weeks ago, when we visited the scene of this twentieth-century triumph, one portion of the ruins resembled the foundations of a number of fifth-rate cottages. The Yorkshire Philosophical Society are not wont to carry out their operations in such a manner, and at this the eleventh hour we urge them to stay their hand. The ruins are of great historic interest, and we have nothing but commendation for the enterprise of the Society in laying the foundations bare for the inspection of visitors. We have heard but one opinion expressed concerning the appearance of the ruins, and that is far from complimentary to the judgment of those who are responsible for the undertaking. There is a strong feeling in the city against the completion of the work in the form originally contemplated, and this was doubtless known to the Council when they passed a resolution to the effect that nothing further should be done with regard to covering the foundations until they had been provided with the opportunity for further discussion. We hope they will take immediate steps to reverse their unfortunate decision to cover the ruins disclosed by the spade of the excavator with a top dressing of flagstones or common brick. In the past the members of the Yorkshire

Philosophical Society have done most excellent service. They have recently materially assisted in the preservation of the College Street Gateway and the Moats, which were threatened by the York City Council. What would they have said if the hideous top dressing, for which we have nothing but condemnation, had been applied by the Lord Mayor, aldermen and councillors for the city of York? We invite the members of the Society to pay a visit of inspection to St. Mary's Abbey, and while there to pass a solemn vote of censure upon themselves. If they do not see their way to do this they may convince themselves that it is their duty to order the immediate removal of the offending stone and brick to the rubbish-heap.

THE HAMILTON BRUCE PICTURES.

THE advantage of foresight and courage were exemplified at the sale of the Hamilton Bruce Collection on Saturday. The late owner purchased examples of the modern Dutch school at a time when such works were little appreciated in this country. The difference between the prices he paid and those which represent the modern value of the pictures is shown in the following article by a correspondent of the *Glasgow Herald*:—

The late Mr. R. T. Hamilton Bruce, of George Square, Edinburgh, who died four years ago in his house at Dornoch, which stands almost on the golf links, was a familiar figure in the city life of Glasgow. Twice or thrice a week he visited the commercial capital of Scotland in connection with the flour-importing business of Messrs. Hamilton Bruce & Wilson, in which he was a partner onward from 1872. Some time ago his library was dispersed at Dowell's Rooms, Edinburgh, and on Saturday there came under the hammer at Christie's most of the important pictures and drawings in the bringing together of which he showed so much taste and judgment. For the preceding four or five days the collection had been on view in King Street, where it was examined by practically every connoisseur with special leanings towards the modern Dutch and Barbizon schools. The seventy-seven "lots" were not sufficient to occupy the whole afternoon, and for this reason a miscellaneous assemblage of seventy-four works from various sources was added. In itself this was no disadvantage, but the issue was that instead of the Hamilton Bruce works being hung separately they were mingled with a number of others, many of which struck discordant notes. The company in the big sale-room was large and representative, and, needless to say, every prominent dealer was present in person or by deputy.

Mr. Hamilton Bruce acquired practically the whole of his pictures and drawings in Glasgow, in the main between about 1878 and 1895. Business over, it was his custom to call regularly at the Renfield Street gallery of Mr. Craibe-Angus, and that his purchases were justified from a commercial point of view—to say nothing of the harvest of pleasure reaped by the collector himself, by his friends, and by a large section of the public—will be clear from what follows. I must acknowledge my indebtedness to Mr. J. Craibe-Angus for giving me details of the actual prices paid by Mr. Hamilton Bruce for many of the works which came under the hammer, details which add materially to the interest attaching to the sale. I have to thank him, too, for some other particulars embodied in my notice. Initially, it is to be recalled that as "a member of the committee" Mr. Hamilton Bruce lent generously to the splendid exhibition of works by modern Dutch and Barbizon masters arranged in Edinburgh seventeen years ago. Chief among the pictures which, naturally to the disappointment of those eager to buy, are retained, I may mention Corot's fine "Evening in Normandy" and his perhaps unsurpassed "Le Lac," this last a smaller, but it is said no less good, version of the work in Mr. Alexander Young's collection; "The Squirrels" and the "Girl with the Goats," from the hand of Matthew Maris; a shore scene of high quality by Daubigny, and a large and important church interior by Bosboom. Each of these masters, save Daubigny, is represented in the seventy-seven works sold. The prices placed within brackets immediately after the sums, in guineas, realised at auction are those paid by Mr. Hamilton Bruce for the respective pictures and drawings.

The highest price in the sale, 2,500 guineas, was paid for the fine view of Amsterdam, its river and shipping, beneath a cloudy grey sky with a single break of blue, from the brush of James Maris. The canvas measures 36 inches by 43 inches, and on its appearance there was approval in the form of clapping. The opening bid was of 1,000 guineas, and with Messrs. Tooth as their final opponents Messrs. Obach were the buyers at 2,500 guineas, a sale-room record, if I mistake not, for this artist. Mr. Hamilton Bruce paid 300*l.* for this picture. From the same brush in oils were "Loading a Barge at the Mouth of a River," 33½ inches by 42 inches, belonging to about the same rather late period, started at 500 guineas, 1,500 guineas (the cost was 350*l.*); an earlier and particularly fine "Canal Through the Dunes," the sky less heavy than in the previous examples, on canvas 18½ inches by

24 inches, started at 300 guineas, 850 guineas (cost 175*l.*); "The Sisters," 24 inches by 20½ inches, the bitumen unfortunately running somewhat, 780 guineas (cost 250*l.*); "A Village on a Canal," with windmill and figures, 16½ inches by 24 inches, a deep-toned canvas probably of the late seventies, which once belonged to Mr. James Macgavin, of Glasgow, who left a work by Linnell to the Fine Art Gallery, 730 guineas (cost 120*l.*); "Cottages on the Dunes," a grey-day effect, 16 inches by 19 inches, 620 guineas (cost 120*l.*); "A Boy Playing the Flageolet," 14 inches by 9 inches, exhibited at Edinburgh in 1886, 300 guineas (cost 60*l.*); "The Drawbridge," 12 inches by 9 inches, 420 guineas (cost 90*l.*); "The Beggar," 8 inches by 6 inches, 10 guineas; a study of a red cabbage and onions, 7 inches by 8½ inches, 42 guineas.

The finest of the six works in oil by Matthew Maris was "He is Coming," 17½ inches by 12½ inches, painted in 1874, and exhibited in Edinburgh. It shows a golden-haired girl in brocaded dress at her spinning-wheel, a blue-robed youth coming towards her through the background door. This picture was not only rejected at the Royal Academy, but, for fear it might mislead students, perhaps, at the Glasgow Institute of Fine Arts. In about the mid-eighties it was bought for 300*l.* It elicited an opening bid of 500 guineas, and there was what is known as a "firm" offer at 1,800 guineas. I understand, however, that the high reserve of perhaps 2,000 guineas or more was not reached, and the little work was knocked down at 1,900 guineas. The lovely "Enchanted Castle," a dream in bold grey, 8 inches by 13 inches, begun at 100 guineas, brought 720 guineas (cost 550*l.*); a version of the "Montmartre," 9½ inches by 13½ inches, the bitumen in this again running, 620 guineas (cost 40*l.*); "The Bride," a dim work on panel, 20 inches by 13½ inches, 360 guineas (cost 150*l.*); the study of a girl's head in the same dim manner, 19 inches by 15 inches, 320 guineas (cost 150*l.*); and the head of a dark peasant boy in blue blouse, 19 inches by 14½ inches, 55 guineas. By Corot were the following in oils:—"Through the Wood," an evening effect, 15 inches by 18 inches, 560 guineas (cost 240*l.*); "The Ruined Castle," 15½ inches by 20½ inches, seen at Edinburgh in 1886, started at 300 guineas, 1,100 guineas (cost 320*l.*); "The Harbour," on panel 10½ inches by 15½ inches, 410 guineas (cost 380*l.*); and "The Bathers," a nocturne, 10½ inches by 14 inches, 220 guineas. Mr. Hamilton Bruce some years ago gave an open commission for the purchase in Dowell's Rooms, Edinburgh, of a sketch by Constable for his famous "Jumping Horse," 10½ inches by 25 inches. He acquired it for 30*l.* It was started at 100 guineas, and bought for 190 guineas. By Fantin were "A Nymph" reclining under a tree, 8 inches by 15 inches, 130 guineas (cost 30*l.*); a study of fruit on a dish, 6½ inches by 11½ inches, 24 guineas (cost 10*l.*); another nymph, in red drapery, 8 inches by 6 inches, 70 guineas (cost 15*l.*); "On Mount Olympus," a rich-toned study of four figures, 9 inches by 8½ inches, 75 guineas (cost 15*l.*). By Monticelli were "The River Bank," a glowing pictorialisation, 15 inches by 23 inches, exhibited at Newcastle in 1887, begun at 40 guineas, 490 guineas (cost 40*l.*); a group of figures on a mountain side, in unusually pale tones, 9½ inches by 18 inches, 210 guineas—the gentleman who bought this panel some years ago for 2*l.* was present to see it resold; a "Fête Champêtre," on panel 13½ inches by 17 inches, 65 guineas (cost 50*l.*); a springtime landscape, 16½ inches by 23 inches, 30 guineas; a study of oxen, 17½ inches by 27 inches, 11 guineas; and a "Twilight," 13 inches by 22 inches, on which Matthew Maris had worked, 200 guineas. A second picture, parts of which had been repainted by Matthew Maris, is Bellange's big "Diana," 77 inches by 40 inches. The Maris head is surely worth the 48 guineas paid for the canvas. Diaz's lovely "Forest Glade, Fontainebleau," a sunset effect, 17½ inches by 11 inches, seen in Edinburgh, begun at 50 guineas, made 370 guineas—it fetched 220 guineas at auction in 1883, and cost the collector 300*l.* Israel's vigorously painted "Head of a Peasant," ill-shaven, in fur cap, fetched 300 guineas, against a cost of 150*l.* Four technically excellent works by L. Mettling realised 143 guineas, against about the same cost; four landscapes by Emil Michel, "father" of the Barbizon masters, 119 guineas; three little pictures by Mr. Peppercorn, 59 guineas; Troyon's "Donkey with Panniers," 8 inches by 10 inches, 42 guineas.

Chief among the twenty-two water-colour and other drawings were those by James Maris. A masterly "River Scene," with barge, hay-cart and figures, 16 inches by 19½ inches, made 450 guineas (cost 120*l.*); "The Quay at Rotterdam," 11 inches by 18 inches, 410 guineas (cost 45*l.*); a village scene, with bridge over a canal, 10 inches by 17½ inches, 340 guineas (cost 40*l.*); "The Downs," an effect of storm, 12 inches by 16½ inches, 310 guineas (cost 60*l.*); "Buildings on the Banks of a River," 1877, 11½ inches by 6½ inches, 210 guineas; and a view of a water-mill, with figures and goats, 9 inches by 5½ inches, 46 guineas. Two black and white studies of figures by Matthew Maris, respectively 21½ inches by 30 inches and 19 inches by 26 inches, brought 210 guineas, against a cost of 60*l.* Anton Mauve's

"Ox in a Stall," 17 inches by 27 inches, similar to the oil in Judge Day's collection, made 290 guineas (cost 50*l.*). A fine church interior, with two figures, by Bosboom, 15½ inches by 11½ inches, fetched 200 guineas; a street in a Dutch town, 15½ inches by 9½ inches, 105 guineas (cost 15*l.*); two other church interiors, about 16 inches by 12 inches, 178 guineas (cost 50*l.*); and "The Cow House," 9 inches by 13½ inches, 55 guineas (cost 15*l.*). Bidding was very slow—indeed, it took about two hours and a quarter to sell the seventy-seven lots. These show a total of no less than 20,804*l.* 19*s.*

TESSERÆ.

Old Churches in Ireland.

IN most parts of Western Christendom, whether Protestant or Catholic, and most conspicuously in England and France, we commonly find in each village an ancient church, built several, sometimes many, centuries back, and which, allowing for a few exceptional years of war or revolution in either country, has been during all that time uninterruptedly used for divine worship. Where we do not find such an ancient church we commonly find a modern one, which has replaced the ancient church, as that ancient church in most cases replaced one still more ancient. The new church in such a case is simply the old one in another form, standing on the same site and carrying on the same tradition. In England, and even in France, to see an ancient village church—we are of course speaking neither of town churches nor of monasteries—left as a disused and forsaken ruin, is an exceptional sight, to be explained by some exceptional local cause. We see that the convulsions of either country, the Reformation, the great Civil War, the Huguenot wars, even the great French Revolution, have been mere passing storms, by which the buildings have suffered much less than we might have looked for. But the state of things which in England or France is exceptional is in Ireland the rule. We will not dogmatically say that there is no such thing in Ireland as an ancient village church remaining in use, but such a case is rare. It is certain that we may go a long journey through various parts of Ireland without once seeing, what we expect to see everywhere in England, the ancient parish church of the village still used for divine service as it was centuries back. The difference is one of those differences which at once force themselves on the traveller. It makes a difference in the look of the country. As a general rule—a rule perhaps not without exceptions, but a rule to which the exceptions must certainly be very rare—the ancient village churches of Ireland are always in ruins. In the towns, an ancient church, cathedral or parochial, not uncommonly survives, and is used for Protestant worship. But even in these cases the proportion of modern churches to ancient strikes an Englishman as large. In the villages it is unknown, or next to unknown, that the ancient parish church, built ages back, should be used for the divine worship of either religion. The church lies in ruins, that fact proclaims itself; it would require local knowledge in each case to say which churches have been ruined in war, and which have simply dropped to pieces because one set of people could not use them, while another set of people who could have used them were not allowed to do so. The churches used for both religions are modern buildings—buildings, for the most part, of no architectural value at all. The only exceptions seem to be when, as now and then happens, the dismantled church of a monastery has been restored and again applied to ecclesiastical uses. Otherwise, in an Irish village there is commonly a modern Roman Catholic church, often also a modern Protestant church, the latter very often standing near the ancient ruin, but most certainly in no way proclaiming itself as its natural successor.

The Picturesque in Art.

Gilpin defines picturesque objects to be those which please from some quality capable of being illustrated in painting, or such objects as are proper for painting. Price attempts to show that the picturesque has a character no less separate and distinct than either the sublime or the beautiful, and quite as much independent of the art of painting. The characteristics of the beautiful are smoothness and gradual variation; those of the picturesque directly the reverse—roughness and sudden variation. A temple of Grecian architecture in its smooth state is beautiful; in its ruin is picturesque. Symmetry, which in works of art accords with the beautiful, is in the same degree adverse to the picturesque. Many old buildings, such as hovels, cottages, mills, ragged insides of old barns and stables, whenever they have any peculiar effect of light, form, tint or shadow, are eminently picturesque, though they have not a pretension to be called either grand or beautiful. Smooth water is beautiful, rough water picturesque. The smooth young ash, the fresh tender beech are beautiful; the rugged old oak

and the knotty wych-elm picturesque. In animals the same distinction prevails. The ass is more picturesque than the horse. Of horses the wild forester, with his rough coat, his mane and tail ragged and uneven, or the worn-out cart horse, with his staring bones, are the most picturesque. The picturesque abhors sleekness, plumpness, smoothness and convexity in animals. Among our own species, beggars, gipsies and all such rough, tattered figures as are merely picturesque bear a close analogy in all the qualities that make them so to old hovels and mills, to the wild forest horse and other objects of the same kind. "If we ascend," adds Price, "to the highest order of created beings, as painted by the grandest of our poets, they in their state of glory and happiness raise no ideas but those of beauty and sublimity. The picturesque (as in earthly objects) only shows itself when they are in a state of ruin; when shadows have obscured their original brightness, and that uniform, though angelic, expression of pure love and joy has been destroyed by a variety of warring passions."

Portrait Statues and Buildings.

If we assume that the proper field for sculpture is in association with architecture we shall find that one or two matters that have always been difficulties—lions, so to speak, in the path of the sculptor—solve themselves naturally. One of these is the question of portrait statues. Statues of public men, whose only reason for existence lies in the likeness they bear to their originals, and therefore to be regarded from that point of view first, and not from the purely artistic one, cannot, when placed in the open, as they generally are, be fairly judged. Other considerations step in. The observer is first attracted or repelled by the outline and general appearance of the work, before he can come near enough to appreciate the likeness. Again, in order to give importance to the statue, it must be made so much larger than life that conventionalities have to be resorted to to meet this difficulty; so that the resemblance to the individual whose memory is to be perpetuated is often largely impaired by these artistic considerations. Now it is almost impossible to render interesting or attractive a portrait statue in modern dress when placed in an open space—out of doors and with no near surroundings. But place the same statue by a building—either on a pedestal, in character with the architecture, or in a niche—and the monument will be then in place, and the straight up-and-down clothes will be a matter of less importance; they will challenge the eye less, and the statue, at any rate, will not be condemned because of them. For instance, the more modern figures carved on the podium of the Albert Memorial in Kensington Gardens, such as Goethe and Turner, are as interesting as their more sumptuously or artistically clad neighbours, and as they are by the same artist's hand it is fair to infer that modern dress will lend itself to treatment, but the figure must have a home. Another example is the statue of Lord Herbert of Lea at the War Office, an excellent statue, but the excellence of which is greatly enhanced by the position in which it is placed. There are very few of our London statues that stand the test of an isolated position, and our difficulty in portraitwork is increased because as a nation we are quiet and restrained in our bearing, and make use of fewer gesticulations than our livelier neighbours, for instance, across the Channel, so that it is exceedingly rare that a sculptor can put action to a portrait figure to give it freedom and variety of line, that is, if he wishes to be true to his original.

Gavel or Gable Pennies.

The judicial duel seems to have been introduced into Leicester subsequently to the Conquest. Instead of the decision of the twenty-four burgesses in the town mote, the litigants, armed with staves, bareheaded and barelegged, fought out the matter till one yielded or was killed. An inquisition taken in the reign of Henry III. tells how this custom was abolished in the time of Earl Robert of Mellent. It happened that two kinsmen—namely, Nicholas the son of Acon, and Geoffrey the son of Nicholas—waged a duel about a certain piece of land, concerning which a dispute had arisen between them, and they fought from the first to the ninth hour and longer, each conquering by turns, one of them fleeing from the other until he came to a certain little pit; and as he stood above the pit and was about to fall therein his kinsman said to him, "Take care of the pit—turn back lest thou shouldst fall into it." And as he stood over the pit so much clamour and tumult was made by the bystanders and those who were sitting around that the earl heard their clamour as far off as the castle, and he inquired of some of them how it was there was such a clamour; and answer was made to him that two kinsmen were fighting about a certain piece of land, and that one had fled until he reached a certain little pit, and that as he stood over the pit and was about to fall into it the other warned him. The burgesses being moved by piety then made a covenant with the earl that they should give him threepence yearly for each house in the High Street that had a gable, on condition

that he should grant to them that the twenty-four jurors who were in Leicester from ancient times should from that time forward discuss and decide all pleas they might have among themselves; and this was conceded to them by the earl, and in such a manner were the pennies, called gavel-pennies, first levied.

A Twelfth-Century French Castle.

When peace was made with Count Manasses, Arnold, the Lord of Ardres, built himself, on the mound reared by his father, a stately palace of wood, the work of a carpenter (*artifex vel carpentarius*), of skill well-nigh like to that of Dædalus, Lewis by name. The house was of three stages. It had granaries below, cellars, chambers full of all household goods. On the second stage was the great chamber of the lord and lady, and other chambers for their various attendants. Here, too, was the kitchen, joining this storey of the house, but itself built in two stages, so that we may suppose that the lower stage was on the ground floor. Here pigs, geese, capons and other fowls were kept and fattened. In the upper stage dwelt the cooks, who, when the time came, dressed them with the utmost skill. In the highest stage of all were rooms for the sons and daughters of the lord, as well as for the guards of the palace. Adjoining the house was a "logium" for pleasant talk, whence, we are told, its name derived from "logos." Attached also to the house and the "logium" was a chapel, whose goodly ceiling and paintings rivalled Solomon's temple. We need hardly say that every detail of this description of a lordly wooden house of the twelfth century is worthy of the heed of all students of Domestic architecture. And now the Lord of Ardres, having, like Solomon, built him a house, went over to England on a visit to the king—seemingly Henry I.—his superior lord for his possessions in our island.



Statutory Registration of Qualified Architects.

SIR,—Mr. Silvanus Trevail's letter in your last issue is a manly, straightforward statement of his views of the above vexed question. The worthy body of gentlemen who control the affairs of the R.I.B.A. seem to lack the energy to tackle the question. The Institute is better than it was, and seems to be awakening from its venerable repose, but new and more vigorous blood is required before it can be said that it really and properly represents the profession of architecture. Let us have a few more Trevails, not to attack the Institute, but to strengthen and invigorate it.

Apologising for trespassing on your space, I am, &c.,
R.I.B.A.

GENERAL.

The King of Italy has conferred the Order of the Crown of Italy on Mr. Alfred East, A.R.A. His Majesty the King has been graciously pleased to give his private consent to Mr. East's acceptance of the honour.

The forty-third annual dinner of King's College, London, will be held at the Holborn Restaurant on Monday June 22 with the Right Hon. and Right Rev. the Lord Bishop of Exeter in the chair.

The late Mr. Richard Philip Day, architect, 18 Bloomsbury Square, W.C., has left property valued at 8,521*l.* 11*s.* 1*d.*

A Parliamentary Paper has been issued giving an "approximate estimate of expenditure under the Military Works Acts of 1897, 1899 and 1901." The return shows that the sums provided in the schedules to the respective Acts is 15,810,500*l.*, of which 5,331,536*l.* has been expended up to March 31, 1902. The estimated expenditure for 1902-3 was 1,700,000*l.* and for 1903-4 3,450,000*l.*, the latter including 550,000*l.* for defence works, 2,450,000*l.* for barracks and completion of large camps, and 350,000*l.* for ranges and accommodation for manœuvring and mobilisation.

Lord Iveagh has signified his intention to make a donation amounting to nearly 40,000*l.* to Trinity College, Dublin, in connection with the building and equipment of scientific laboratories.

The Institute of Builders will hold a meeting on June 10 at the house of the Society of Arts, when Dr. Hubert Higgins will deliver a lecture entitled "The Seasoning and Preservation of Wood," which will be illustrated by means of lantern slides.

The Mayor of Woolwich laid the foundation-stone last week of new municipal buildings for the borough of Woolwich. The site cost 15,000*l.*, and has an area of 9,000 square yards. The contract price was 50,000*l.*, the builders being Messrs. J. E. Johnson & Son, of Leicester. The buildings will consist of a basement and three floors, with a dome and a clock-tower

rising to a height of 140 feet, and have been designed by Mr. A. Brumwell Thomas, Westminster.

The Hackney Borough Council have agreed to contribute 10,000*l.* towards the cost of purchasing Springfield Estate, overlooking the river Lea at Upper Clapton, provided the London County Council will purchase the ground and maintain it as a public park.

Mr. T. G. Jackson, R.A., submitted last week to the Old Radleian war memorial committee his design for a monument in bronze and alabaster, to be surmounted by an allegorical figure of Faith in bronze. Subject to alterations in detail and to the substitution of a figure of St. George, the design was accepted. The selection of a sculptor was left to Mr. Jackson.

Mr. Hamo Thornycroft, R.A., has been commissioned by a committee of the University of Cambridge and the Royal Society to undertake a bronze medallion portrait, in high relief, of Sir George Gabriel Stokes, which will be placed in Westminster Abbey.

The London, Brighton and South Coast Railway Bill, by which the company seeks powers for the completion of the enlargement of Victoria Station and for widening the line, has been approved by a select committee of the House of Lords.

A Casket has been found by one of the masons engaged in the new works at the Paris Bourse which contains an inscription relating to the laying of the foundation-stone of the building in 1808. The architect of the familiar Classic edifice was Brongniart. It was not opened until 1826.

The Ruins of Abergwili Palace, the former residence of the Bishop of St. Davids, have been inspected by Mr. Coombes, architect to the Ecclesiastical Commissioners, and the rebuilding of the palace on the old site is to be proceeded with immediately.

An Inquiry has been held at Southampton with respect to the application of the Borough Council to borrow 12,500*l.* to provide housing accommodation in a slum area north of Simnel Street. Mr. C. J. Hair is the architect of the proposed buildings.

Documents have been discovered which testify that the New Inn hotel, Gloucester, was erected by the monks for the use of pilgrims in the fourteenth century.

The Parish Church of All Saints, Hereford, was recently reopened after restoration. The principal portion of the work, the restoration of the south aisle, has been carried out under the direction of Mr. Oldrid Scott. There were two roofs, the south aisle one of very ancient character and well worth preserving, and the other a lean-to, the former being hidden from view by a ceiling of lath-and-plaster. The lean-to has now been removed and a substantial oak roof exposed.

The London County Council have decided that plane trees only are to be used for the widened Strand, plane trees and acacias alternately in Aldwych, and plane and ailanthus trees alternately in Kingsway.

Professor W. M. Ramsay delivered a lecture on the 14th inst. before the British Academy on "The Importance of a Systematic Exploration of Asia Minor (in conjunction with the recently formed societies for the same purpose in Austria and in Germany)."

The International Society of Sculptors, Painters and Gravers have elected as Associates Messrs. M. Bauer, A. K. Brown, C. H. Shannon, William Strang and William Witsen.

The Annual Report of the Chief Registrar of Friendly Societies gives the number of members of the unincorporated societies in England for 1901 as 54,219, or 834 for each society stating the number of its members. The total receipts during the financial year were 17,565,181*l.*, or 270,234*l.* for each society stating the amount of its receipts, being more than thirty times the average of the incorporated societies; but this is accounted for by the exceptional case of a society in London (the Birkbeck), the receipts of which are returned as 16,134,126*l.*

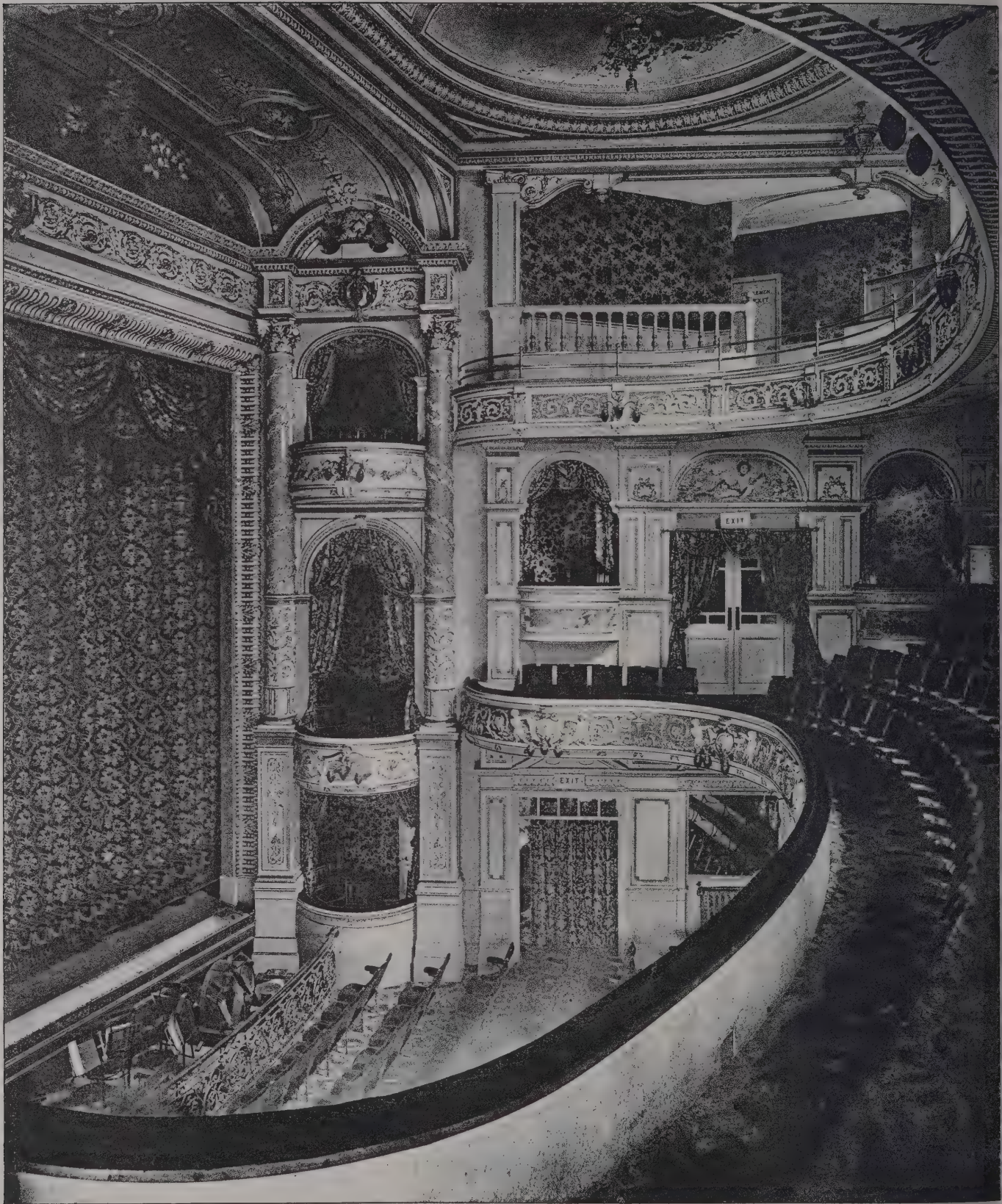
The Agent-General for the Cape of Good Hope has arranged for a free exhibition in the North Gallery of the Imperial Institute from May 18 to May 30, between the hours of 11 and 5 o'clock, of the competitive designs of the new buildings for the Cape of Good Hope University.

The Supper of the Architectural Association at the Great Central Hotel on Friday last was as successful as the promoters could desire. There was an excellent selection of music, and the conjuring was the more remarkable as performed by an amateur. There were present about one hundred and fifty members and friends.

The New Bridge at Kew was opened by the King on Wednesday. It was designed by Sir John Wolfe Barry and Mr. C. A. Brereton. The contractors were Messrs. Easton Gibb & Son. There are three arches of masonry, the central one having a span of 133 feet.

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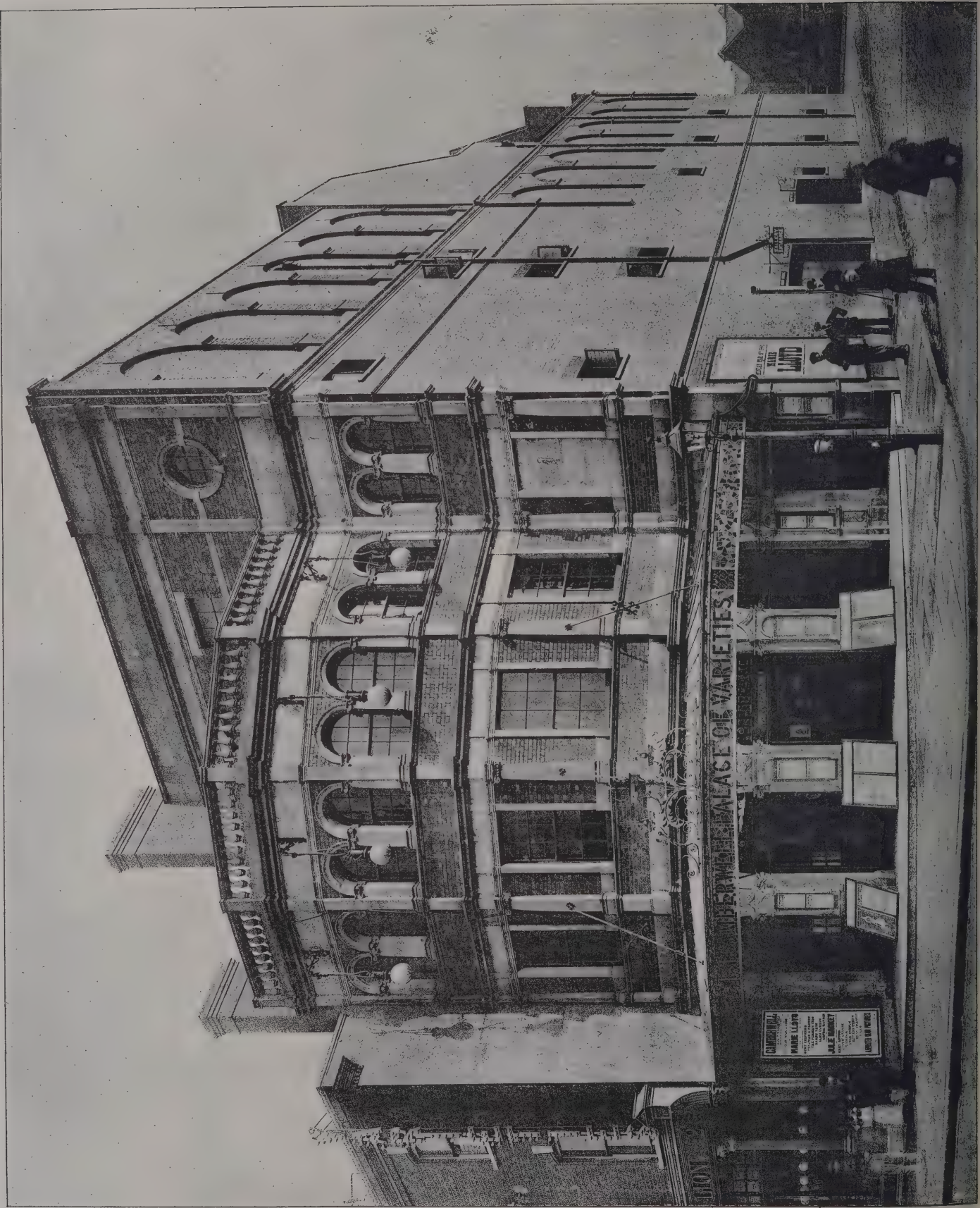


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CORONET THEATRE, NOTTING HILL.

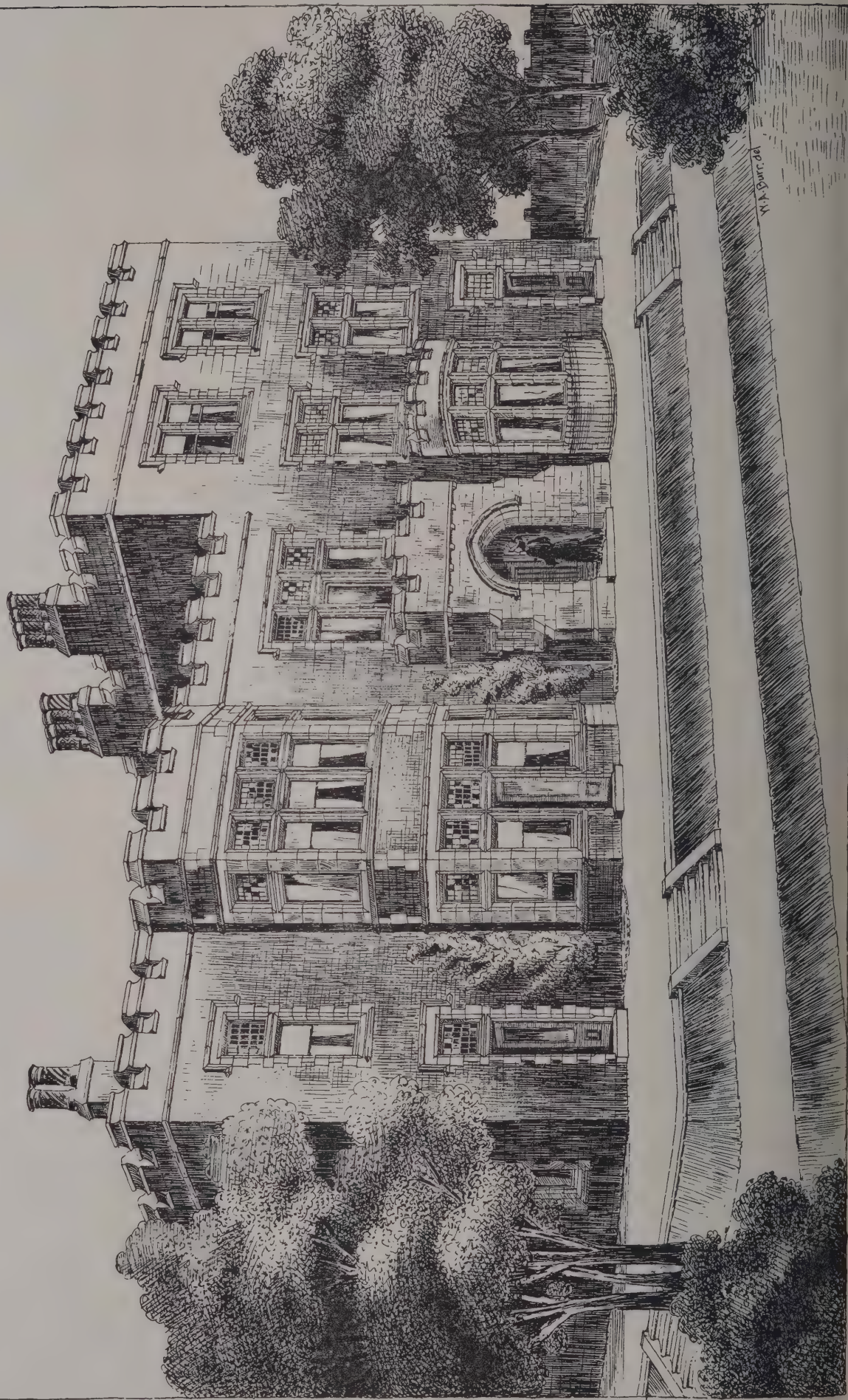
W. G. R. SPRAGUE, Architect.



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BLEAK HOUSE, BROADSTAIRS.
as altered for Thomas Barry Esquire.
William A. Durr M.S.A. Architect.

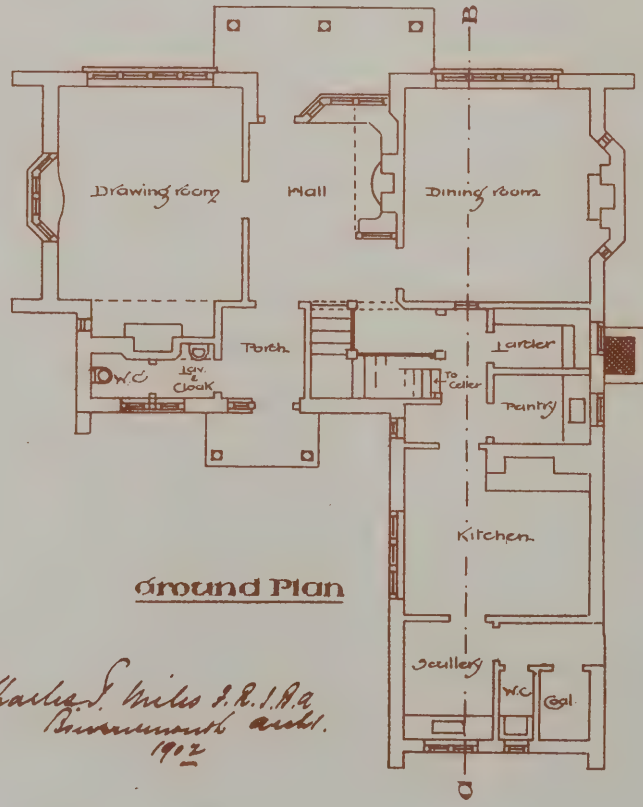




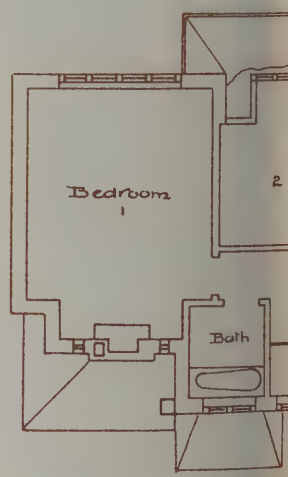
Charles T. Miles



Section C-B



Ground Plan



1st Floor Plan



Cellar Plan

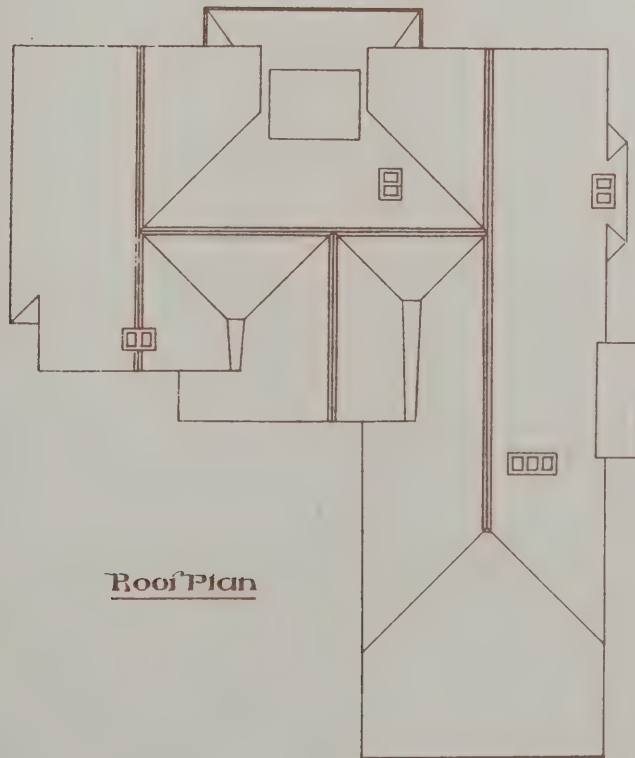
Charles T. Miles S.R.I.A.A.
Birmingham Archt.
1912





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Back Elevation



Roof Plan

up 40 feet

The Architect, May 22nd 1903.

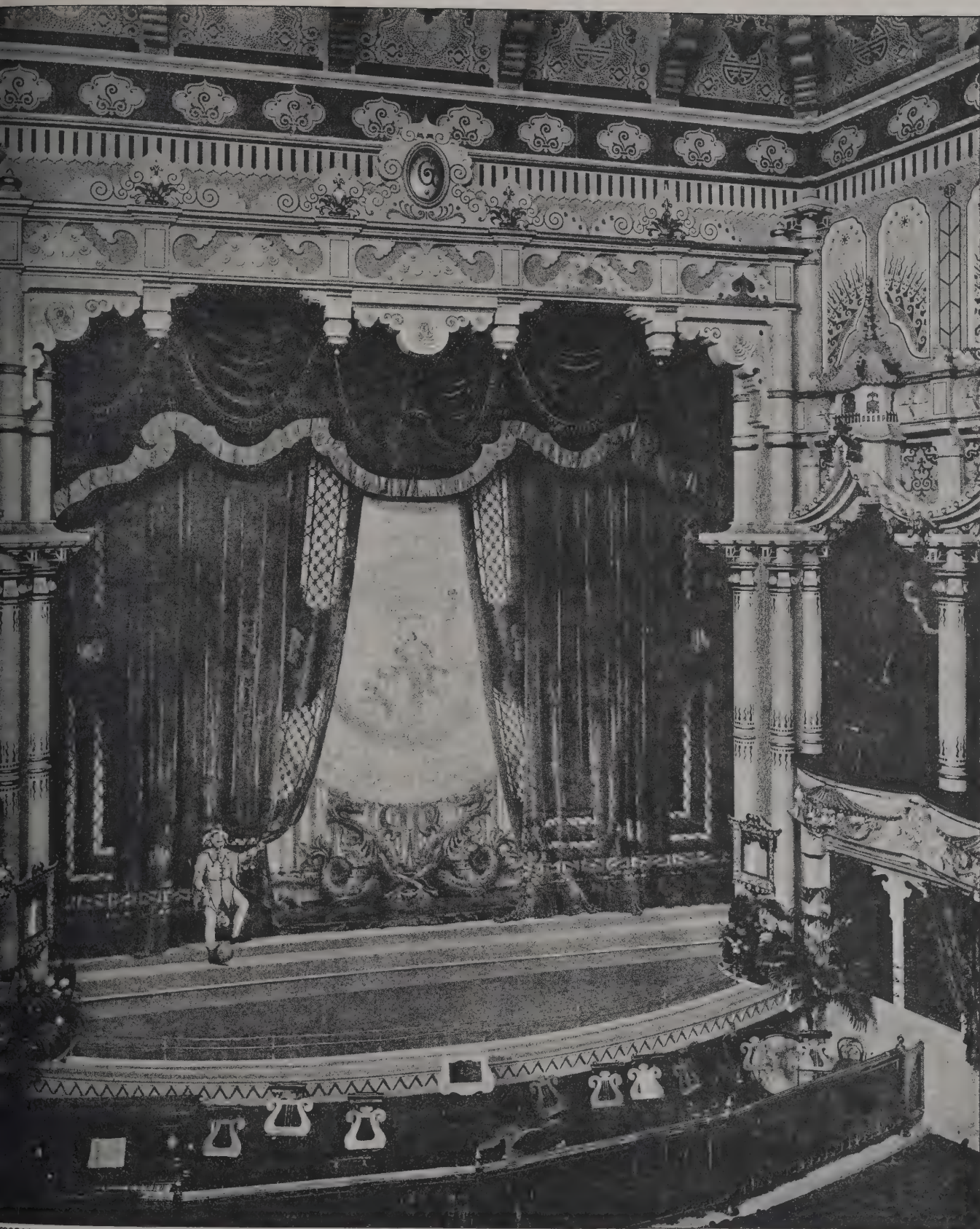


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FIRE STATION, HIGH STREET, ACTON.

The Architect, May 22nd 1903.



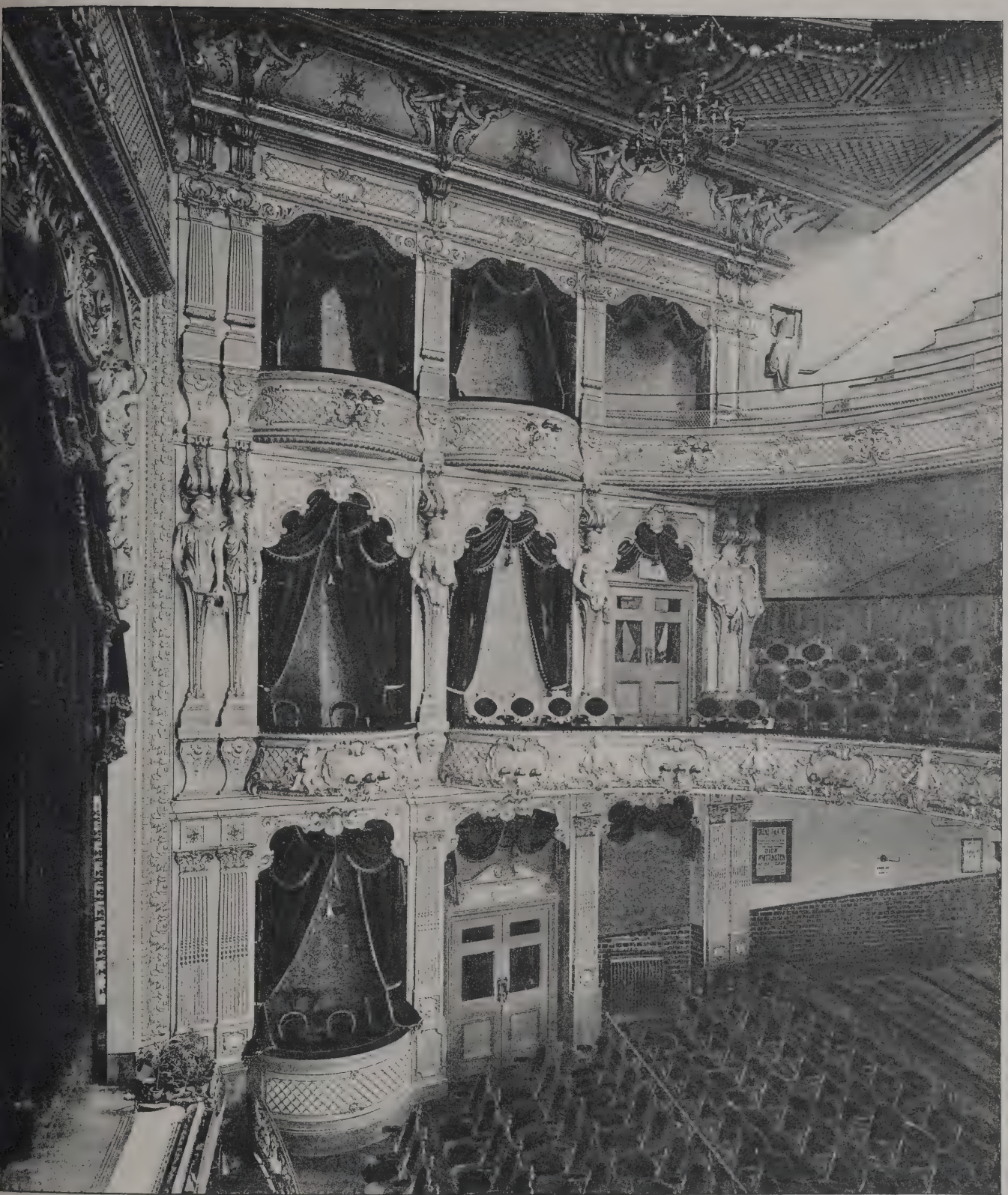
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THE "GRAND" THEATRE, CLAPHAM JUNCTION.

E. A. E. WOODROW, Architect.

The Architect, May 22nd 1903.



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GRAND THEATRE, FULHAM.

W. G. R. SPRAGUE, Architect.

THE Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.

COMPETITIONS OPEN.

BRIDLINGTON.—June 19.—Schemes are invited for providing the village of Flamborough (1,000 inhabitants) with an efficient supply of water. Mr. John B. Simpson, clerk, Rural District Council, Bridlington.

CROYDON.—June 9.—Competitive designs and estimates are invited for a children's home and two relief stations to be erected in Croydon. A premium of £15 15s is offered for the best design for the children's home and £10 10s for the second best, and a premium of £10 10s is offered for the best designs for the two relief stations. Mr. Harry List, clerk, Union Offices, Mayday Road, Thornton Heath.

IRELAND.—June 18.—The Trustees of the Limerick free library and museum invite designs from architects in independent practice for the proposed Carnegie library and museum to be built in the People's Park, Limerick. Prizes of 75l. and 25l. respectively will be awarded to the designs placed first and second in the competition. Mr. W. M. Nolan, town clerk, Town Hall, Limerick.

NEW BROMPTON (KENT).—May 30.—Designs and plans are invited in competition for public swimming and slipper baths to be erected in Windsor Road, New Brompton. Three

premiums are offered, one of £20 to the author of the design which is considered to be the first in order of merit, one of £10 and one of £5 respectively for the second and third. Mr. F. C. Boucher, clerk, New Brompton, Kent.

POPLAR.—June 23.—Competitive designs are invited for a public library to be erected in Cubitt Town, Poplar, E. A premium of 75l. is offered for the design accepted by the Council, which will be deducted from the architect's commission should he be employed as architect in the execution of the work. Mr. Leonard Potts, town clerk, High Street, Poplar.

SCOTLAND.—June 13.—Competitive plans are invited for the formation and laying-out of ground for new cemetery at Wellhall, extending to about 9½ acres. Mr. A. L. Smith, 25 Duke Street, Hamilton.

WALES.—June 2.—A premium of 20l. is offered for the best plan and design for a library at Abergavenny, Monmouthshire. Mr. E. H. Restall, librarian.

CONTRACTS OPEN.

ASPATRIA.—May 26.—For rebuilding business premises in the main street, Aspatia, Cumberland. Mr. J. S. Moffat, architect, 53 Church Street, Whitehaven.

BARROW-IN-FURNESS.—May 25.—For supplying and fixing the whole of the fittings required in the chemical and metallurgical laboratories and class and lecture-rooms, &c., at the new technical school, Abbey Road. Particulars may be obtained from the Town Clerk.

BATH.—May 30.—For extensions to the electric-light generating station in Dorchester Street, and the construction of a river wall abutting on the site known as Kingston Wharf in connection therewith. Mr. F. H. Moger, clerk, 3 Wood Street, Bath.

BRADFORD.—May 27.—For the erection of a warehouse in Canal Road, Bradford. Messrs. Samuel Jackson & Son, architects, Tanfield Chambers, Bradford.

BRADFORD.—May 27.—For alterations to premises, 21 and 23 Darley Street. Mr. F. E. P. Edwards, city architect, Whitaker Buildings, Brewery Street, Bradford.

BRIGHTON.—May 26.—For alterations and improvements to the artists' rooms, lavatories, &c., connected with the Dome, Royal Pavilion, Brighton. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BRISTOL.—May 28.—For erection of sanitary conveniences at Colston Avenue, Lawrence Hill and Welsh Back. City Engineer's Office, 63 Queen Square, Bristol.

CANTERBURY.—May 27.—For the alterations and additions to the head teacher's house at the Board schools, St. John's Place, Northgate, Canterbury. Mr. W. J. Jennings, architect, 4 St. Margaret's Street, Canterbury.

CHANDLER'S FORD.—May 30.—For the erection of a church at Chandler's Ford, Hants, from the designs of Mr. G. Bodley, R.A. Messrs. H. T. Northcroft, Son & Nicholson, 9 Regent Street, London.

CLEETHORPES.—June 3.—For the erection of Council offices, Cleethorpes, near Grimsby. Mr. Herbert C. Scaping, architect, Court Chambers, Grimsby.

COPMANTHORPE.—June 3.—For the erection of station buildings, warehouses and weigh offices at Copmanthorpe, Bolton Percy and Ulleskelf, for the North-Eastern Railway Co. Mr. William Bell, the company's architect, York.

CROSTON.—May 28.—For the erection of a new U.M.F.C. school at Croston, Lancs. Mr. W. H. Dinsley, architect, 12 Cleveland Street, Chorley.

DODWORTH.—For the erection of a Wesleyan church, Dodworth, Yorks. Mr. Geo. Moxon, architect, Central Chambers, 26 Church Street, Barnsley.

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DUBLIN.—June 8.—For the erection of two platelayers' cottages near Beauparc and three platelayers' cottages at Killester, near Ralleny, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

DUDLEY.—May 29.—For alterations at the workhouse. Mr. Arthur Marshall, architect, Nottingham.

DURHAM.—May 30.—For additions to Wesleyan Methodist church, Witton Gilbert. Mr. H. T. Gradon, architect, 22 Market Place, Durham.

ECCLES.—May 25.—For the erection of the additional building at the electricity station, Cawdor Street, Patricroft. Mr. N. H. Hacking, architect, 50 Blackfriars Street, Manchester.

EGREMONT.—For the erection of a large engine-house at Oregill, Egremont, Cumberland. Plans can be seen at the Wyndham Mining Company's Office, High Mill, Egremont.

FARSLEY.—May 25.—For the erection of ten terrace houses in New Street, Farsley, Yorks. Messrs. George Verity & Sons, builders, Lowtown, Pudsey.

FAYGATE.—For the erection of small house near Faygate, Surrey. Mr. K. D. S. Robinson, 7 Carteret Street, Westminster.

FINCHLEY.—June 2.—For the erection of a sorting office at Church End for the Commissioners of H.M. Works and Public Buildings. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

HALIFAX.—June 3.—For the erection of four shops, paper warehouse, stable, &c., Horton Street, Halifax. Messrs. Walsh & Nicholas, architects, Museum Chambers, Halifax.

HANWELL.—June 2.—For the erection of a sorting office. Mr. J. Wager, H.M. Office of Works.

HENDON.—May 26.—For the erection of a newspaper repository for the British Museum. Mr. J. B. Westcott, at H.M. Office of Works.

HORNSEY.—June 8.—For the erection of workmen's dwellings (140 houses) in Hawthorn and Beechwood Roads. Mr. E. J. Lovegrove, engineer to the Urban District Council, 99 Southwood Lane, Highgate, N.

HYDE.—May 27.—For the erection of the Queen Victoria memorial tower, Holy Trinity parish church, Gee Cross. Messrs. James Hunt & Son, architects, 4 Warren Street, Stockport.

IRELAND.—For the erection of shop and stores in Main Street, Bangor. Messrs. Jas. T. Brice & Son, auctioneers, Bangor.

IRELAND.—May 27.—For additions and alterations to school-house, and fitting work and furniture in connection with technical department. Messrs. J. J. Phillips & Son, architects, 61 Royal Avenue, Belfast.

IRELAND.—May 28.—For additions and alterations to Lurgan Royal Irish Constabulary Barrack. Messrs. W. H. Stephens & Son, 13 Donegall Square North, Belfast.

IRELAND.—May 29.—For sundry works required for the improvement, renovation and heating of Mountpottinger Presbyterian church, Belfast. Messrs. Graeme-Watt & Tulloch, architects, 77A Victoria Street, Belfast.

IRELAND.—June 1.—For the erection of fifteen cottages in Nicholas Street, Limerick. Mr. John F. Power, Carr Street, Limerick.

KIRKHEATON.—May 25.—For the erection of three dwelling-houses, Town Top, Kirkheaton, Yorks. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

KNIGHTSBRIDGE.—May 26.—For the erection of a post office. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, Storey's Gate, S.W.

LEEDS.—For the erection of two houses, coach-house and stable, Mill Shaw, Beeston. Mr. Edwin Hill, architect, 13 Oxford Row, Leeds.

LEEDS.—May 26.—For providing and fixing the glass and woodwork for three greenhouses at Burmanofts cemetery, Leeds. Particulars may be obtained at the City Engineer's office, Leeds.

LONDON.—June 24.—For widening and enlargement of Victoria station, for the London, Brighton and South Coast Railway Company. Mr. J. J. Brewer, secretary, London Bridge Terminus, S.E.

LONDON, N.—May 26.—For the erection of fourteen rows of cottage dwellings for the working classes on the White Hart Lane Estate, Wood Green. Particulars at the Housing Section of the Architect's Department, 19 Charing Cross Road, W.C.

MACCLESFIELD.—June 1.—For the erection of a laundry, chimney-shaft and lavatory accommodation at the workhouse. Messrs. Whittaker & Bradburn, architects, 19 King Edward Street, Macclesfield.

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MANCHESTER.—May 27.—For alterations to Newton Street police-station for weights and measures offices, and the erection of a parade-room. Particulars may be obtained at the office of the City Architect, Town Hall.

MATLOCK BRIDGE.—For erection of a new wing at Rockside Hydro, Matlock Bridge. Messrs. Parker & Unwin, architects, The Quadrant, Buxton, Derbyshire.

MIDDLETON.—May 27.—For erection of a large brick wall in Grimshaw Lane, Middleton Junction, Lancs. Mr. Frederick Entwistle, town clerk, Town Hall, Middleton.

MILNTHORPE.—May 27.—For the erection of the Milnthorpe Wesleyan chapel and schools. Mr. John F. Curwen, architect, 26 Highgate, Kendal.

MORTLAKE.—June 9.—For the erection of twenty-six workmen's dwellings, South Worpole Way, Mortlake. Mr. G. Bruce Tomes, surveyor, Council Offices, High Street, Mortlake.

NEWCASTLE-ON-TYNE.—June 3.—For the erection of sub-station buildings at Pandon Dene, Cullercoats, Benton and Kenton, in connection with electrification of branch railways, Newcastle-on-Tyne, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, Central Station, Newcastle-on-Tyne.

OTLEY.—For the erection of Wesleyan church buildings, lecture hall and Sunday-school at Otley, Yorks. Messrs. Danby & Simpson, architects, 10 Park Row, Leeds.

PORTLAND.—May 26.—For the erection of a new station at Portland, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

RADCLIFFE.—May 25.—For the erection of a bowl-house and other conveniences in connection with the public park. Mr. J. Sharples, clerk, Council Offices, Radcliffe, Lancs.

RAMSGATE.—May 25.—For the erection of superstructure of pavilion, shelter, &c., at Harbour Parade. Mr. E. B. Sharpley, town clerk, Albion House, Ramsgate.

RAMSGATE.—May 27.—For repairs and painting, &c., at the market. Mr. T. G. Taylor, borough engineer, Albion House, Ramsgate.

SCOTLAND.—May 25.—For additions to and alterations to farm buildings, Barnhill, near Elgin. Messrs. A. & W. Reid & Witter, architects, Elgin.

SCOTLAND.—May 25.—For additions to the cottages at Glencorse and Loganlea, Edinburgh. Mr. E. C. Carse, architect, 38 Leith Walk, Edinburgh.

SCOTLAND.—May 25.—For the erection of retaining and fence walls at the cemetery, Carnegie Park, Port Glasgow. Mr. Andrew Paton, town clerk, Port Glasgow.

SCOTLAND.—May 30.—For the erection of proposed public washhouse at the corner of Canal Street and Charles Street, Perth. Mr. Robert M'Killop, lurch surveyor, 12 Tay Street.

SCOTLAND.—May 30.—For the extension of the Glasgow fishmarket. Sir J. D. Marwick, town clerk, City Chambers, Glasgow.

SHEFFIELD.—May 30.—For the erection of the University College buildings, Sheffield. Messrs. Gibbs & Flockton, architects, 15 St. James's Row, Sheffield.

STOKE-UPON-TRENT.—June 3.—For the erection of a mortuary at the workhouse and other works. Mr. C. Lynam, architect, Stoke.

THORNTON.—May 29.—For the erection of eight houses at Thornton, Yorks. Mr. Medley Hall, architect, 1 Harrison Road, Halifax.

TILBURY DOCKS.—May 26.—For the erection of a school for 400 boys and a caretaker's house at Tilbury Docks, Essex. Mr. James Thompson, architect, 12 St. Vincent's Road, Southend-on-Sea.

UXBRIDGE.—May 27.—For repair, decoration and drainage at the chapels and sexton's lodge at Hillingdon cemetery. Mr. William L. Eves, architect, 54 High Street, Uxbridge.

WALES.—For the erection of 300 workmen's cottages at Glanamman. Mr. David J. Michael, architect, National Chambers, 97 Oxford Street, Swansea.

WALES.—May 25.—For rebuilding 102 and 103 St. Mary Street, Cardiff, and for alterations to the *South Wales Daily News* offices. Mr. S. Rooney, architect, 9 Quay Street, Cardiff.

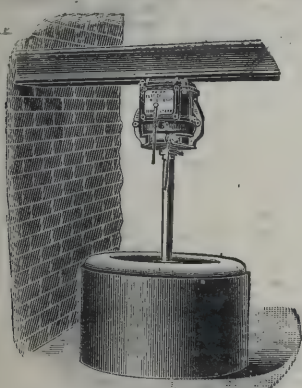
WALES.—May 25.—For the erection of a wooden bridge with stone abutments over the river Ebbw at Crumlin, Mon. Mr. T. S. Edwards, clerk, 24 Stow Hill, Newport, Mon.

WALES.—May 25.—For the erection of a villa, ten houses and one shop at Bedwas. Mr. G. L. Watkins, architect, Station Terrace, Caerphilly.

WALES.—May 25.—For the erection of forty-two houses at Caerphilly. Mr. G. L. Watkins, architect, Station Terrace, Caerphilly.

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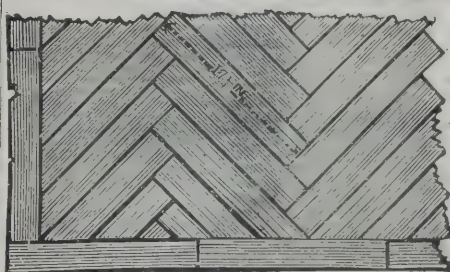
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WALES.—May 27.—For the erection of infants' school at Penarth. Mr. J. H. Phillips, architect, Clive Chambers, Windsor Place, Cardiff.

WALES.—May 27.—For the erection of an infants' school at Abertaf, Abercynon. Mr. A. O. Evans, architect, Pontypridd.

WALES.—May 29.—For altering, cementing and renovating Saron chapel hall and cottage adjoining, Aberaman. The Rev. H. P. Jenkins, 18 Belmont Terrace, Aberaman.

WALES.—May 29.—For the erection of a drill shed for the Royal Naval Reserves at Tenby, Pembroke. Drawings and specification can be seen at the Watch Room, Coastguard Station, Tenby, or at H M. Dockyard, Pembroke Dock.

WALES.—May 30.—For additions, alterations, repairs, new stables, hayloft, &c., to premises at Lower Fishguard, Pembrokeshire. Mr. J. Preece, architect, Tenby.

WALES.—June 1.—For rebuilding Calfaria Welsh Independent chapel, Bargoed. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—June 1.—For the erection of twenty houses at Rhymney. Mr. T. Roderick, architect, Glebeland Street, Merthyr.

WALES.—June 2.—For the erection of an infants' school at Rhymney, Mon. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—June 4.—For extensions to the wards, &c., at the Merthyr General Hospital. Mr. C. M. Davies, architect, 112 High Street, Merthyr Tydfil.

WALES.—June 6.—For alterations and improvements to Aberdare police station. Mr. T. Mansel Franklen, clerk, Glamorgan County Council Offices, Westgate Street, Cardiff.

WALES.—June 8.—For enlarging the three departments of Williamstown Board school to provide additional accommodation for 110 boys, 50 girls and 56 infants, and enlarging and improving the master's house at Porth Board school. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—June 23.—For the erection of the superstructure and other works for the new lunatic asylum at Whitchurch, near Cardiff. Messrs. Oatley & Skinner, architects, Edinburgh Chambers, Baldwin Street, Bristol.

WANDSWORTH.—June 2.—For the construction of river wall adjoining the public baths, High Street. Particulars may be obtained at the surveyor's office, 41 High Street, Wandsworth.

WARTON.—May 29.—For the erection of a branch store at Warton, Carnforth. Mr. Robert Walker, architect, Windermere.

WEDNESBURY.—May 26.—For the erection of a sub-station in connection with the electricity supply undertaking. Particulars may be obtained at the Borough Surveyor's Office, Town Hall, Wednesbury.

WEST HARTLEPOOL.—May 27.—For construction of a wooden pump-house at the destructor works. Mr. J. W. Brown, borough engineer.

WICKHAM MARKET.—May 30.—For stripping-off the old lead, recasting same and repairing and re-covering the spire of Wickham Market Church, Suffolk. Mr. John S. Corder, architect, Wimborne House, Ipswich.

WIGAN.—For the erection of the new hippodrome at Wigan. Messrs. Owen & Ward, architects, 71 Colmore Row, Birmingham.

WORCESTER.—May 30.—For taking-down and rebuilding Ten Acres Bridge on the Pershore main road between Northfield and King's Norton, and for widening Breedon Cross Bridge, which carries the same road over the Worcester and Birmingham Canal and the old West Suburban Railway at Breedon Cross, in the parish of King's Norton. Mr. J. H. Garrett, county road surveyor, Shirehall, Worcester.

WREXHAM.—May 27.—For the erection of a retaining wall and widening of road in Chapel Street, Ponkey. Mr. J. Oswell Bury, clerk, Urban District Council, 9 Temple Row, Wrexham.

YORK.—June 3.—For carrying-out the following architectural works on the Gosforth and Ponteland Branch Railway, for the North-Eastern Railway Company, viz. station buildings, warehouse, weigh offices, stationmasters' houses and cottages at Coxlodge, Fawdon, Kenton, Callerton and Ponteland. Mr. William Bell, the company's architect, Central Station, Newcastle-upon-Tyne.

THE prize drawings of the Royal Institute of British Architects have been during the past week on exhibition at 20 Lincoln Place, Dublin, the rooms of the Royal Institute of the Architects of Ireland.

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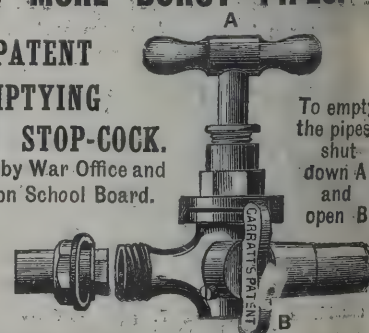
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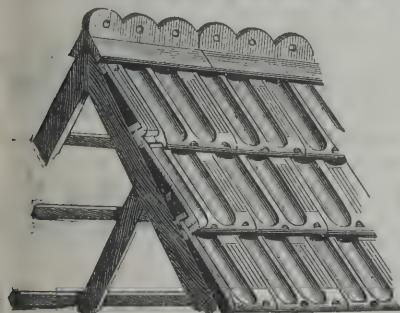
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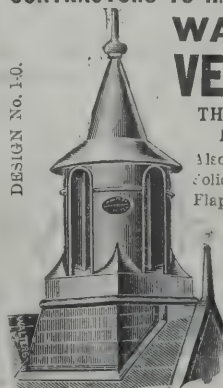
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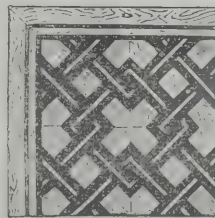


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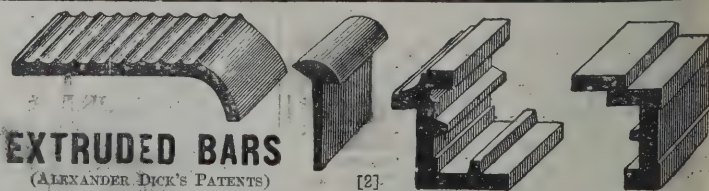
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For supplying and fixing about 600 yards run of iron fence for the new promenade at Westbrook. Mr. ERNEST A. BORG, borough surveyor.
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LONDON SCHOOL BOARD.

For higher elementary school on two storeys. Accommodation: boys, 300, Blackheath Road school.

Thomas & Edge	£12,900	0	0
G. Munday & Sons	12,633	0	0
W. Gregar & Son	12,521	0	0
T. L. Green	12,383	0	0
Holliday & Greenwood, Ltd.	12,207	0	0
Lathey Bros	12,141	0	0
F. & H. F. Higgs	12,135	0	0
W. J. Mitchell & Son	11,966	0	0
W. Downs	11,923	0	0
J. Smith & Sons, Ltd.	11,809	0	0
J. Marsland & Sons	11,715	0	0
Martin, Wells & Co, Ltd.	11,617	0	0
Johnson & Co	11,578	0	0
J. Appleby & Sons	11,544	0	0
J. & M. Patrick	11,455	0	0
J. Garrett & Son	11,332	0	0
J. & C. Bowyer	10,988	0	0
J. Longley & Co, Crawley *	10,987	0	0

For erecting three brick structures for temporary accommodation available hereafter for (a) manual training centre, (b) cooking and laundry centre, (c) drawing classroom and science-room; also providing temporary water-closets, fuel shed, fencing, drainage, &c., Deansfield Road school.

Rice & Son	£5,846	0	0
Thomas & Edge	5,106	0	0
Marchant & Hirst	5,075	0	0
H. Groves	5,030	0	0
T. D. Leng	4,962	0	0
T. L. Green	4,889	0	0
J. Smith & Sons, Ltd.	4,731	0	0
E. Proctor & Son	4,420	0	0
E. P. Bulled & Co.	4,300	9	0
J. & C. Bowyer *	4,160	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For enlargement and improvement of boys and girls' departments, Pope Street school.

Macey & Sons, Ltd.	£13,517	0	0
A. Porter	13,251	0	0
F. & H. F. Higgs	13,123	0	0
J. Longley & Co.	12,955	0	0
E. Lawrance & Sons	12,896	0	0
J. Smith & Sons, Ltd.	12,667	0	0
General Builders, Ltd.	12,573	0	0
J. Garrett & Son	11,881	0	0
Martin, Wells & Co, Ltd.	11,697	0	0
Thomas & Edge	11,492	0	0
J. Marsland & Sons	11,419	0	0
J. Appleby & Sons	11,200	0	0
T. D. Leng	11,057	0	0
G. E. Wallis & Sons	10,943	0	0
J. & C. Bowyer *	10,787	0	0

For enlargement of classrooms, Swaffield Road school.

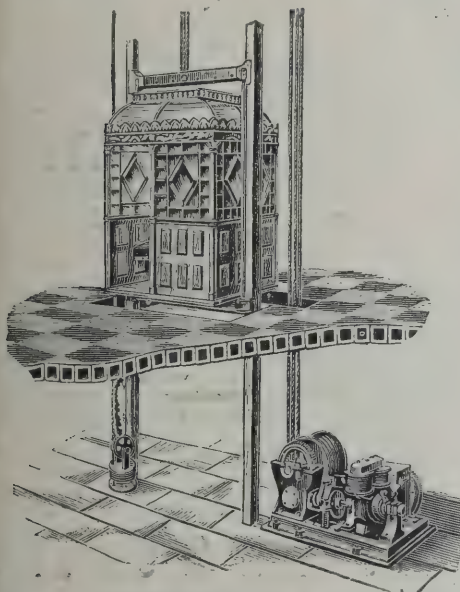
F. & H. F. Higgs	£3,210	0	0
W. Downs	3,117	0	0
F. G. Minter	3,090	0	0
Martin, Wells & Co, Ltd.	3,043	0	0
R. A. Jewell	3,027	18	5
Marchant & Hirst	2,850	0	0
E. Triggs	2,781	0	0
Lathey Bros.	2,775	0	0
J. & C. Bowyer.	2,727	0	0
Rice & Son	2,694	0	0
J. Appleby & Sons	2,666	0	0
Treasure & Son	2,557	0	0
J. & M. Patrick	2,465	0	0
J. Garrett & Son *	2,457	0	0

For replacing the iron railing next canal, including the return end, with a 9-inch brick wall, Amberley Road school.

General Builders, Ltd.	£369	0	0
W. Brown & Sons	155	0	0
Marchant & Hirst	149	0	0
W. R. & A. Hide	145	15	0
G. Neal	138	0	0
F. T. Chinchin & Co.	119	10	0
S. Polden *	103	10	0

* Recommended for acceptance.

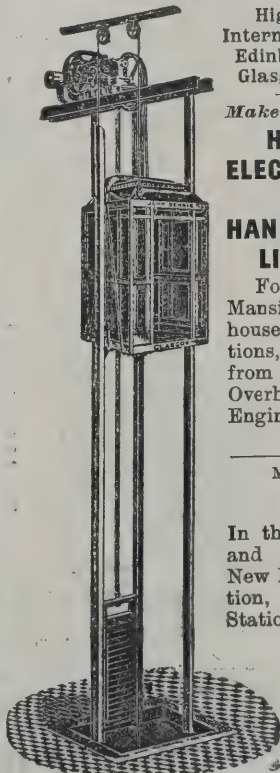
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LONDON SCHOOL BOARD—continued.

For relaying the old soil drains and part surface water, and forming the necessary access with several connections to the existing trough latrines; also providing additional lavatory accommodation for girls' school, Haselrigge Road school.

Sanitary Lead-lining and Pipe-bending Co., Ltd.	£1,776	6	0
Rice & Son	1,659	0	0
W. Hammond	1,627	0	0
E. Triggs	1,626	0	0
Lathey Bros.	1,619	0	0
R. P. Beattie	1,587	7	6
Maxwell Bros., Ltd.	1,580	0	0
J. & M. Patrick	1,577	0	0
J. & C. Bowyer	1,497	0	0
J. Peattie	1,491	0	0
J. W. Falkner & Sons	1,488	0	0
A. Porter	1,485	0	0
H. Leney & Son*	1,467	0	0

For special school (mentally defective), two classrooms of 20 each, and enclosing, draining and tar-paving the additional land, Sussex Road school.

F. & H. F. Higgs	£3,335	0	0
W. Downs	3,195	0	0
T. D. Leng	3,103	0	0
E. Triggs	3,127	0	0
Johnson & Co.	3,122	0	0
R. A. Jewell	3,038	16	1
J. Smith & Sons, Ltd.	3,022	0	0
Martin, Wells & Co., Ltd.	3,012	0	0
E. P. Bulled & Co.	2,997	0	0
J. Garrett & Son	2,951	0	0
Rice & Son	2,951	0	0
Lathey Bros.	2,895	0	0
Stimpson & Co.	2,867	0	0
J. Marsland & Sons	2,840	0	0
J. & C. Bowyer	2,839	0	0
W. J. Mitchell & Son*	2,799	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For altering position of existing partition and providing additional glazed partitions in order to redivide classrooms C, D and E into four rooms, including reversing stepping for side lighting, also altering doorways, &c., in connection with same, for all departments of Everington Street school.

W. R. & A. Hide	£1,175	0	0
W. Hammond	1,022	0	0
General Builders, Ltd.	999	0	0
Rice & Son	992	0	0
G. H. Sealy	981	10	0
Maxwell Bros., Ltd.	959	0	0
Lathey Bros.	939	0	0
G. Neal	924	0	0
S. Polden	916	10	0
E. Triggs*	879	0	0

For forming additional entrances to school from Studdridge Street, for all departments of Peterborough school.

Lathey Bros.	£379	0	0
Thompson & Beveridge	370	0	0
W. Hammond	349	0	0
General Builders, Ltd.	329	0	0
S. Polden	325	10	0
E. B. Tucker*	285	5	0

For altering position of existing partitions and providing additional glazed partitions in order to redivide classrooms C and D into three rooms, including altering stepped flooring in the redivided rooms for side lighting, also bricking up fireplaces and providing open-fire portable stoves for warming these rooms, &c., Hanover Street school.

Parrott & Isom	£1,281	0	0
Belcher & Co., Ltd.	694	5	0
F. Bull	686	0	0
Stevens Bros.	684	0	0
T. L. Green	657	0	0
H. Bouneau	636	10	0
McCormick & Sons	633	0	0
C. Dearing & Son	625	0	0
Unsigned	596	0	0
G. S. S. Williams & Son*	567	0	0

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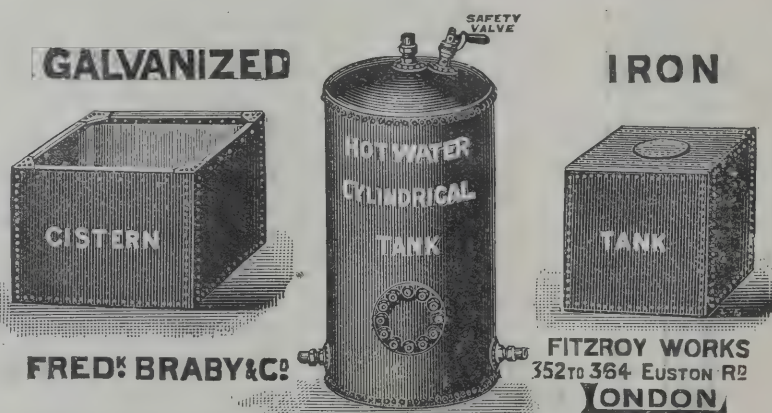
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LONDON SCHOOL BOARD—continued.

For altering position of existing partition between classrooms F and G, and reversing the stepped flooring in the latter room for side lighting; also forming lobby in classroom E for direct access to room F, new glazed partition to divide classroom F, and reversing stepped flooring in one of the divided rooms for side lighting, Queen's Head Street school.

Stevens Bros.	£298	0	0
F. Bull.	276	0	0
T. L. Green	275	0	0
Belcher & Co., Ltd.	259	10	0
C. Dearing & Son	254	0	0
McCormick & Sons	252	0	0
J. Grover & Son	242	0	0
G. S. S. Williams & Son*	235	0	0

For removing partitions and providing new glazed partitions in order to redivide classrooms A and B into three rooms, including reversing the stepped flooring in two of the rooms in each case for left lighting, and forming new doorways, &c., replacing four windows with larger windows, Creed Place school.

D. Gibb & Co.	£625	0	0
Vigor & Co.	620	0	0
J. Marsland & Sons	592	0	0
E. Proctor & Son	558	0	0
H. Groves	525	0	0
A. J. Sheffield	490	0	0
H. Leney & Son	415	0	0
G. Kemp*	405	0	0

For providing and fixing additional heating surface on ground, first and second floors, to bring existing low-pressure hot-water apparatus up to the Board's present standard, also increasing the power of the boiler, Childeric Road school.

C. Kite & Co.	£325	0	0
Turner & Co.	252	10	0
Stevens & Sons	179	0	0
G. & E. Bradley	167	10	0
Mather & Platt, Ltd.	163	0	0
M. Duffield & Sons	152	0	0
Rosser & Russell, Ltd.	143	0	0
J. Defries & Sons, Ltd.*	130	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For altering position of existing partition and providing an additional fixed glazed partition in order to redivide classrooms C and D into three rooms, including reversing stepped flooring in the redivided rooms for left lighting; also providing new doorways, open fire portable stoves for warming four of the rooms, &c., in connection with same, Vicarage Road school.

D. Gibb & Co.	£560	0	0
Vigor & Co.	517	0	0
H. Groves	449	0	0
E. Proctor & Son	420	0	0
J. Marsland & Sons	419	0	0
G. Kemp	403	0	0
A. J. Sheffield*	396	0	0

For extending the existing low-pressure hot-water apparatus to six new classrooms and three cloak-rooms, also altering and rearranging same in three classrooms to suit the provision of three new partitions, New Park Road school.

Brightside Foundry and Engineering Co., Ltd.	£204	0	0
Wippell Bros. & Row	190	0	0
J. Esson & Son	177	10	0
J. Wontner-Smith, Gray & Co.	135	0	0
Clark, Bunnett & Co., Ltd.	131	0	0
A. Dougill & Co., Ltd.	122	0	0
Werner, Pfeiderer & Perkins, Ltd.	99	7	2
J. C. Christie	95	10	0
Comyn Ching & Co.*	89	10	0

For erecting a brick building for temporary school accommodation available hereafter for a manual training centre for 40 boys; removing temporary offices now stacked on the Fulham Palace Road and Santley Street sites, and erecting them on this site; also providing fuel shed and new system of drainage, Dunt's Hill school.

R. A. Jewell	£1,691	0	0
J. Marsland & Sons	1,620	0	0
General Builders, Ltd.	1,597	0	0
Whitehead & Co., Ltd.	1,545	0	0
E. Triggs	1,535	0	0
J. Garrett & Son	1,462	0	0
Lathey Bros.	1,400	0	0
W. Hammond*	1,383	0	0

* Recommended for acceptance.

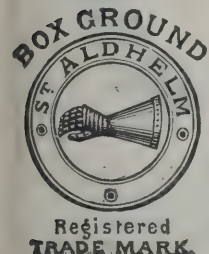
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LONDON SCHOOL BOARD—continued.

For removing an iron building from Plum Lane and re-erecting it on this site, including foundations, drains, additional office accommodation, &c., Hazelbank Road school.

T. Cruwys	£733	0	0
J. Mitson & Co.	650	0	0
T. J. Hawkins & Co.	645	0	0
F. Smith & Co.	579	0	0
Croggon & Co.	560	0	0
J. McManus	537	0	0
Humphreys, Ltd.	525	0	0
W. HARBROW (accepted)	515	0	0

For refitting girls' lavatories with fireclay basins and providing open channels and new external ventilated waste pipes, &c., Farrance Street school.

Pitcher & Son	£97	0	0
Johnson & Co.	85	0	0
Stevens Bros.	78	0	0
Vigor & Co.	78	0	0
A. W. Derby	72	0	0
BARRETT & POWER (accepted)	67	6	0

MARSDEN.

For the erection of weaving sheds, &c., containing over 2,000 square yards of floor area, at New Mills, Marsden. Mr. JOHN E. LUNN, architect, Milnsbridge.

Accepted tenders.

Whitehead & Bradbury, mason.
J. Schofield, joiner.
T. Firth, plumber.
W. E. Jowitt, Huddersfield, slater.
J. & J. Bottomley, painter.
J. Cooke, Huddersfield, concreter.
J. Burgess, Mossley, cast-ironwork.
J. Taylor & Sons, Huddersfield, steelfounder.
Rest of Marsden.

MELTHAM (YORKS).

For sewerage and drainage works. Messrs. J. B. ABBEY & SON, engineers, 34A New Street, Huddersfield.
F. EARNSHAW, Meltham (accepted).

OLD KENT ROAD.

For drains and sanitary fittings to ninety-eight houses at the Licensed Victuallers' Asylum, Asylum Road, Old Kent Road, S.E. Mr. W. F. POTTER, architect.

Howard Cooke	£1,593	0	0
J. Nicholls	1,335	3	9
F. Dawes	1,135	0	0
C. Ansell	1,114	0	0
J. D. Pitcher & Son	1,100	0	0
C. King & Son	1,075	0	0
W. Nash	1,038	0	0
F. FRANKLIN & SON (accepted)	1,033	0	0
W. H. Cooper	993	0	0

SANDBACH.

For the erection of engine-house at the central shops, Sandbach. Mr. ALFRED PRICE, architect, Sandbach.

Birchall Bros.	£223	0	0
Proctor, Major & Mason	215	0	0
J. MELLOR, Elworth (accepted)	196	0	0

For alterations at the Primitive Methodist chapel, Sandbach.

A. E. Lee	£62	10	0
PROCTOR, MAJOR & MASON, Crewe, and Bold Street, Haslington, near Crewe (accepted)	55	0	0

SCRIVEN.

For the erection of Wesleyan chapel and schools at Scriven, Knaresborough. Messrs. DANBY & SIMPSON, architects, 10 Park Row, Leeds.

Accepted tenders.

M. Ridsdale & Son, Ribston, Wetherby, mason	£669	15	6
D. Kitching & Son, Knaresborough, joiner	325	0	0
A. Ellenger, Harrogate, plumber	83	0	0
J. & W. Baynes, Harrogate, slater	57	0	0
M. M. Bartholomew, Scotton, Knaresborough, plasterer	40	10	0
Morley & Sons, Knaresborough, painter	27	9	0

TARPORLEY.

For the construction of about two miles of pipe sewers, from 15 inches to 8 inches diameter, manholes, ventilators, flushing stations, sewage tanks, the laying-out of land and formation of carriers, in connection with the sewerage and disposal of the sewage of Tarporley, Cheshire.

A. J. COTTLE, Mellor, near Stockport (accepted).

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GRAND THEATRE, FULHAM.

WALES.

For painting the East Moors police-station and the superintendent's house, Roath police-station, Cardiff. Mr. W. HARPUR, borough engineer.

A. J. Howell	£139	3	7
Miles Bros.	123	0	0
W. E. James	115	1	0
Gough Bros.	90	10	0
D. MULLENS, 66 Cowbridge Road (accepted)	88	19	4

For the construction of about 58 lineal yards of 3 feet 3 inches by 2 feet brick sewer in Baker's Row, Wharton Street, Cardiff. Mr. WM. HARPUR, borough engineer.

Lewis & Parker	£410	6	0
A. W. Cadwallader	230	0	0
M. Green	203	11	0
F. Ashley	195	6	0
C. DAVIES, Cardiff (accepted)	190	0	0

For the construction of a reservoir, supplying and laying of cast-iron pipes, supplying and fixing of pillar fountains, hydrants, valves, &c., at Holywell, Flint. Mr. C. A. ATKINSON, engineer, 11 Tithebarn Street, Liverpool.

J. Jones	£4,600	0	0
T. Rowlands	3,776	11	0
W. Jowett	3,450	6	4
H. Hughes	3,327	12	10
Bennie & Thompson	3,133	0	11
R. A. Crowe	3,111	14	6
Hughes & Rowlands	2,884	16	0
H. Shardlow	2,860	0	0
W. D. SIMMONS & SON, Gwersyllt, Wrexham (accepted)	2,671	0	3

WALES—continued.

For the erection of a dwelling-house at Abercanaid. Mr. R. C. JENKINS, architect, Cefn Coed.
E. WILLIAMS, Dowlais (accepted) : : : £270 0 0
W. Evans : : : 270 0 0

WATFORD.

For additions to the electric-light station. Mr. D. WATERHOUSE, surveyor.

Foster Bros.	£1,105	0	0
H. Brown	950	0	0
G. & J. Waterman	927	0	0
Tyler & White	926	0	0
Myall & Upton	868	0	0
Townsend & Coles	862	0	0
C. Brightman	839	0	0
Saw Bros.	835	0	0
Clifford & Gough	829	0	0
F. DUPONT & Co, Watford (accepted)	812	0	0

WEST ARDSLEY.

For the erection of two through houses, house and shop, and outbuildings at Tingley, West Ardsley, Yorks. Messrs. BUTTERY & BIRDS, architects, Leeds.

C. Auty, Tingley, mason	£407	0	0
E. Wilson, Morley, plasterer	54	0	0
J. Atkinson & Son, Leeds, slater	39	0	0
J. W. Stakes, Morley, plumber	27	10	0

WEST BECKHAM.

For reslating a portion of the workhouse at West Beckham, Norfolk, and works in connection therewith. Mr. T. INGLIS GOLDIE, architect, Bank Buildings, Bank Plain, Norwich.

Blyth & Son	£528	9	7
J. F. Ransons	461	0	0
C. T. Baker, Ltd.	414	10	0
G. Lines	408	0	0
W. & F. Appleton	360	0	0
J. W. Weston	345	0	10
W. G. Porter	344	0	0
J. W. NEALE, Baconsthorpe, Norfolk (accepted)	283	0	0

WESTON-SUPER-MARE.

For street works on the Morgan and Coombe Lodge Estates. J. COLES, Clevedon (accepted) : : : £2,700 0 0



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F. W. Trim	£6,941	0	0
Douglas & Richards	6,499	0	0
B. Cooke & Co.	5,528	0	0
Grounds & Newton	5,285	0	0
Streeters & Todhunter	5,194	0	0
F. Osman	5,140	0	0
A. G. Osenton	5,071	0	0
COSTON & CO., LTD., Southampton (accepted)	4,650	0	0

WIMBLEDON.

For the erection of seven pairs of semi-detached houses in Wilton Crescent. Mr. H. G. QUARTERMAIN, architect, Merton Park, Surrey.

W. Johnson & Co., Ltd.	£14,490	0	0
Bulled & Co.	14,307	0	0
D. Steward & Son	14,200	0	0
Smith & Son, Ltd.	13,397	0	0
Holliday & Greenwood, Ltd.	13,250	0	0
Garrett & Son	12,978	0	0
W. H. Lorden & Son	12,222	0	0
J. BURGESS & SONS, Wycliffe Road, Wimbledon (accepted)	11,200	0	0

Received too late for Classification.

LUTON.

For the erection of new north aisle and enlarging the organ chamber and choir vestry of Christ Church, Luton. Messrs. J. R. BROWN & SON, architects, Luton. Quantities by Messrs. J. B. COLWILL & SON, 6 Alma Road, St. Albans.

French	£2,310	0	0	£10	0	0
Neville	2,066	2	0	20	0	0
Attwood	2,050	10	0	30	0	0
Angel	2,023	10	9	—	—	—
Pryer	1,968	0	0	38	0	0
Miskin & Sons	1,958	0	0	8	0	0
Mallet & Wood	1,924	10	0	20	0	0
DUNHAM (accepted)	1,784	0	0	7	10	0

A. Allowance for old materials.

TRADE NOTES.

MESSRS WM. AUG'S GIBSON, LTD., of Temple Bar House, 28 Fleet Street, have received an order for three lifts, electrically driven, for the *Standard* offices, Shoe Lane.

THE new police-station, Amlwch, has recently been fitted with the well-known "small tube" hot-water heating apparatus by Messrs. John King, Ltd, engineers, Liverpool, who employed their economical coil-heater.

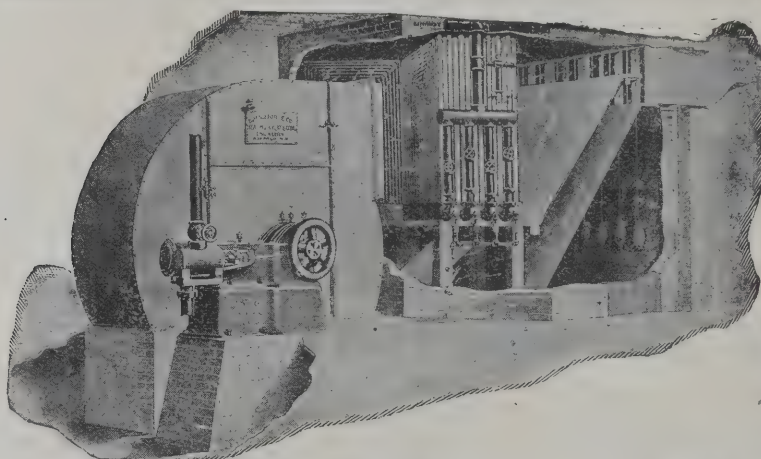
MARBLE Arrolithic paving is being supplied and laid at East Riding lunatic asylum, Beverley; Corn Exchange, Chelmsford; conservatory, Howbery Park, Wallingford; and Moon's Hill, Farnham, by Messrs. Arrolithic, Ltd., 18 Berners Street, W.

MESSRS. JOHN SMITH & SONS, Midland Clock Works, Derby, have just received an order for a large clock for the new town hall at Vryburg, Cape Colony. It will be supplied with all the latest improvements, and is expected to go to great accuracy.

THE fireproof construction of the Columbian Fireproofing Company, Limited, 37 King William Street, E.C., has been adopted for the new lampblack works at Greenwich for Messrs. Binney & Smith Company, including the providing and erecting constructional steelwork, fireproof roofs, casing the steel girders and glass finish to roofs. The architect is Mr. J. Thorman, of Borough Hill, Royal Hill, Greenwich.

THE North-Eastern Railway Company have erected several large buildings recently on the main line from Leeds to York, Selby and Hull, at Neville Hill, on the outskirts of Leeds, and Messrs. Wm. Potts & Sons, clock manufacturers, Guildford Street, Leeds, have erected a large illuminated turret clock in one of them, showing the time upon three large external dials, which are lighted by electricity, under instructions received from Mr. Wm. Bell, the company's architect.

THE Safety Lift and Elevator Company, Albert Works, Rolt Street, Deptford, S.E., electric, hydraulic, belt-driven and hand-power lift manufacturers, inform us that among recent contracts taken by them are:—Bedford Hotel, Southampton Row, electric passenger and service lifts; King's Mansions, West End Lane, Hampstead, four electric passenger-lifts, eight service-lifts; Ivorna Court, High Street, Kensington, three electric passenger-lifts, one hydraulic passenger-lift, eight hydraulic service-lifts; Mr. Graves, Sheffield, electric passenger-lift; Spa Boarding House, Scarborough, electric passenger-lift.

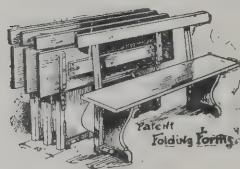


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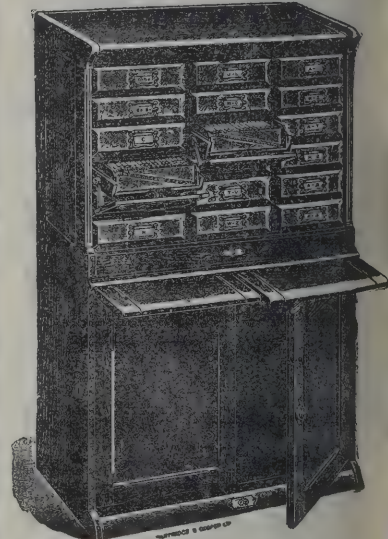
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and dinner-lift; Messrs. Powoloneys, Ltd., Leeds, electric goods-lift; the Batley Co-operative Society, electric goods-lift, electric service-lift and hand-power dinner-lift; while among those completed are New Offices, Bedford Row, W.C., electric passenger-lift; the Cerebos Company, Maiden Lane, E.C., electric goods-lift; Messrs. Hyams, Ltd., Leeds, electric passenger-lift; Mr. E. Rubie, 28 City Road, hydraulic passenger-lift; Messrs. Crossley, Ltd., Post Office Buildings, Newgate Street, E.C., hydraulic passenger-lift and hydraulic goods-lift; Dieudonné Hotel, Ryder Street, W., four hydraulic service and luggage-lifts.

VARIETIES.

THE Victoria Wesleyan church, Pendlebury, which has been erected at a cost of 3,600*l.*, was opened on Saturday.

MR. SAMUEL PRYCE PARRY, M.A., has been appointed town clerk of Oswestry at an inclusive salary of 350*l.* per annum.

MR. WM. SPINK, of Nawton, near Helmsley, has been appointed surveyor to the Pickering (Yorks) Urban District Council. The salary attached to the post is 75*l.* per annum.

CONSIDERABLE regret was expressed in Cheltenham at the announcement of the death at Sandgate on Thursday of the town clerk, Mr. Edward T. Brydges.

THE Leith Parish Council have considered the plans for the new poorhouse, with the report of the assessor, Mr. R. D. Sandilands, architect, Glasgow, and have awarded the first premium of 100*l.* to the design of Messrs. Scott & Campbell, architects, Edinburgh; and the second to the design of Mr. W. C. Laidlaw, architect, Edinburgh.

THE Colville memorial church, Cleland, N.B., was opened for public worship on the 16th inst. Built upon a site given by the late Mr. John Colville, M.P., the church has been dedicated to his memory. Seated for 460, with a hall for 130, and having a spire, back gallery, vestry, kitchen, cloak-room, heating chamber and gashouse, it has cost altogether about 2,150*l.*

MR. CARNEGIE has promised Mr. Fritz, the ironmaster, and Mr. Kafer, president of the Engineers' Club, a sum of one million dollars, or more if necessary, for a central Institute in New York, where professional and social bodies representing the engineering profession in all branches—civil, mechanical, electrical and mining—can be brought under one roof.

A NEW mission hall, which provides accommodation for 300 people, was opened in connection with the Holland Street Sunday and Ragged School, Ancoats, Manchester, on Saturday afternoon. The mission has been carrying on its excellent work in that densely populated neighbourhood for a period of forty-four years, and the new extensions, which comprise the mission hall already alluded to and an infant school will add materially to the efficiency of the institution.

MR. J. DAVIS, chairman of the baths and washhouses committee of the Whitehaven Town Council, opened on the 15th inst. the new public baths in Duke Street, which have been built as an extension of those built in 1884 at a total cost of 5,850*l.* The accommodation which has been provided includes the Lascare Grove bath, Turkish, rain and spray baths, hot and cold, and twenty washing stalls. The price paid by the Corporation for the old baths was 3,000*l.* The extensions have cost 2,850*l.*, making a total of 5,850*l.*

THE Vestry of St. Giles's, Cripplegate, have offered to acquire from the City Corporation a strip of land in front of the church of St. Giles's, Cripplegate, for 1,770*l.*, in order that no shops or buildings may in future be erected in front of the church. The Ecclesiastical Commissioners have already bought another strip for the purpose of preventing the church from being again obscured from view from Fore Street. If the offer is accepted by the Corporation, an appeal will be made for funds to restore the north side of the church, and the total cost of the work is estimated at about 6,000*l.*

ALL SAINTS CHURCH, Hereford, has been reopened after undergoing considerable restoration, which has been carried out at a cost of nearly 3,000*l.* The principal portion of the work has been the restoration of the south aisle and lady chapel. The roof of the former has been put into a thorough state of repair, an old lean-to roof demolished, and by the removal of a lath-and-plaster ceiling a fine old panelled roof, with ancient carved spandrels and bosses, revealed. The lady chapel has undergone thorough restoration and has been entirely refitted and beautified. The organ has been improved and the electric light introduced throughout the building, while a good deal of outside work has also received attention.

A PUBLIC meeting of the parishioners of St. Aidan's Church, Harrington, was held recently to consider the report of Mr. Milburn, architect, of Sunderland, in respect to the damage done to the church by subsidence, and also the dangerous state of the belfry. The vicar of the parish, the

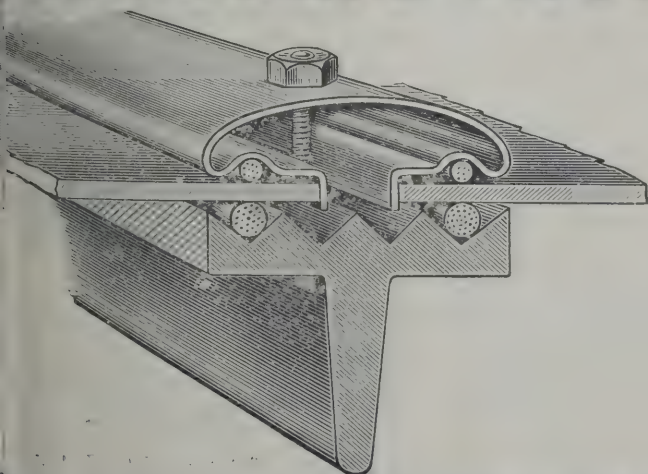
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Rev. W. E. C. Frith, M.A.) presided over a good attendance. He presented the architect's report, which showed that the building was in a somewhat serious condition, and the architect recommended the work, including the removal of the present belfry from the extreme west end more to the centre of the roof, the total cost of the work being estimated at 300*l*. The report was adopted, a committee appointed to have the work carried out, and to make a house-to-house collection in the parish to raise the money, also to approach the Lambton Collieries Company for a donation. The building was only erected in 1886 at a cost of 3,500*l*.

CHEAP tickets available for eight days will be issued to Brussels May 27 to 30 inclusive and June 1 *via* Harwich and Antwerp. Passengers leaving London in the evening reach Brussels next morning after a comfortable night's rest on board the steamer. For visiting The Hague, Amsterdam, Utrecht and other parts of Holland, the Rhine, North and South Germany and Bale for Switzerland special facilities are offered *via* the Great Eastern Railway Company's Royal British Mail Harwich-Hook of Holland route, through carriages being run to Amsterdam and Berlin, Cologne and Bale. Restaurant cars are run on the North and South German express trains. The General Steam Navigation Company's fast passenger steamers will leave Harwich on May 27 and 30 for Hamburg, returning May 31 and June 3. The United Steamship Company of Copenhagen steamers will run between Harwich and Esbjerg, on the west coast of Denmark, as usual.

BUILDING AND BUILDERS.

THE Folkestone Town Council has decided on the erection of an up-to-date dust destructor.

The authorities are about to spend over 50,000*l*. in extending the present school buildings at Hythe, and are purchasing new lands for future use.

MEMORIAL-STONES of a new Wesleyan Sunday-school have been laid near the Wesleyan chapel in the Newtown portion of New Mills, Lancs. The building will cost about 1,800*l*.

ON Saturday memorial-stones of a new Wesleyan chapel at Longwood, near Huddersfield, were laid. The chapel and site are estimated to cost 7,600*l*. The new building will be in the Gothic style of architecture, and will seat 700 persons.

THE tender for the erection of Inglehurst, Beckenham, Kent, submitted by Messrs. H. Copeland & Son, contractors, Beckenham, has been accepted, the amount of contract being 1,726*l*. 1*s*. 6*d*. The architects are Messrs. G. & R. P. Baines, 5 Clement's Inn, Strand, London, W.C.

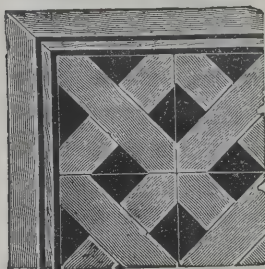
NINETEEN tenders have been received by the Crewe Town Council for the erection of new municipal buildings for the borough. The highest was over 17,000*l* and the lowest under 15,000*l*. A committee of the whole Council have accepted the tender of Messrs. Robert Neill & Son, of Strangeways, Manchester, to erect the buildings for 14,752*l*.

EIGHTY-NINE sets of designs for the Fenton Public Library competition were submitted by architects, and the assessor, Mr. Ernest George, F.R.I.B.A., has awarded the premiums as follows:—First (60*l*), Messrs Short & Penty, of 11 Anley Road, West Kensington Park, London; second (30*l*), Mr. J. Stephenson Stout, of Whitehaven. The cost of the building was limited to 4,250*l*.

THE Walsall Bricklayers' Society, who have been on strike for five weeks for an increase of a halfpenny per hour, have decided to relinquish their demand and return to work to-morrow at the old rate of 8*½**d*. Over 300 men have been out, and the only point gained has been a concession as to winter conditions—work to start at 7.30, with an hour for breakfast, instead of 8 o'clock and no breakfast time.

THE Liverpool Corporation have, it appears, abandoned for the present the scheme for building a public hall at a cost, including site, of some 100,000*l*. The reasons for dropping the proposal are that the Liverpool Wesleyan Mission is about to erect in Renshaw Street a Charles Garrett Memorial Hall, which will hold about 2,500 people, and be available for public meetings, while simultaneously a still larger building to hold 4,000 people is about to be erected near the Necropolis.

THE present buildings devoted to police and county court proceedings at Altrincham are no longer calculated to meet the requirements of the rapidly increasing district. For some time past the standing joint committee of the Cheshire County Council have had the matter under consideration, and permission has now been received from the Local Government Board for additions and alterations which will practically amount to rebuilding. Additional rooms will be provided for the accommodation of the Mayor, and a second court-room will be added. Underneath this will be a drill and parade-room for the police.



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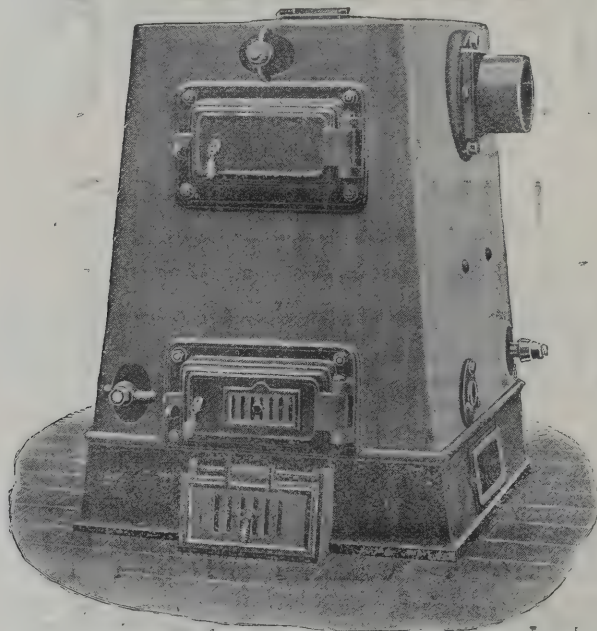
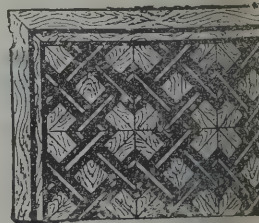
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THE scheme for the restoration of St. Leonard's Church, Walton-le-Dale, near Preston, at a cost of between 8,000*l.* and 9,000*l.*, has now been definitely settled. The plans have been prepared by Mr. Seddon, of London, and the character of the building will not be materially altered, though many improvements will be effected. One of these will be the extension of the church 6 feet at the chancel end, while the gallery will be abolished and the organ chamber removed close to the chancel. The character of the tower will not be interfered with. The scheme has received the approval of Mr. Richard Calvert, who a short time ago gave the sum of 4,000*l.* towards this object, while a further donation of 1,000*l.* was received from Mr. Frank Calvert. Altogether a sum of about 7,000*l.* has been promised in aid of the scheme.

A MEETING of Kirkcaldy Harbour Commission was held last week to consider the report by the joint committee of representatives from the Harbour Commission and Town Council, appointed to consider the question of improved harbour accommodation at Kirkcaldy. The committee reported that after making investigations as to the trade which might be expected they considered they would be justified in spending 100,000*l.* on a commercial harbour, and they proposed that Sir A. M. Rendel, C.E., should be asked to report on the question of a harbour on the line suggested, with a view to extension for export of coal if found necessary. The Commission unanimously adopted the committee's report, and instructed the clerk to engage the engineer, the expense to be borne by the Commission.

At a meeting of the Clydebank and Renfrew Joint Hospital Board general satisfaction was expressed that the Town Council of Renfrew had now seen their way to approve of the extension of the hospital and the plans prepared therefor. The architect (Mr. Paterson) was instructed to proceed with the working plans and other details to be submitted to the Local Government Board, and also to prepare the necessary specifications; and the clerk was instructed to have the agreement with Mr. Speirs for the additional grounds carried out as a purchase if possible. The proposed scheme is to give accommodation for thirty-four new beds, making a total, with existing beds, of sixty-four. The buildings consist of new scarlet fever pavilion, with acute wards connected to existing scarlet fever pavilion by an open covered way, and to which new duty rooms have also been added; isolation block and extension and alteration of present administrative and laundry blocks, and new

stables to be placed at south boundary wall. The pavilion in appearance will be similar to those existing, with slight alterations on plan. The extensions are estimated to cost over 12,000*l.*

THE Aberdeen Harbour Commissioners met recently. The engineer, Mr. R. Gordon Nicol, C.E., submitted a scheme for the widening of Pocra Quay, and providing deep-water berths in front, the estimated cost being 9,820*l.* The board adopted the scheme, and instructed tenders to be accepted for the work. Owing to the unavoidable absence of a number of the members, it was resolved to defer consideration of the recommendation of the lands and fishings committee to purchase for 30,000*l.* 4½ acres of ground at Balnagask, on the south side of the Dee. It was reported that the revenue of the harbour from dock rates for the six months ending March was 26,584*l.*, an increase of 40*l.* over the corresponding period of the previous year. An increase of 785*l.* 10*s.* on the salmon fishings, so far as the season has gone, was reported. There will also be an increase from rents and feu duties. It was resolved to purchase for 1,160*l.* a steam-tug to move about herring-boats in the harbour during the season.

At a special meeting of Currie (N.B.) School Board the design sent in by Mr. William Baillie, architect, 223 Hope Street, Glasgow, was adopted. The school is to occupy a prominent site at the west end of the village, on the high ground at the junction of the Lanark and Curriehill Roads. The plans show a pleasing architectural design of square-dressed rubble masonry, with dressings of red Dumfriesshire sandstone, and roofed with green slates and tile ridge. The school provides accommodation for 206 pupils. The entrances are situated near the centre of the main front, facing the Lanark Road, and give access to wide corridors leading directly into a central hall, which is spacious and well lighted from the roof. Four classrooms and the boys and girls' cloak-rooms are grouped around the three sides of the hall, and each opens directly off it. Two teachers' rooms, &c., form the remaining side of the hall and look towards the back. The school will be heated throughout by means of hot-water pipes and radiators on the low-pressure system. Shelters and suitable lavatory accommodation are provided. The estimated cost of the whole buildings amounts to 2,676*l.*

At a meeting of Dundee Harbour Board Mr. J. Thompson, jun., the engineer, reported that designs, specifications and bills of quantities had now been prepared for the reconstruc-

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tion of the cattle wharf, a scheme which was to cost 23,000*l*. The jetty had been designed to carry a uniformly distributed load of 2 cwt. per square foot on the quay and 3½ cwt. per square foot in the sheds, and also to carry a train composed of one engine of 30 tons weight and trucks of 18 tons each, and also a 5-ton locomotive crane weighing 30 tons. Mr. A. B. Gilroy, convener of the works committee, said it was estimated that the work would occupy fifteen months to complete, and they proposed as soon as possible to advertise for tenders. The work would be completed for the 1904-5 jute season. Mr. William High objected to the proposal to spend 8,500*l*. on a new shed, an emergency shed so far as he could see, which would be occupied only about a month in the year. The present accommodation, in his opinion, was ample. Lord Provost Barrie said the cattle sheds were not sheds for the storage of jute or any other article of commerce. They were never designed for that, being only a makeshift. The ground had sunk considerably and the Board recognised that the whole thing must be reconstructed. They might as well have a horse without a cart as a wharf without a shed. Mr High replied that the whole trouble was with the jute merchant, and Mr. J. C. Buist pointed out that the 8,500*l*. was not entirely to be expended upon a shed, but included also the cost of dredging. Mr. High's dissent was recorded.

ELECTRI NOTES.

THE Bermondsey Borough Council have decided on an extensive scheme for the enlargement and extension of the electric-lighting system. The cost of the work is estimated at nearly 52,000*l*.

THE accounts of the Bath municipal electric-lighting undertaking for the year ending March are the most satisfactory yet presented. The private lighting revenue has increased by 2,336*l*., and although a reduction in the price per lamp for public lighting reduced the income by 774*l*., the net increase is 1,500*l*. The expenditure includes 871*l*. for renewal of machinery and hire of plant—a special charge which will not occur again—and this makes the gross profit 5,800*l*., about 100*l*. less than last year. This is enough to pay 5,424*l*. for interest and sinking funds on the loans, which have now reached 110,000*l*., and to leave a net profit of 376*l*. The

previous year's working having produced a profit of 857*l*., there is available for disposal 1,233*l*., which if applied to the relief of the rates would be equal to a penny in the pound.

THE total expenditure by Bolton Corporation on electricity for the year ended March 31, 1903, is 12,884*l*., an increase of over 400*l*., but the balance carried to profit and loss account has gone up from 17,319*l*. to 20,807*l*., and a sum of 4,500*l*. has been devoted to the relief of the rates. The income is 33,691*l*., of which 15,670*l*. comes from private lighting and 14,281*l*. from tramway traction. During the year no less a sum than 27,224*l*. on capital account was spent on new works. This brings the expenditure up to date to 207,482*l*., and 30,430*l*. has been written off in depreciation and 25,120*l*. of the capital account has been paid off. At the end of March 1902 Bolton had the record for the lowest cost of generating electricity in the United Kingdom with 959*d*. Subsequently Liverpool, Bootle and Bradford passed this figure, but this year Bolton again comes out at the top with 813*d*. They propose to offer the electricity current at 4*d*., less 10 per cent. on the flat rate.

BRITISH URALITE COMPANY, LTD.

THE third ordinary general meeting was held on Tuesday at the Cannon Street Hotel, Mr. William E. Hubbard presiding. The chairman, in moving the adoption of the report, said that although the company had been in existence for a considerable time, it was not until the beginning of the last six months that they were really in a position to do any business. The progress made during the past twelve months had started the company as a going concern, but a great deal more needed to be done before it could be considered in a satisfactory state. Business development had been very rapid—more so than they could have expected or even hoped in such a case as this, where they were introducing an unknown material into use in England. They had been successful in instituting several very valuable agencies abroad—in Africa, in the East and in various parts of the world; they had made more than one alliance with firms of excellent standing in England, and had agents working in various parts of the kingdom. Experimental orders received some months ago had since resulted in orders of much greater magnitude. Throughout the year the company increased their volume of business in an increasing ratio. In

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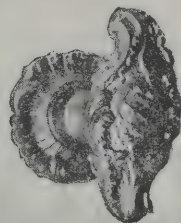
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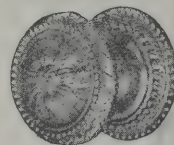
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the last six weeks they had sold 100,000 feet more than in the previous six months, and he hoped that in the present quarter their sales would amount to 1,000,000 feet. As to foreign patents, nothing definite had yet been done, but they were not without hope that in more than one direction they might be able before long to bring some business about. The London County Council had now recognised it as an efficient fire-resisting material; and what was still more valuable was that quite recently the company had succeeded in persuading the fire insurance companies to take the same view. The motion was seconded by Mr. A. G. Salamon and carried.

THE INTERNATIONAL EXHIBITION AT ATHENS.

It is officially announced that the International Exhibition at Athens will be opened on June 3, the name-day of the Crown Prince of Greece, and will last six months. The estimated cost of the Exhibition is 20,000*l.*; the entrance fee will be 1 drachma (6*d.*) and 3 drachmas on special days. The superficial area is 72,000 square metres. The British exhibits, as at present arranged, will occupy 500 square metres, and the German 400 square metres. The Governments of France, Austria and Spain are assisting semi-officially. The largest exhibition section after that of Greece itself will be the Turkish section, those of Austria and France coming next. The British exhibits will consist mainly of engines, ship-models and guns; the German are described as very varied, while the American section is insignificant. The national section will contain exhibits of all kinds, including locally manufactured machinery. The originator of this, the first international exhibition to be held in Greece, is the director-general of the committee, Mr. James Deanworth, an Englishman, who began to elaborate the idea in 1901. Although the scheme encountered much local opposition at the outset, it was enthusiastically supported by the Greek element in Turkey, Roumania, Egypt and other foreign parts. Some opposition was also experienced at the hands of German firms trading in the Near East, in view of the early announcement of French participation, as it was considered that the Exhibition would enable France to regain much of the trade she has been steadily losing in the Levant during the last ten years. Subsequently, however, the German houses came forward actively, and in point of variety and value the German exhibits as now arranged should prove an attractive feature of the foreign sections.

NORTHAMPTON SEWERAGE WORKS.

A LOCAL GOVERNMENT BOARD inquiry was held at the town hall, Northampton, on the 15th inst., relative to the application of the Northampton Town Council for sanction to borrow 3,500*l.* for works of sewerage and surface-water drainage, including the construction of works in the parish of Weston Favel. The inspector was Mr. H. Percy Boulnois, M.Inst.C.E. No objection was raised to the proposal, and very little interest was manifested in the inquiry. Besides the Inspector, there were present Alderman Hickson, Councillor A. J. Chown, Councillor J. Brown, Mr. Herbert Hankinson (town clerk), Mr. A. Fidler (borough engineer), Mr. W. J. Hull (borough accountant), Mr. T. A. Dickson (agent to the Wantage estate), and Mr. W. Tomalin (clerk to the Northampton Rural District Council). The town clerk explained that the area of the borough was 3,451 acres, the population in 1901 was 87,021, and the assessable value of the general district rate was 338,089*l.*, the product of a penny rate being 1,320*l.* The loans now outstanding were 143,572*l.* 1*s.* 8*d.* under the Public Health Acts, and there was also sanctioned and not exercised, or only partially so, 47,260*l.* Within a few months most of those amounts might be exercised. The total debt, therefore, was 190,832*l.* He would like to say with regard to one of the greatest items in the amount that 18,800*l.* was a sum sanctioned to enable the Council to buy property for street improvement. When they had effected the alterations there would be some property to sell, which would leave only something like 5,000*l.* or 6,000*l.* The present application was to enable the Council to supply pipes and surface-water drains, which were required for a portion of the north-easterly part of the borough. The part to be drained was all within the town area, but the Council went just outside its area for the purpose of joining with an existing sewer. At the present time the drainage of that particular district was discharged into a small cesspool, which was built simply as a temporary means for collection in the district, which was only partially developed. It had to be admitted that the method had proved itself insufficient for some length of time past, and had become very objectionable. It was, therefore, necessary to carry out the works for which the loan was asked. Mr. Fidler having given evidence, a few questions were asked by Mr. Dickson, and some observations made by Mr. Tomalin. The inquiry then closed, and the Inspector afterwards proceeded to view the site.

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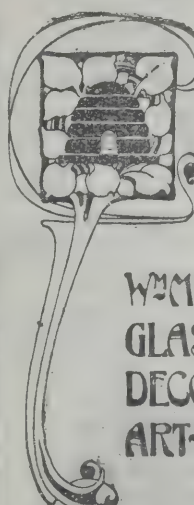
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THE BUILDING BY-LAWS REFORM ASSOCIATION.

THIS Association, which was recently formed to secure that official control of private buildings shall not extend beyond the demands of public health and safety, met again at the offices, 45 Parliament Street, Sir William Chance, Bart., in the chair. There was a good attendance, and on the motion of the Hon. Percy Wyndham, the Duke of Westminster was unanimously elected president of the Association. A proposal was made for the appointment of a special committee to consider and report on the amendments required to secure the removal from existing by laws of those provisions which unreasonably encroach on individual liberty. A long discussion followed, in which Mr. W. M. Acworth, Mr. Lacy Ridge, Mr. A. H. Clough, Mr. Mark H. Judge, Mr. W. Henman (Birmingham), Mr. T. M. Shallcross (Liverpool), Mr. Thackeray Turner, Mr. E. D. Till and Mr. R. A. Read, hon. sec., took part. The special committee was appointed, and letters asking for advice for the amendment of by-laws at Guildford, Bucklow and Bradfield were referred to it.

THE INTERNATIONAL FIRE PREVENTION CONGRESS.

THE arrangements for the impending International Fire Prevention Congress, convened by the British fire prevention committee, which will be opened by the Lord Mayor on July 7, include the presentation of a number of very important papers by foreign authorities conversant with special sections of the subject, and among such papers as have already been accepted for consideration and discussion at this Conference are the following:—By G. Edward Atkinson, president Boston Manufacturers' Mutual Insurance Company, U.S.A., "The Prevention of Loss by Fire in the United States of America;" by Privy Councillor J. Stübben, late president Amalgamated Societies of German Architects and Engineers, late city surveyor of Cologne, "Urban Fire Protection as influenced by Street Planning and Building Regulations;" by chief officer Westphalen, Hamburg city fire brigade, "The Latest Experience in Warehouse Construction at Hamburg and Bremen;" by Professor Woolson, Columbia University, New York, "Fire Retarding Wood;" chief officer Meier, city fire brigade, Amsterdam, "The Necessary Development of Fire Alarm

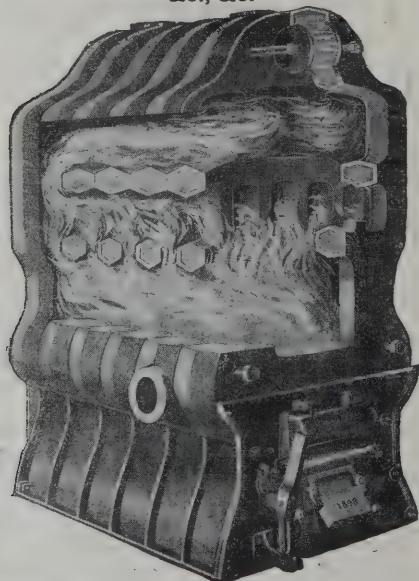
Systems;" by Professor Medem, University of Greifswald, "Spontaneous Combustion;" by A. Dittman, chief officer, Bremen fire brigade, "The Influence of the Fire Service on Fire Prevention;" by A. Goldoni, chief officer, fire brigade, Milan, "Fire Survey and Fire Watches in Theatres;" by Gorham Dana, Inspector 'Underwriters' Bureau, New England, Boston, U.S.A., "The Care of Private Fire Appliances;" by Chas. Hexamer, president, National Fire Protection Association, U.S.A., "The Principles of Fire Insurance in America;" by W. H. Stratton, chairman of executive, National Fire Protection Association, U.S.A., "Fire Hazards in America from an Insurance Point of View;" by W. H. Merrill, jun., the Underwriters' Laboratories, Chicago, "The Testing Principles adopted at the National Fire Prevention Laboratory of Chicago;" by Crown Surveyor Jaffé, Berlin, "The Testing Principles adopted at the Royal Technical Research Laboratory, Charlottenburg, and at other Fire Tests in Germany;" by Chief Officer Welsch, City Fire Brigade, Ghent, "The Necessity of Systematising Testing Operations as Based on Belgian Experience." Regarding the programme of the Congress and the arrangements made for visitors to the Metropolis, all applications should be addressed to the hon. general secretary, Mr. Ellis Marsland, 1 Waterloo Place, S.W.

CITY AND GUILDS OF LONDON INSTITUTE.

THE annual report of the Council of the City and Guilds of London Institute, after expressing regret at the death of Sir Frederick Abel, the chairman of the executive committee, states that Sir John Wolfe Barry has been appointed to that position, and that Mr. S. Steuart Gladstone has accepted the office of treasurer, made vacant by the resignation of Mr. Beckwith, both gentlemen being representatives of the Fishmongers' Company in the Institute. The Council proceed to review the circumstances in which the Institute was founded and compare them with those now existing, because the present appears to be a convenient time in which to consider them. They claim that in establishing the Institute—it was incorporated in 1880—the City and Livery Companies of London took the first substantial step towards the provision and organisation of technical education. During the earlier years of its existence the Institute did much to direct public opinion to the necessity of a liberal

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provision being made for the technical education of all grades of men employed in the industries of the country, and thus prepare the way for State-aid and municipal action. The report refers to the later work of the Institute and to the assistance it has rendered to county and borough councils at the request of those bodies; and the belief is expressed that in the provision made for systematic courses of instruction of a high character at the Central Technical College and at the Technical College, Finsbury, the Institute has done most valuable work of a special and distinctive kind, which is not covered by that of any other public or private institution in London. The Council say that the necessity for that work is in no way lessened by recent legislation, and that there will still be much valuable work of a special and distinctive character, such as that carried on by the Institute, which must, at least for the present and some time to come, if not permanently, depend to a large extent on private and voluntary effort. The great work done under the Technical Education Board of the London County Council during the past ten years has, the report adds, added to the necessity of the Institute's developing its present work, as, with the greater efficiency of secondary and continuation schools and the number of scholarships now available, an increasing number of qualified candidates seek to enter upon higher courses of study under the Institute. The Council indicate briefly the directions in which the Institute's work is developing. In this connection they mention the Central Technical College, the Department of Technology, and the Technical College, Finsbury, an effort to extend which is being made, and they earnestly trust that their endeavour to allow this work free scope for its national growth and development will receive the approval and support of the Corporation and Livery Companies of the City of London.

BAPTIST CHURCH, CAMBRIDGE.

THE foundation-stone laying of St. Andrew's church took place on May 6. The church is being remodelled, and to a large extent rebuilt with an entirely new frontage and interior fittings, making use as far as possible of the foundations and side walls of the present building. The seating accommodation of the new structure will be, on the ground floor 580 adults, and in galleries 326 adults. The materials for the front will be whole white flint facings to walls, and stone dressings and

tracery to windows, &c. The joinery internally will be of wax-polished wood. The cost will be about 8,000/, exclusive of furniture. The exterior will present a bold appearance from St. Andrew's Street, having a square tower rising to a height of 60 feet to the parapet, with a spirelet rising to a height of 90 feet. This tower will have a three light tracery window in the belfry stage on all sides, and a bold doorway at its base leading to one of the staircases up to the gallery.

The architects are Messrs G. & R. P. Baines, 5 Clement's Inn.

NORTHALLERTON NEW COUNTY HALL.

MR. WALTER H. BRIERLEY, architect to the North Riding County Council, has supplied to the county hall committee of the North Riding County Council a description of the new county hall which is to be erected in a field in front of the cricket ground, Northallerton. To provide for further extensions Mr. Brierley is of opinion that the best way of arranging the building upon the site is to place the principal front towards its approach and to the main road, but to set it back from the boundary line about 200 feet, in order to provide a forecourt, and to allow of wings being projected at each side when required for future extensions. The arrangement of the building is straightforward and direct, the different departments are separate and yet easy of communication, and can be readily enlarged at any time without inconvenience. The entrance hall, staircases and corridors will be wide and well lighted, and there will be ample through ventilation in every part of the building. The front of the building, facing the approach and main road, will be about 200 feet long, and will consist of a central block with projecting wings. The central block will contain:—The principal entrance, the grand vaulted entrance hall with stone columns, writing and waiting-rooms, porter's office and telephone-room, and the grand staircase (of polished limestone) leading to the upper floors. The north and south wings will provide ample accommodation for the department of the clerk to the Council, and for that of the secretary of education or the county surveyor. Entrances are arranged at each end of the corridor and service staircases to the upper floor. Separate and disconnected lavatory blocks are provided for each department, as well as strong-room accommodation. The council chamber will be a fine and noble apartment, and has been most care-

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fully arranged to meet the requirements and convenience of the members. It is square in shape and ample in size, and the seats are arranged in lines radiating from the chair. The materials proposed to be used are common local brick for the general walling, and bright red Leicestershire brick for the facings, with Whitby or Farndale stone for the dressings, and green Westmoreland slates for the roofs. Internally the whole of the floors are to be of fireproof construction, finished with maple or oak blocks for the rooms, and marble for the entrance hall and corridors. The walls are all to be finished in Parian cement. The windows double-hung sashes glazed with best plate glass. All inside joinery is to be of selected yellow pine, except round the entrance hall, where Spanish mahogany is to be used, and the council chamber doors are to be covered with leather to prevent noise. The estimated cost is about 25,000*l*.

UNITED FREE CHURCH ASSEMBLY HALL, EDINBURGH.

THE fine old building on the Mound having become altogether inadequate to the greatly-increased demands upon its space, it became necessary to take steps for the enlargement of the hall, and the preparation of plans was entrusted to Mr. Dick Peddie, architect, under whose care the work has been admirably carried out. The hall before reconstruction gave accommodation for a total of 1,336; the altered building will seat comfortably 1,861, or an increase of 525. In order to get this additional room it was found necessary to absorb the buildings which formerly existed to the east of the hall proper. With an increased area the previous height of the building was inadequate, and as it was desired, as far as possible, to preserve the features of the old hall, it was finally decided to leave the roof as it was, but to lower the floor 5 feet, adding to the height of the roof supports to meet the altered conditions. Formerly the area measured 62 feet by 53 feet; now it extends to 93 feet by 67 feet. For the purposes of debate the hall has been surrounded on all four sides by division lobbies, to which there are numerous doors of access, and from which, of course, the public are excluded. The division lobby to the north is immediately in connection with the north corridor, which forms the access to the galleries set apart for the use of the public, and the division lobbies are also in communication with the Lawnmarket by staircases at the south-east and south-west corners.

Off the division lobbies there is ample cloak-room and lavatory accommodation. Two new rooms have been set apart for the Moderator of Assembly—a reception-room and a private room, which are entered from the north corridor—and there is a special ladies' room, which can be reached both directly from the north corridor and from the ladies' gallery. The staircases at the south-east and south-west corners rise from the Lawnmarket level to the upper floor, which is placed over the south gallery, where there is a smoking-room for members of the House, as well as a museum. Although situated some 20 feet below the Lawnmarket level, the division lobbies are well lighted from four angle courts, and an ample supply of air to the hall is secured by fans in each of these courts, which drive in air from the upper level. The main hall is provided with a large electrical fan, by means of which the air is in turn withdrawn. The heating is by hot-water pipes, placed below the floor. The lighting has been greatly improved, and it is expected that the acoustic properties of the hall will be as good as ever. It is believed that the total cost of the alterations will be considerably over 20,000*l*.

NEW CHURCH FOR LINACRE, LANCS.

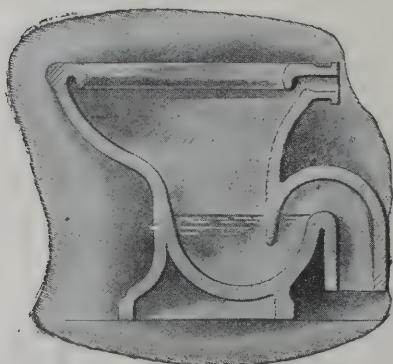
THE foundation-stone of the daughter church of St. Andrew, Linacre, in the parish of Litherland, was laid on Saturday last. The aim of the architects in the designing of this church has been to provide a building in which the congregation will have an uninterrupted view of the clergy at all stages of public worship. Internally the church will consist of a nave 89 feet long by 37 feet wide, containing seating accommodation for 522 persons, which, with the side aisles, gives a total width of 48 feet. The chancel is 34 feet long by 26 feet wide, containing accommodation for 26 men and boys. The choir and clergy vestries are placed on the north side of the chancel, with entrance porch and lavatory. The organ chamber and south entrance porch occupy the south side of the chancel. Facing Stanley Road is the west front, with an entrance porch on either side. The narthex, including the side porches, is 48 feet long. The nave is divided from the side aisles by six arches, which die on to triangular piers. All the internal arches and nave piers are in Storeton stone, the walls being finished in tinted plasterwork. The floors of aisles, nave, narthex and baptistery are laid with wood blocks, the floors

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under seating being in red deal boards. The two porches on either side of the west entrance are paved with red tiles. Hopton Wood stone is used for the chancel floor, laid in 12-inch diagonal squares. The pulpit and low screen, between chancel and nave, are also in Hopton Wood stone, the former being effectively treated in a simple manner. Fumigated oak will be used for the choir stalls, holy table and rail. A handsome hammer-beam timber roof will span the nave, with a cornice under it ornamented by moulded brackets. The roof will be barrel vaulted, lined with narrow boarding, laid longitudinally. Over the chancel is a hexagonal roof, with moulded ribs, lined with narrow boarding. The church will be seated with chairs. A font is placed at the end of the north aisle in an octagonal baptistery, and will be executed in white stone. Externally the church will be faced with red bricks, the windows and other dressings being in terra-cotta. Over the west front is placed a traceried window, 22 feet high, of imposing design, the lower part being divided into seven lights by moulded mullions. The traceried windows will all be filled in with leaded glass. The treatment adopted by the architects is a fine style of Perpendicular architecture of the fifteenth century. The ventilation and heating of the church will be on the most approved system, the heating being by hot water on the low-pressure system, with ventilating radiators placed in the recesses of the windows. The heating will be carried out by Messrs Cooper, of London Road. The church has been designed and is being carried out under the supervision of the architects, Messrs. Willink & Thicknesse, of Castle Street. The contractors for the whole works are Messrs. Morrison & Sons, of Wavertree.

WOOD PAVEMENT.

STATEMENTS having been published about the quality of the blocks for wood pavement to be used in Brighton, Mr. F. J. C. May, the borough engineer and surveyor, has presented the following report to the works committee:—

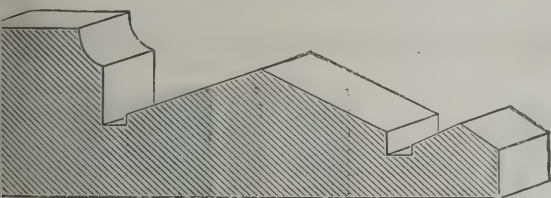
May 14, 1903.

To the Works Committee.—Gentlemen,—After reading in the public Press the report of the proceedings of the Town Council at the meeting on Thursday, the 7th inst., when it appears that unwarrantable and unjust insinuations and innuendoes, if not more direct charges, were made against me and my mode of supervision of the wood paving now being laid

in London Road, I feel compelled to lay before you the following information relating to the management of the work, and to ask you to absolve me from all blame and to refute all charges against me or insinuations that I have been in any degree negligent of my duties in the interests of your committee. Mr. Day, a qualified civil engineer and of experience in similar works, was, with your approval, appointed by me clerk of the works, and is always on the work to see that the conditions of the specification and contract in all respects are duly observed by the contractor. Mr. Paterson, of London, an expert in wood-paving blocks, was, at your request and direction, appointed inspector of paving blocks, and one of our own reliable workmen, T. Ashdown, was also, with your approval, appointed to assist him.

The sole duty of these two last-mentioned men is to examine the paving blocks when brought on to the concrete foundation, and to reject all unsound or badly sized blocks. The work is done in sections. Every block brought on to the work is inspected by them, and no blocks not passed by them as satisfactory are allowed to be laid. Moreover, each section of the work is inspected throughout its progress, and again after its completion, before it is passed as satisfactory. The final inspection is always made by Mr. Day, and generally by myself or Mr. Grant, the highways inspector, as well, before the first coating of tar is applied, in order to insure good work. It is, of course, possible for anyone passing by to see unsound or otherwise defective blocks being picked out during the paving operations, but I deny that any are left in after the final inspection. I append hereto copies of all the correspondence that has passed between me and the contractor since the commencement of the work, which is strong evidence that the interests of the Corporation have received the greatest consideration from me, and that no point has been neglected by me. The new blocks supplied by the contractor have generally been satisfactory.

On April 22 it was reported to me that the contractor was sorting the stack of blocks in Hollingdean Yard, which were partly rejected and partly left over from the last paving contract, and had brought about two cart-loads of the best of them to his London Road depot for use on the works. When I received this information I immediately wrote to the contractor, forbidding him to remove any more of these blocks from Hollingdean Yard. I also sent a note to the yard foreman at Hollingdean, instructing him not to allow any more of such blocks to leave the yard. The contractor complained very



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strongly of my action, as he stated that there was a very large percentage of sound blocks in the stack, and that he had given instructions for the men to be very careful and strict in the sorting, so that only good blocks should be sent on to the works. I said, however that might be, I should not take upon myself the responsibility of allowing such blocks to be used, and that I should report the matter to the works committee. I did so at your meeting on the 24th ult., and submitted some samples which I picked quite casually out of the stack. After discussing the subject, your committee gave permission for the sound and otherwise suitable blocks to be used, subject to careful supervision in the sorting before leaving the yard. This was done, but no amount of such supervision is equal to that when each block is handled and laid singly on the road under the eye of an expert inspector.

In consequence of a report made to me, and of my subsequent inspection of the work in conjunction with your chairman, I took upon myself the responsibility, on the morning of the 7th inst, to prohibit the use of any more of the blocks from Hollingdean Yard, and later in the day I gave the contractor notice to remove all rejected blocks, including the stock at Hollingdean Yard, out of Brighton forthwith, and they are being removed as fast as trucks can be obtained from the railway company. Only about 12,000 blocks altogether have been brought from Hollingdean Yard, and if they had all been used they would have covered an area of only 250 square yards. I find, however, that only about half of these blocks were used, and the remainder have been sent back to Hollingdean Yard, and are being taken out of Brighton with the others.

The introduction of unsatisfactory blocks from Hollingdean Yard has given us all, and especially our inspectors, a great deal of trouble and annoyance, but I claim that the inspection has been so severe and complete that, before the blocks have been allowed to be covered with tar and sand, the paving has been as perfect as it is possible to make it. It is with regret I feel compelled to say that interference with the work and the workmen, such as has been practised in relation to this work by individual members of the Council, otherwise than through my department, is not only subversive of all discipline, but disorganises the arrangements for supervision of the work and greatly prejudices my authority over the contractor. On behalf also of all those associated with me in supervising the work, as well as for myself, I deny absolutely that there is any justification for the unfair accusations and insinuations made at the last meeting of the Town Council, and I ask that you will take such steps

as you consider necessary to vindicate my honour in as public a manner as the insinuations have been made.—I am, gentlemen, your obedient servant,
(Signed)

FRANCIS J. C. MAY,
Borough Engineer and Surveyor.

The works committee have resolved that the statements which have been made respecting the execution of the contract are in most cases contrary to fact, and those for which there is any foundation are greatly exaggerated, and that the statements referred to, so far as they charge the committee or the borough surveyor with neglect of duty or improper conduct are wholly unjustifiable.

NEW SURVEYING INSTRUMENTS.

THE recent conference of the Surveyors' Institution of Great Britain and Ireland, held in the Royal Dublin Society's Theatre, afforded occasion for bringing into public notice some very novel and valuable instruments, the invention of Sir Howard Grubb, by which engineers and surveyors are provided with means of obtaining more rapid results than have hitherto been possible in fieldwork. Sir Howard Grubb gave a demonstration of the working of these new hand-surveying instruments which have recently been patented by him.

They are designed upon the same principle as his patent gun sight, and are not intended to supersede the standard surveying instruments such as the theodolite, dumpy level, &c., but it is expected that they will fill a gap at present existing between the very coarse and unreliable hand instruments now in use and more elaborate and costly standard instruments. For rapid work, not necessarily of extreme accuracy, such as military surveys, and for filling in details of surveys, the main features of which have been laid down by the more elaborate instruments, these simple pocket tools are expected to prove of great value. Among the instruments exhibited were:—A prismatic compass, a clinometer, a hand-level and gradiometer, and a graphometer, which could be used either as a plane table of a very superior type or as a plane table combined with a subtense instrument, by which the distances of each point of the survey could be plotted out at the same time as their directions; and as Sir Howard Grubb explained, by means of this instrument fields or plots of a moderate size could be surveyed and plotted in little more than the time which the staff-bearer could walk round the boundary.

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The Architect.

THE WEEK.

THERE will be satisfaction among architects at the resolution of the general committee of the Liverpool Cathedral on Tuesday. When it was announced that the committee had refused to abide by the award of the assessors, and declined to accept the design by Mr. G. GILBERT SCOTT, which was declared to possess the power combined with beauty that makes a great and noble building, we imagined the conclusion was premature, and made no comments on it. For so important a body to disregard the recommendations of Mr. NORMAN SHAW and Mr. BODLEY was to set an example to the promoters of other competitions which would cause grievous trouble among architects. After a long and careful discussion on Tuesday it was resolved, on the motion of Mr. R. A. HAMPSON, seconded by Mr. ARTHUR STANLEY, M.P., that Mr. G. F. BODLEY, R.A., and Mr. GILBERT SCOTT be approached with a view to their appointment as joint architects of the proposed Liverpool Cathedral, and that the design marked No. 1 be selected, subject to the above arrangement, and to such alterations and modifications as may be advised by the architects and approved by the committee, also subject to the signing of an approved agreement. With the hereditary gifts which Mr. GILBERT SCOTT possesses, combined with the genius and vast experience of Mr. BODLEY, there is a possibility that a cathedral will arise which will be worthy of its purpose and confer distinction on the city containing it. It is not the first time an assessor has become the architect. The arrangement is rarely to be recommended, for it is fraught with danger to competitors, but we are willing to believe that in the Liverpool case Mr. BODLEY was inspired with a desire to aid a young architect, and to rescue the executive committee from an embarrassing position.

MR. GILBERT SCOTT's description of his design is as follows:—The general effect aimed at in the design has been dignified severity and largeness of scale. A great feature of the Mediæval cathedrals is length; that of Renaissance and Byzantine is mass rather than length. The effect of mass obtained with Gothic forms has been my chief object, for which reason cross transepts have been introduced to break the length of the exterior. The interior of these transepts being well lighted, and the intervening barrel vaults fairly dark, would give a curious effect of light and shade to the interior of the cathedral. The interior, for a good effect, should be either long or else very short, when it has a peculiar character of its own. To prevent the unhappy mean a continuous arcade and triforium has been introduced throughout the whole length of the interior, in order to give perspective and counteract the breaking up of the vault. The nave and choir are wide (50 feet), the aisles narrow, being intended solely as a means of access to the seats, &c. Cloisters are introduced at the main entrance facing Duke Street, and enable persons alighting from carriages to reach the building under cover should it be necessary.

ALTHOUGH so much interest surrounds the project for erecting the KING's sanatorium near Midhurst, the procedure required for ordinary cases must be followed, as no exception can be made between it and any common building. The question of drainage remains in an uncertain state. The Midhurst Rural Council propose to borrow 20,000*l.* to carry out a scheme of sewage disposal. That is a large sum for such a district to expend, and very great opposition has arisen. The Earl of EGMONT, who has offered a site at Pittsham, is of opinion that the expense will prove too heavy a burden for himself and other ratepayers. In so rural a district expedition about sanitary affairs is unknown, and under ordinary circumstances many deliberations would have to take place before a conclusion was arrived at. But it is considered desirable that the KING's sanatorium should be open for occupation within two years. Until it is known whether the Midhurst sewers can be utilised, or whether an independent drainage scheme for the sanatorium will be necessary, the erection of the buildings must be delayed.

The latter or special scheme would undoubtedly be difficult, for it would be impossible to avoid interference with the watershed of the sanatorium or the local supply. The decision, of course, rests with the Local Government Board. The people of the district believe they have no right to be taxed on account of the sanatorium, and the majority desire that the advisory committee should carry out an independent drainage scheme.

It is incomprehensible why the London County Council will persist in upholding the Works Department. One gross error succeeds another with appalling regularity, and there must be something inherent in the system which makes reformation impossible. Yet for some mysterious reason the Council have not the courage to accept the inevitable, and to put an end to the Works Department, which is casting discredit on the whole system of municipal government. The latest instance which was brought before the weekly meeting on Tuesday was the Horton Asylum. The architect of the Council estimated the cost of the work at 291,110*l.* A tender was received to carry out the work for 296,000*l.*, or, allowing for certain extras, which were afterthoughts, 314,000*l.* The manager of the Works Department estimated that the superstructure, including the extras, could be accomplished for 302,000*l.*, and thus save the Council 12,000*l.* The actual cost has been 330,500*l.* The excess is supposed to arise from the following causes:—(1) Error of judgment on the part of the late manager of works in undertaking the work and insufficiency of accepted estimate; (2) refusal of local authority to allow temporary railway for carriage of material; (3) rise in prices of materials and in wages, and (4) scarcity of labour. It is needless to say some of the members found much which was consoling in the revelation. Sir J. McDUGALL, who has developed into a humourist, considered that when all was said and done they had an extremely good asylum, which was rather more costly than it should have been. Mr. TORRANCE, chairman of the works committee, held out the illusory prospect which has served on so many former occasions, saying that under the present régime and the present constitution of the committee, he was sanguine that in future reports that came before the Council they would be able to show uniformly satisfactory results. The Council are easily persuaded in all cases relating to excessive expenditure, and it is needless to say the report was approved.

How long does the right of ownership extend over an object after it has been surreptitiously removed elsewhere? Is there a limit to the time when a person who has acquired a treasure which should not have been sold can claim to be its legitimate possessor? The two questions may be said to be the foundation of an action which has for a long time occupied the French Courts. The story extends over a vast period. The abbey of Cluny is renowned in the history of Mediæval architecture, for it was a school of art and gave rise to a special class of churches. As there were about six hundred minor abbeys in subjection to it in France alone, many opportunities arose for realising the Cluniac style. During the French Revolution the abbey was destroyed. Some of its treasures were seized by the French Government, and among the rest several manuscripts. A catalogue was prepared by a librarian named BAUZON. He was not perhaps a learned man. One manuscript, on the back of which was written *Opera Gregorij*, he attributed to BOETHIUS, the author of the "Consolations of Philosophy," who was executed on a suspicion of treason by THEODORIC, the king of the Ostro-Goths. A manuscript by BOETHIUS was discovered in a collection belonging to M. LECLERC, a bookseller. This was claimed by the authorities of the Bibliothèque Nationale. It was admitted that the library had a right to obtain any work which formerly was found on the shelves. But the problem was, could M. LECLERC's manuscript be accepted as that which BAUZON had catalogued as derived from Cluny? Experts maintained that his description suited the manuscript, but the judges considered the words were no less applicable to others. Finally, it was decided that the work in question could not have come from the abbey, and that it was not at any time in the Bibliothèque Nationale. The manuscript will therefore be allowed to be retained by M. LECLERC, and the State will have to bear the costs of the action.



TYPES OF COSTUME :—ANCIENT BRITISH AND NORTHERN EUROPE.

THE CENTENARY OF EMERSON.

THE celebrations of the centenary of the birth of RALPH WALDO EMERSON, which have taken place in America and England, are evidence of his popularity as a writer, or, shall we say, as a teacher. The resolve to found a hall for the department of philosophy in Harvard University, where he was taught, indicates the aspect under which his countrymen wish to consider him. For a great many people, EMERSON'S writings are accepted as an embodiment of modern metaphysics and ethics. Would-be "thinkers" find in the pages an incentive to reflection which, if generally rather vague, is not unpleasing. In consequence, many copies of his essays are printed. It is, however, remarkable that in treatises on philosophy his views are rarely referred to. Whether that arises from the difficulty of classifying him in any known school of thought or from his being an unattached or unofficial professor we need not discuss. All things must change, and systems of philosophy which are supposed to be based on foundations as steadfast as those of the universe are generally superseded before they are fully expressed. EMERSON also suffers either through the perversity of his nature or his indifference to system. What he says of GOETHE is more applicable to himself:—"He is fragmentary, a writer of occasional poems and of an encyclopædia of sentences." Not one of his essays or discourses is complete according to a rhetorician's views, and the creation of a volume was evidently a task beyond his powers. A man who was always thinking, or, to be more exact, who was maintaining himself in a condition to receive inspiration, could hardly fail to give utterance to remarks which will long be of interest, if it were only for their manifest sincerity. As art was one of the subjects which frequently arose in his thoughts, it may be interesting to glance at some of his sayings respecting it.

EMERSON belonged to one of those Puritan families in New England that are considered to be, in the Northern States at least, the true aristocracy of the country. So many of his ancestors were clergymen, it was natural that from an early age he should be set apart to fill the office of spiritual teacher. In course of time he became a minister and preached for about seven years. Holding such a position and living amidst Puritanic surroundings, there would be no reason for wonder if he grew a still more determined enemy of art in all forms than THOMAS CARLYLE. In Boston there were few chances of seeing a picture or a statue; but somehow the very rarity of them compelled EMERSON to exercise his imagination and to create visions of works of art. He tells us how in his youth, when he heard of the wonders of Italian painting, he fancied "the great pictures would be great strangers; some surprising combination of colour and form; a foreign wonder, barbaric pearl and gold, like the spontoons and standards of the militia, which play such pranks in the eyes and imaginations of schoolboys." When afterwards he arrived in Rome and Naples he was agreeably disappointed. For when he saw the works of art they seemed to be familiar friends that said to him:—"Thou foolish child! hast thou come out hither, over four

thousand miles of salt water, to find that which was perfect to thee there at home?" It is no wonder, therefore, that although the knowledge of picture-dealers might have its value, he considered they were not to be trusted whenever genius touched the heart. As he found his own consciousness was better than any connoisseurship, he imagined that susceptibility to the impressions of nature was the principal qualification to turn a man into an artist. One anecdote will suggest the direction in which EMERSON'S thoughts were moving and the extent of his faith in mysterious auguries:—

I knew in my younger days [he says] the sculptor who made the statue of the youth which stands in the public garden. He was, as I remember, unable to tell directly what made him happy or unhappy, but by wonderful indirections he could tell. He rose one day, according to his habit, before the dawn, and saw the morning break, grand as the eternity out of which it came, and for many days after he strove to express this tranquillity, and lo! his chisel had fashioned out of marble the form of a beautiful youth, Phosphorus, whose aspect is such that it is said all persons who look on it become silent.

Somehow the young Puritan preacher had become acquainted with his countryman, WASHINGTON ALESTON, A.R.A., and must have sympathised with him in his domestic afflictions. The painter was also a writer, and we can imagine how he explained much about his art to EMERSON. When, after his breach with the Church, EMERSON came to Europe for change of scene, one of his first visits was to another countryman, HORATIO GREENOUGH, the sculptor, who lived in Florence. He was a votary of the Greeks, believed the sculptors worked in schools or fraternities, under the inspiration of a master, and evidently had a great deal to do with the guidance of EMERSON'S tendency towards Greek art. GREENOUGH expressed his own theory of architecture as follows:—"A scientific arrangement of spaces and forms to functions and to site; an emphasis of features proportioned to their gradated importance in function; colour and ornament to be decided and arranged and varied by strictly organic laws, having a distinct reason for each decision; the entire and immediate banishment of all make-shift and make-believe." These words were potent with EMERSON whenever he attempted to criticise or explain the labours of architects.

We observe the effect of the words in the declaration that Salisbury Cathedral is the culmination of English Gothic, because the buttresses are fully unmasked and honestly detached from the sides of the building. But the inability to realise the use of obstacles like screens and organs was also a deduction from the principle; for, according to EMERSON, the eye hungers for length of line, yet is rarely gratified. For that reason he himself preferred the ample dimensions of Winchester. The adaptation to function and site was confirmed for EMERSON when he read in MÖLLER that "the building which was fitted accurately to meet its end would turn out beautiful, though beauty had not been intended."

EMERSON must have been able to talk about pictures and statues soon after his landing in Italy, for in his diary

he records how LANDOR cared only for Greek sculpture, preferred JOHN of Boulogne to MICHEL ANGELO; PERUGINO, and the early masters to the late. He evidently displayed his knowledge to COLERIDGE, as he relates a story told him by the poet of a picture-dealer who thought a work by ALLSTON was by one of the old masters until he touched it with his fingers, when he declared it was not ten years old. On his return to Boston we may suppose there was some surprise about EMERSON's new power as a critic. He continued to preach, but it was not as a minister of any Church, for he stood on the platform instead of in a pulpit. He had seen enough varieties of examples of art to make him feel that no one kind should be preferred. There were not any great masters to be seen in a Boston gallery to compel his allegiance to the productions of any age or clime. He had sacrificed position and broken affectionate ties in order that his thoughts might have their way. The liberty he enjoyed himself he recommended to others. We can notice in one of those early discourses how he advised painters to prefer American scenery as subjects, and the expression of the belief that they were not to undervalue ordinary life, for the difficulties amidst which people imagined they were living were only advantages in disguise.

In his discourses EMERSON may have adapted himself to his audiences, but in 1834 he appeared as an author in a small book entitled "Nature." His adoption of that subject could be well understood by those who heard him speak. In fact, throughout his life EMERSON might be regarded as an expounder of nature. As an interpreter he did not profess to be a follower of BACON. Indeed, the Baconian system, which as explained by MACAULAY found its development in reducing the intellect to a saucepan, was to EMERSON nothing more than the debasement of philosophy to sordid uses. Nature is treated with so much indifference by those who pierce isthmuses, level mountains and fill up lakes, it seems to be no more than a *corpus vile*, to be employed in more useful forms and made the occasion of daring experiments. But to the eye of the artist and the poet all those operations may seem to be only so many acts of sacrilege. We have recorded how one of EMERSON's friends created a statue in endeavouring to express the tranquillity of the morning. In English poetry there is much which shows a belief in the creative influence which lovely scenes can exert upon a sensitive mind. For example, DENHAM, in addressing the Thames, desires that his verse should have the character of the river:—

O, could I flow like thee, and make thy stream
My great example, as it is my theme!
Tho' deep, yet clear; tho' gentle, yet not dull;
Strong without rage, without o'erflowing full.

But of all English poets there was not one who could be considered to have greater claims to be acknowledged the high-priest of nature than WILLIAM WORDSWORTH. In his early days he also prayed that the Thames might bestow its quiet soul on all poets, and throughout his life nature, especially as displayed in solitary places, was his principal theme. WORDSWORTH was one of the four men that EMERSON thought it worth while to cross the Atlantic in order to see. He went on a pilgrimage on two occasions to WORDSWORTH. Although he could not realise why there should be so much of the cliff and bare mountain in the man—for he was disappointed when he found there was a wide difference between the poet and himself—yet EMERSON acknowledged that WORDSWORTH "alone in his time treated the human mind well, and with an absolute trust. His adherence to his poetic creed rested on real inspirations. The Ode on Immortality is the high-water mark which the intellect has reached in this age. New means were employed, and new realms added to the empire of the muse by his courage." The English poet wished to proclaim:—

How exquisitely the individual mind
(And the progressive powers perhaps no less
Of the whole species) to the external world
Is fitted,—and how exquisitely, too—
Theme this but little heard of among men—
The external world is fitted to the mind.

EMERSON looked on himself as having a similar mission. We can trace this in what he says about art. Nature, according to him, signified essences unchanged by man. Art was a mixture of will with the same things, but as, after all, the operations consisted only of a little chipping, baking, patching and watching, they made little alteration in the world as it stood. EMERSON's own delight in natural scenery is constantly expressed. In all seasons he found a cordial in the air. Walking through snow puddles gave him a perfect exhilaration. In the woods he thought there was no disgrace or calamity which nature was unable to repair, and there he believed inspiration for architecture arose. Almost all ornament was, he remarked, no more than the imitation of natural forms, and man was therefore a copyist rather than a creator. To an individual who was thus disposed to find the origin of everything in some natural forms, it was inevitable that his fancy should discern the origin of Gothic in the alleys of the forest. The stained-glass windows were also supposed to have been suggested by the colours of the western sky as seen through the branches of trees. The whole of the ornament was derived either from the leaves of trees or the vegetation in the forest. But it was not architecture alone which was indebted to nature. EMERSON was reminded of a mountain-top by the head of an old Indian he met, and the wrinkles of the forehead recalled the rocky strata. The sculpture of the Parthenon he fancied might have a similar origin. He relates with satisfaction how he was informed by a painter that nobody could draw a tree without becoming a tree to some extent, or a child without becoming a child. On the other hand, from the closeness of the relationship, he believed a work of art to be an abstract or epitome of the world which cast a light upon the mystery of humanity, and in one place he cries out:—"What a joyful sense of freedom we have when VITRUVIUS announces the old opinion of artists, that no architect can build a house well who does not know something of anatomy." In other words, animate as well as inanimate nature was a treasury of prototypes adapted for universal application.

We should remember that EMERSON was a true American, and his writings were more immediately addressed to his countrymen. It was a new world he was living in, and he was perfectly contented with it. In the course of his life he only made three voyages to Europe. He never sought to be a disciple of an earlier philosopher, and although he esteemed scholarship, he did not attach the same value to it as Englishmen or Germans. The present was to him of more importance than the past, and he cared little for men who wished to live in the days of chivalry or when historic events were being transacted. A man could show his courage in Boston, he thought, in the nineteenth century as well as in imperial Rome. He rebuked those who built their houses after foreign or ancient models, or who formed their opinions according to a remote standard. An artist should, he said, seek his model in his own mind, and there was no need to recur to forms which were Doric or Ionic. If the American architect would study with hope and love the precise thing to be done by him, considering the climate, the soil, the length of the day, the wants of the people, the habit and form of the government, he would create a house in which all these would be fitted and taste and sentiment satisfied also. Were EMERSON still living—he died in 1882—his philosophy would be sorely tried. He would find that Americans not only continued to build their mansions after foreign models, but the ambition of the wealthiest among them was to convert their rooms into private museums, in which the remains of foreign art of all ages were exhibited as if they were spoils torn from an enemy. He might argue it was only a stage in a beneficent process, for before many years were expired the heterogeneous objects would be deposited in public museums, where they would be classified and explained for the public benefit.

EMERSON was an optimist, and much of what appear to be conclusions in his writings are only aspirations. He knew the world could not cease rotating, and he assumed that everything on its surface was compelled to move. Beautiful as he believed nature to be, he imagined it was possible for a painter to produce finer landscapes than any which existed. WORDSWORTH would say such a thought

was rank heresy. The artist himself EMERSON looked on as no more than a landscape from which immense quantities of mere matter had been eliminated. On that principle the artist should labour to give suggestions of immensity by means of the fewest strokes. Who can tell whether EMERSON did not believe his own encyclopædia of sentences were examples of what was desired, forming a *multum in parvo* of literature and the essence of philosophy? LOWELL, in describing him, said with friendly banter:—

'Tis refreshing to old-fashioned people like me,
To meet such a primitive pagan as he,
In whose mind all creation is duly respected,
As parts of himself—just a little projected;
And who's willing to worship the stars and the sun,
A convert to—nothing but Emerson.

EMERSON could take a transcendental view of the fine arts because he was without the power to express pictorially the joy of the humblest tyro in art. We have never seen it stated that he attempted a drawing, and we suppose not one of the farmers around Concord would have ventured to ask his advice about the simplest kind of structure. In that respect he differed from GOETHE, who made experiments in the arts in order to realise the difficulty of production, and who owned that from occasional visits to a building under construction he acquired a degree of knowledge concerning architecture which was not to be obtained through the reading of books. EMERSON proposed too high a standard to his countrymen, and for that reason it cannot be said that his influence on art was of much account.

THE FOULIS ACADEMY.*

GLASGOW now contains so many painters of ability it is entitled to claim the rare privilege of possessing a distinct school. It has also a municipal art gallery on a large scale, which is well provided with pictures. A visitor to the western capital can hardly fail to realise from the number of shops in which pictures are sold and other evidence that art is now a real power in the city. The history of the past should not, however, be forgotten, and a statue of ROBERT FOULIS, if not of his brother ANDREW also, who were the pioneers of the school, should be set up either in the art gallery or in some prominent part of the city. ROBERT FOULIS was the first man to comprehend the capabilities of the Glasgow people for art. He was no mere theorist, but a practical Scotsman, and in order to establish his convictions he founded an academy of art. At the time it was a daring experiment and it should be considered successful, but as the whole cost of upholding it had to be borne by ROBERT FOULIS and his brother, the academy in course of time went beyond their resources, and finally it brought about the ruin of their fortune and hastened the death of the more prominent brother. A more remarkable instance of enthusiasm is not to be met with in the history of English art, although it has received very little attention from the public.

ROBERT FOULIS was born in 1707. In his early life he served as a barber. He was an intelligent man, and we may imagine that he resembled the Florentine NELLO who is introduced in "Romola," and who looked on his shop as the haunt of the muses and a meeting place for scholars. Among the tonsor's clients or customers were some of the university professors. FRANCIS HUTCHESON, the professor of moral philosophy and an able metaphysician, took great interest in FOULIS, and advised him to turn his cleverness to better account by setting up as a bookseller and printer. HUTCHESON, who was a refined gentleman, and in æsthetics far in advance of his age, was likely to have pointed out to his *protégé* the difference as regards form between the type of some of the famed Italian printers and that used in Great Britain. From the beginning of his career the books which came from the press of FOULIS were remarkable for their beauty, and on that account they are still prized by collectors. As a bookseller he was fortunate in obtaining some fine editions of the classics, and he endeavoured to rival them in appearance and accuracy. His edition of "Demetrius Phalereus,"

which appeared in 1743, was so excellent as to warrant his appointment as printer to the university. His business extended so much, he was obliged to take his brother ANDREW into partnership. His "Horace" has gained renown, for proofs of the sheets were allowed to be attached to the gate of the college and a reward was offered to anyone who could discover an error in one of the lines. During thirty years nearly all the Greek and Latin classics were printed by the brothers in various sizes, and their merit won fame not only for the firm, but also for the city of Glasgow. The rebellion in Scotland and the subsequent troubles were without any effect on their printing-presses. Another innovation of the firm was the production of the plays of SHAKESPEARE one at a time.

There was an opportunity presented for increasing the attractiveness of books by engravings. In the middle of the eighteenth century it could not be said that any city in Great Britain, with the exception of London, offered facilities for work of that kind. ROBERT FOULIS went abroad in order to reconnoitre, and, if possible, to discover artists who would act as his assistants. He was able to find a designer, an engraver and a printer who would carry out the first experiments. But his observations in Paris enabled him to realise the great service which art could perform for many industries, although in Scotland that fact was not recognised. During his sojourn in France he saw the benefits which had been derived from the Academy of Fine Arts, which in reality owed its origin to COLBERT, who prized commerce above glory. In England an institution of the sort was almost unknown. There existed an academy in St. Martin's Lane, London, but it had more the character of a modern sketching club than a place where a systematic education could be received. Nor was there an opening for such an institution as FOULIS contemplated, if some of the elder artists were to be believed. There was a prejudice at the time against native artists, and a student of art had therefore to contemplate the possibility of illustrating prodigies at fairs and adorning heroic signboards as a means of earning a living. It was a courageous act for ROBERT FOULIS to set up an academy for engraving, painting, modelling and drawing before the Duke of RICHMOND had opened his gallery of casts in Whitehall, and about sixteen years before the Royal Academy of Arts was founded by GEORGE III.

There was a great difference between the Glasgow venture and the London Academy. For the latter there was no difficulty in obtaining teachers, and even JOHNSON and OLIVER GOLDSMITH were willing to forget their Bohemianism and to accept professorships without a salary. Instead of "the royal munificence" of which REYNOLDS boasted at the opening meeting, in Glasgow there was only the capital of a couple of printers, though, at a later time, three merchants expressed willingness to give aid. But from first to last all expenses may be said to have been borne by ROBERT and ANDREW FOULIS. There were no fees to be derived from students, for those who cared to follow art could not only study but live free of expense at the Glasgow academy. Models of many kinds were provided. The founders were also willing to send promising students abroad, their expenses being charged to the institution. But it was a by no means easy task to procure instructors. The examples placed before the students, although they were excellent, required interpreters. The brothers also discovered that the outlay was exceeding the amount they had calculated. In order to secure aid they anticipated the plan of modern art unions. They invited people who cared for art to become subscribers, and it was guaranteed that paintings, models, prints or drawings were to be received which would at least be an equivalent in value to the amount of the subscriptions. Edinburgh about that time began to take an interest in art, and an exhibition of the prizes which were to be distributed was held there as an inducement for obtaining an increase of funds. The brothers must have accumulated a vast amount of property in works of art, for it is related they were able to adorn the court of the University with paintings on the occasion of the Coronation of GEORGE III. In spite of all their efforts they were not able to attract a sufficient number of subscribers. It was accordingly contemplated to dispose of the entire collection. It was said to be in a reputable degree of perfection,

* See Illustration.

for evidently the public imagined works of art in an academy were not likely to be in better condition than books in a school. The academy came to an end in 1770. At the time when ROBERT and ANDREW were in a state of despair after their disappointment about the success of their academy, we obtain a glimpse of them by means of JAMES BOSWELL. In 1773 Dr. JOHNSON and himself were in Glasgow, and met the brothers. The interview is thus related :—

"Professors REID and ANDERSON and the two Messieurs FOULIS, the ELZEVIERS of Glasgow, dined and drank tea with us at our inn, after which the Professors went away; and I, having a letter to write, left my fellow-traveller with Messieurs FOULIS. Though good and ingenious men, they had that unsettled, speculative mode of conversation which is offensive to a man regularly taught at an English school and university. I found that, instead of listening to the dictates of the sage, they had teased him with questions and doubtful disputations. He came in a flutter to me and desired I might come back again, for he could not bear these men. 'O ho, sir!' said I, 'you are flying to me for refuge.' He never, in any situation, was at a loss for a ready repartee. He answered with quick vivacity, 'It is of two evils choosing the least.' I was delighted with this flash bursting from the cloud which hung upon his mind, closed my letter directly, and joined the company."

We suppose neither JOHNSON nor BOSWELL could be aware of the trouble through which the brothers had passed, and from which, at the time, they had not emerged. The fortune they had gained by printing classical works was nearly at an end. ANDREW FOULIS died in 1775, leaving his brother to struggle with the difficulties of the firm. ROBERT FOULIS sent the collection of works of art to London. To increase the importance of the paintings a catalogue of them in three volumes was prepared. CHRISTIE, the auctioneer, whose rooms were then in Pall Mall, considered the time to be unfavourable for a sale, but the owner was desperate. The result unfortunately proved the correctness of CHRISTIE'S view. It is said that after payment of expenses not more than fifteen shillings were forthcoming for the unfortunate owner. He returned a broken-hearted man, and before reaching Glasgow he suddenly expired in Edinburgh—a sad ending for a life which for so long was devoted to the public good, and which should always be recalled with pity.

The illustration we publish is a reproduction of an engraving which was executed in the Academy, and is therefore almost the only memorial of it which exists. The painting copied was long accepted as the most beautiful cabinet work of CORREGGIO, and was sometimes called *The Egeria*, and sometimes the *Reading Magdalen*. It is in the Dresden Gallery, but a replica belonged to Lord VARD, and there were others which were also believed to

be originals. Signor MORELLI subjected the painting to a close scrutiny, and, contrary to the opinion of all the old connoisseurs, has concluded that the intense blue of the robe, which was supposed to be the most characteristic part, was never executed by CORREGGIO, and that all the details are unlike those in his genuine works. The Italian master never made use of copper, and on a plate of that metal the painting is executed. Signor MORELLI believes the small picture to be a Flemish work, and the artist ADRIAN VAN DER WERFF, although he concedes that it may be a copy of an Italian of the Bolognese school. However adverse may be the new theory to the belief of generations, the delightful little picture in the Dresden collection continues to receive as much admiration as before.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER XII.

MISCELLANEOUS REMARKS.

IN this chapter it is proposed to refer to various matters that need mention, without admitting of anything more than very brief treatment.

The influence that *materials* should exercise on design must always be taken into account; and though a few remarks have been made on this elsewhere as affecting economy, they did not cover the whole ground.

In the first place, it must be remembered that, everything else being equal, it is well to use for a building local materials in preference to others. Where the local possibilities are inferior in quality, that is, where they are insufficiently good for the required class of work, materials should be brought in from outside districts; but even then it is advisable not to go further afield than is necessary, in the search for what is suitable. Exotics may be interesting, but they seldom inspire such affection as the home-grown products, and this is of general application. In this connection Cardiff Infirmary (fig. 76) may be illustrated, though to do adequate justice, it should be represented in all its charm of colour and variety.

The design should be adapted to the materials, and not the materials to the design; treatment that is suitable for brickwork, with its more numerous vertical and horizontal lines, does not necessarily answer so well for the broader effects obtained in stone and terra-cotta. Again, the treatment that is suitable for stone, with the numerous possibilities for varied carving, is different from that for terra-cotta (all whose blocks have to be turned out of moulds); for the limits imposed by the usual desire to avoid



FIG. 76.

extravagance, demand that variety of treatment shall be kept somewhat restricted. Of course, the design is also affected by the kind of stone used—in a granite district it will be naturally much bolder and more rugged in nature than in a freestone district, and much broader effects will be obtained in the neighbourhood of Bath (where the quarries yield large blocks of limestone) than in Kent with its ragstone.

This being the case, the designs should be dealt with so as to keep in accord with these local conditions.

The chess-board effect that may be noticed on many façades is to be condemned, and its absence may be insured by avoiding "spottiness" in treatment, both as regards materials and decorative ornament. To mass materials is effective; thus, a stone-fronted central block may be flanked by brick-faced walls, or a stone-fronted ground storey may have brick facings superimposed.

Not only in that respect is massing desirable, but also as regards colour-effects, but the massing must be done with judgment; pigment decoration is not under consideration here, but only the broad colour-effects on materials. It is only recently that the writer had occasion to call attention in conversation to the crude juxtaposition of tones and colours in some new houses. There were three samples within a stone's throw, serving to exemplify satisfactory and unsatisfactory effects; each of the three had red brick ground storeys, red-tiled roof, and rough-cast upper storey between; it was in the last that difference of treatment was apparent, for in one case the plaster was of a dazzling white, in another ochre, in the third cement tone, and it was this only that looked well, the ochre looking dismal, and the white glaring.

And yet coloured or whitened rough-cast looks excellent when suitably distributed, as the numerous Elizabethan half-timbered houses attest. Where a large unbroken mass of subdued or dull green or grey tones will look effective, whites, ochres and reds prove overwhelming. Blue is so palpably unmanageable in large display as scarcely to call for comment; it can be used in effective combination internally, and more especially where the lighting is somewhat subdued.

Vitrified material has a beneficial influence on colours, whether for external or internal effects. A greater play of reflected and refracted light is obtained, imparting variety of tones and shades. The incidental advantage of being able to keep the façade clean and bright by the mere use of water is incalculably valuable in fog and smoke-laden atmospheres.

In close connection with the subject of colour-effects is the treatment of ornament on the façades of terrace-houses. It is one of those errors of judgment that carry their own condemnation whenever one design is shared between two adjoining houses, for the difference of tones (and often tints) between a freshly-painted façade and its neighbour is

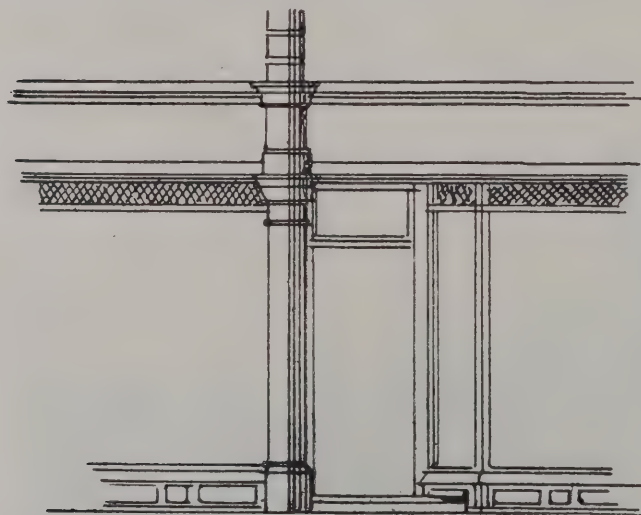


FIG. 77.—PARTI-COLOUR EFFECT.

only bearable if the two designs are quite independent. It is a distinctly displeasing sight to note, say, a column or pediment with a straight line of demarcation between clean and dirty, or between one colour and another; the latter is especially noticeable on shop fronts, giving an effect such as is shown in fig. 77. It may be that of two adjoining

owners, one may like a stucco façade, and the other may prefer plain brick, and thus a feature shared in common may be parti-treated in ludicrous fashion. Gables, pediments, columns and pilasters, panels and coursed projections, should never therefore be shared between adjoining houses, but this treatment is frequently to be met with in early nineteenth-century work. Instances certainly occur where the original landlord keeps the terrace-property in his own hands, and has a covenant inserted in the various leases that all the houses shall be painted externally at the same time, and in colours or tones to his approval; this is naturally a provision only possible in first-class property, and secures uniformity of treatment.

(To be continued.)

THE SOCIETY OF ARCHITECTS.

THE seventh ordinary general meeting was held at St. James's Hall, Piccadilly, W., on May 21, at 8 P.M.; the president, Mr. Silvanus Trevail, J.P., F.R.I.B.A., in the chair.

The following were elected by ballot:—*Members*—Mr. F. G. Fraser, 19 Old Hall Street, Liverpool; Mr. S. H. Healing, 79 London Road, Gloucester; Mr. A. G. Howard, Public Works Department, Cape Town; Mr. E. P. Laycock, 26 Arundel Square, W. Holloway, N.; Mr. John Love, Victoria Road, Fleet, R.S.O.; Mr. C. R. Mitchell, 11 New Court, Lincoln's Inn, W.C.; Mr. A. W. Nye, 34 Duke Street, Brighton; Mr. Frederic Quay, Public Works Department, Cape Town; Mr. P. B. Tubbs, 68 Aldersgate Street, E.C.; Mr. F. W. Wills, St. Peter's Churchyard, Derby. *Student*—Mr. R. J. Smith, Eastlea, Weston-super-Mare.

After the transaction of the formal business the President gave an interesting account of his impressions of architectural rambles on the Continent, illustrating his remarks by means of a large number of specially prepared lantern slides, including views of the principal buildings in Boulogne, Brussels, Paris, Cologne, Versailles, St. Ouen, Lucerne, Munich, Stuttgart, Buda-Pesth, Constantinople, Rome, Vienna, Prague, Venice, Strasburg, Potsdam, Turin, Genoa, Florence, Nice, besides views of Washington and a number of the principal buildings in London.

Upwards of 100 slides were shown, and upon each of them Mr. Trevail had something practical to say. He compared the Gare du Nord at Paris with the stations of the English railway companies, very much to the latter's disadvantage, following it up by showing how artistically the Parisians spanned their rivers and the use they made of their waterway as contrasted with the neglect of our magnificent waterway for passenger traffic. He contrasted the French Salons with Burlington House, and the Law Courts of Brussels with those in the Strand. Mr. Trevail laid great emphasis upon the laying out of the continental streets, which permitted of their buildings being properly seen, whereas here they were confined and shut in on all sides. After seeing St. Peter's at Rome he came back direct to St. Paul's with the object of comparing the two in his own mind, and while the latter was the more imposing outside, the interior was very disappointing after St. Peter's.

Upwards of seventy took part on the 23rd inst. in the field day at Rochester, among the party being the president, Mr. Silvanus Trevail, Mr. G. Gard Pye, vice-president, Mr. Ellis Marsland, hon. sec., Mr. C. McArthur Butler, secretary, and a number of ladies. The South-Eastern and Chatham Railway had attached two saloons to their train leaving Victoria at 9.30 A.M., and these were well filled. A special stop was made at Rochester, and here the party were met by Mr. Geo. Bond, who had been concerned in the local arrangements, and a start was made at once for Eastgate House where Mr. George Payne, F.S.A., took charge of the party and most kindly acted as leader throughout the day.

Well pleased with what they had seen at Eastgate House, the Cathedral was next visited, and its chief points having been seen, an adjournment was made to the Bull hotel, where luncheon was ready. Here the party was favoured by the presence of the Right Worshipful the Mayor of Rochester, Alderman W. J. McLellan, the Mayor of Chatham, and others, who gave the members a very hearty welcome to the ancient city.

At the conclusion of the luncheon, the President having fittingly expressed to the Mayor their appreciation of his courtesy, and a short toast list being disposed of, the party proceeded to Restoration House, where, by permission of the owner, Mr. Stephen Aveling, the ancient mansion was inspected. From thence the party went on to the Castle, which was thoroughly explored, and by that time tea was awaiting the visitors at the Corn Exchange, the hospitality of the Mayor being thoroughly appreciated.

At half-past five brakes were in readiness to convey the members to Cobham, which was reached via Gad's Hill Place, the residence of the late Charles Dickens, after a most pleasant drive through the Kentish lanes. The church of St. Mary Magdalene was first visited and its old brasses greatly admired. The college adjoining, now converted into twenty almshouses, was taken next, and after a short rest at the Leather Bottle of Pickwickian fame, the journey was resumed to Sole Street and the homeward journey commenced, Victoria being reached at 9.30 P.M., with everyone thoroughly satisfied at the result of the field day.

THE ROMAN WALL.

AT the present rate of archaeological activity the remains of the wall of Antonine in Dumbartonshire and Stirlingshire should ere long, says the *Glasgow Herald*, be as thoroughly investigated as those of the wall of Hadrian in Northumberland. One of the most recent excavations of the former has been at Hillfoot, in the parish of New Kilpatrick, where, on a patch of moorland to the east of the Milngavie railway, the course of the rampart and ditch is very strikingly visible on the crest of the slope. The vestiges there, indeed, are outwardly the most interesting part of the wall between the commanding stations of Castlehill on the west, which looks north to the Kilpatrick Hills, and the foot of Balmulie on the east, which guarded the passage of the Kelvin. Thence to the Firth of Forth the ancient work pursues the line which, after seventeen centuries, has been followed by the Forth and Clyde Canal and the North British Railway between Glasgow and Edinburgh, so wondrous is the continuity of history. There was, of course, no need for further proofs either of the keen eyes of the Romans for good positions of fortification, or of the solidity of the works which they there undertook; yet not without interest does one learn that the remains on the slope at Hillfoot disclose "sixteen layers of turfing with a stone base 15 feet wide." Well may we wonder if, seventeen centuries hence, the plains and hills of India will show such lasting memorials of the days of Clive and Nicholson. For the rest, these excavations, and notably, the recent important discovery at Inchtuthill, seem to indicate that the Roman hold upon southern Scotland was firmer and further extended than former theories had led us to suppose. It would seem probable that the most of the Roman remains found north of Antonine's wall belong to a later period than his reign, and are to be considered as results of the expedition of Severus at the beginning of the third century, which in all likelihood was not so cursory a raid as it has sometimes been represented.

ALTARS IN ENGLISH CHURCHES.

THE half-yearly meeting of the Church Crafts League was held in Clifford's Inn Hall, Fleet Street, on Monday last. Mr. F. C. Lees delivered a lecture on "Altars: their Arrangement and Ornaments." He described what English altars had been in the past, what they ought to be like at the present day, and said it was scarcely possible to consider the English tradition alone without reference to the early ages or to continental practice; for the English tradition on the subject was really the English adaptation, suited to English circumstances, of the general tradition of Western Europe at the time when European architecture attained its best and fullest development. Like everything else about a church, the altar was, first of all, a piece of ecclesiastical furniture provided for a religious purpose, the form and arrangement of which were subject to ecclesiastical proscription and regulation. It became a matter of artistic and architectural consideration only in the second place. At the same time there was a certain amount of give and take on both sides. The architectural arrangement gave way to the ecclesiastical essentials, but in things that were not essential some few of the adjuncts had to be adapted to the character of the building. Until the artificiality of recent times the whole arrangement of the church and its altar was largely a matter of common sense expressed both in the church's ceremonial requirements and in the architectural features of the building. The great mistake which was nowadays made with altars was that they were too small. It was sought to give dignity to the altar by raising it on many steps, by surmounting it with shelves filled with large candles, pots of flowers, and other large and conspicuous ornaments. Over and above all was built a huge erection called a reredos; all was done regardless of the prescriptions of the ornaments rubric, the principles of Gothic architecture, of common sense, or of the English tradition. At the conclusion of the lecture the Dean of Westminster thanked the lecturer, who, he said, had justified the fact that they had two altars in Westminster Abbey which were still without a cross, and they also had various other features of dignity to which he had alluded. Every Sunday they put out all the plate they could on the altar, and he hoped they would continue to do so. That was an old custom which had never been given up, and which was not

limited to times of coronation. They also had two altars which had not gradines. It was curious how the customs changed, and if people only stood still long enough they would find themselves again in the height of the fashion.

BIRMINGHAM MUNICIPAL SCHOOL OF ART.

THE museum and school of art committee on Monday held a special meeting in order to appoint a successor to Mr. Edward R. Taylor, who retires on June 30 from the head-mastership of the Municipal School of Art under the terms of the Corporation superannuation scheme. Alderman the Right Hon. William Kenrick presided. The committee unanimously appointed Mr. R. Catterson-Smith, who has since 1901 been head-master of the Vittoria Street school for jewellers and silversmiths.

Mr. Catterson-Smith was born in Dublin. His father, a well-known portrait-painter, was President of the Royal Hibernian Academy. Originally a successful student and assistant teacher at the Dublin School of Art, Mr. Catterson-Smith at the age of twenty entered the studio of John Henry Foley, R.A., the sculptor, and remained with him until his death. Then he became well known as an exhibitor, especially of landscape, but also of portraiture, at the Royal Academy, and as a draughtsman in black and white. His work illustrated his fondness for nature. In 1893 he was engaged by William Morris to assist him and Sir Edward Burne-Jones in the production of drawings for the Kelmscott Press. Mr. Catterson-Smith executed most of the "Chaucer" drawings, and designed and executed three of the borders for the "Earthly Paradise." Of his work in this direction William Morris spoke in terms of unstinted praise. His set of "Chaucer" drawings was in 1901 sold in London for 800/. In 1892 Mr. Catterson-Smith began to work in metal. He is a member of the Art Workers' Guild and of the Arts and Crafts Exhibition Society. Visitors to the Arts and Crafts Exhibitions held at the New Gallery will recall especially his beautiful silver repoussé, executed from the designs of Burne-Jones, which exhibits the highest skill in workmanship. He has also done much metalwork from his own designs, both on his own account and for leading gold and silversmiths and jewellers. In addition, Mr. Catterson-Smith was for some time associated as a teacher with Mr. George J. Frampton, R.A., and Mr. W. R. Lethaby, then co-directors of the London County Council Central School of Arts and Crafts, and worked with Dr. William Garnett, the secretary of the Technical Education Board of the London County Council. On his arrival in Birmingham he was described as an "enthusiastic teacher," and Dr. Garnett said that he would be found "a most agreeable colleague and inspiring principal," descriptions amply fulfilled, as all know who have come into touch with Mr. Catterson-Smith in his work at the Vittoria Street school. Whilst in London Mr. Catterson-Smith also served under the London County Council as the inspector of art schools and art classes held at secondary schools—about forty in all. Recently he has executed for Lady Burne-Jones a set of drawings—"The Beginning of the World"—from designs of her husband's, and acted as examiner of the works submitted to the London County Council for their annual competition for art scholarships. He also holds testimonials from the late Sir Edward Burne-Jones, Bart., A.R.A., Mr. Philip Webb, the architect, and Mr. Walter Crane, A.R.W.S., member of the Council of the Royal College of Art, South Kensington, and examiner under the Government Board of Education.

The First Meeting of the Architectural and Archaeological Society of Durham and Northumberland for the year 1903 will be held on Thursday, June 4, at Haltwhistle, Beltingham and Willimoteswick. Members will assemble at Haydon Bridge station at 11.13 on arrival of train leaving Durham 9.47, Newcastle 10.25. They will drive to Beltingham Church, which is the only church in Northumberland which is entirely of the Perpendicular style of architecture. It was built in the fifteenth century, and is an oblong square. It is situated in an ancient burial-ground which contains three venerable yew trees. A short walk from here will bring members to Willimoteswick Castle, the chief seat of the ancient family of Ridley. Several remains of the stronghold, including the capacious fireplace, still exist. Crossing the river by foot-bridge at Bardon Mill, the conveyances will be resumed, and the drive continued to Haltwhistle, when the church, built about 1240, will be examined. It contains an effigy of the Blenkinsopp family, and many other objects of interest. Castle Hill, an oval-shaped mound, will also be visited. If time permit the drive will be continued to Bellister Castle, a border peel tower, some remains of which still exist; and Featherstone Castle, a handsome castellated mansion containing an old peel tower vaulted underneath.

NOTES AND COMMENTS.

A SIDELIGHT was cast on the manner of producing bricks which is now adopted in some places by means of the evidence in a case which was heard during the past and present week before Mr. Justice RIDLEY. The Sussex Brick Company, Ltd., have works at Warnham, which is close to Horsham. As the works are alongside the railway line, travellers have noticed how comparatively few men were to be seen upon the ground. Generally it is the practice for a company to depend on its staff for the execution of all kinds of work. But as much reliance is now placed on machinery, we can understand the existence of a belief that labour is only secondary and can be easily imported. When there was no machinery there were roving brickmakers. Whatever was the reason, the Sussex Brick Company, Ltd., in July 1901 issued an advertisement inviting tenders for making 10,000,000 bricks per year for three years, the plant, machinery, &c., to be found by the company. Mr. TOMLINSON, of Forest Gate, sent in a tender which was accepted. He had received a specification stating that the company's machinery was new, in good order, and capable of producing from 40,000 to 50,000 bricks per day. On that statement he relied. He alleged that almost from the first day upon which he started work he complained of the defective character of the plant and machinery, by reason of which he was unable to fulfil his contract in regard to the number of bricks turned out annually, and was put to extra cost and subjected to loss on the reduced output. Mr. TOMLINSON accordingly brought an action in which he claimed 1,273*l.* 3*s.* 6*d.* for loss of profit on the contract, 1,055*l.* extra cost, together with certain sums representing value of stores, &c. The case for the company was that they had made no representations as to the capacity of the machinery, &c., and they said alternatively that any statement that may have been made did not constitute a representation, and did not affect the plaintiff in entering into the contract. They further said that the plaintiff had had an opportunity with other experts in the trade of inspecting the works prior to undertaking the contract. It was also said the complaints had been abandoned by a letter of February 27, 1902, and the company counter-claimed for 2,481*l.* for loss by reason of the plaintiff having broken his contract and stopped the works. On behalf of the plaintiff it was stated that he entered into the contract in the belief that the company would purchase five new machines and erect three new kilns. The jury, in answer to questions put to them by the judge, came to the following conclusions:—(1) That new machinery was supplied, but it was not in perfect order; (2) that the statements by the defendants' representative were recklessly made; and (3) that there had not been accord and satisfaction. Mr. Justice RIDLEY entered judgment for the plaintiff, referring the items of detail in the account to the official referee.

THE colonnade or arcade cannot be said to have had fair play in England. There is nothing in London which is comparable to the Rue de Rivoli in Paris. The openings in the latter have to be rather narrow, but as the work was constructed in masonry there had to be limitations. By the use of steel it would now be comparatively easy to make a passage of the same kind which would be far brighter and have other advantages. Considered simply as an experiment it is satisfactory that the London County Council on Tuesday adopted the report of the improvements committee, in which it was recommended that the owners of Walsingham House and the Bath Hotel, which are on the south side of Piccadilly, should be allowed to build over the new footway, the building being supported by a colonnade. For that privilege the company are willing to surrender the land required for widening the street at a price much below the market value, and without making any claim on account of trade disturbance. The increased width will be about 15 feet. A large building will therefore be considered as projecting over the footway, and that is a departure from the usual custom in London. But no danger is likely to arise from the innovation, and we may assume if the experiment is successful that a similar arrangement will be adopted in other parts of London.

At the Assembly of the Church of Scotland the trustees appointed by the late Duke of ARGYLL to have charge of the ruins of Iona, comprising the cathedral, chapel of St. Oran, and nunnery, presented their report. It was desired by the Duke that the ancient cathedral should be restored so far as to enable public worship to be held there. The work carried out has already cost 2,750*l.*, of which about 500*l.* remains unpaid. An agreement was entered into with the Dowager-Duchess giving the right to erect a monument of the late Duke in the south transept, her Grace undertaking the restoration of that part of the building. There was a time when the restoration would have been generously supported, but it is evident that many people in Scotland do not approve of the proposed works, which would transform the character of the ruins. The aid which was anticipated has not arrived. A resolution was adopted by the Assembly recommending the work to the liberality of the Church.

IN the number of "A Beautiful World" for May there is a tribute to Mr. A. WATERHOUSE, R.A., who presided over the S.C.A.P.A. in its beginning and directed its course. The following resolution was adopted at a special meeting:—"That this meeting of members of the National Society for Checking the Abuses of Public Advertising learns with deep sorrow that Mr. WATERHOUSE has been compelled by illness to retire from the office of president, and expresses its grateful sense of the services he rendered both in the formation of the Society and in the conduct of its proceedings. While thanking him for the sacrifice of time and thought and strength which his devotion to the cause entailed, they will always as individuals cherish the recollection of the kindness and cheerful courtesy which brightened the transaction of even routine business. They desire to assure him of their sympathy and affectionate goodwill." Mr. WATERHOUSE's successor as chairman is Dr. LONGSTAFF. As a result of their exertions, the committee claim that they "have done much to make people feel that it is well worth while to use their opportunities as purchasers of commodities to make it known that they object to using the goods of makers who resort to objectionable methods of pushing their wares. Also we have impressed on travellers the duty of telling all who in any degree profit by the tourist traffic that the picturesqueness of their district is a sound commercial asset, and that those who destroy it are destroying wealth."

THE struggle for existence among American architects would appear to give rise to modes of acting which are not suggestive of that solidarity which is supposed to be an essential quality in a great republic. The malpractices have gone so far, the New Jersey Chapter of the American Institute have been obliged to appoint a committee to investigate them. It is becoming common to prepare sketch plans for buildings as a speculation, and, in fact, an individual has only to allow the rumour to go forth of his intention to build a house or business premises and he will have a competition got up for him without any trouble on his part, and without incurring the least responsibility to the designers. It is doubtful whether much advantage can arise from an inquiry instituted by rival architects. The American code of ethics is elastic, and in a case where a chapter expelled a firm for not strictly complying with the regulations of the Institute, the Courts decided the chapter were going beyond their powers.

ILLUSTRATIONS.

THE MAGDALEN.

CATHEDRAL SERIES.—WORCESTER: LOOKING INTO NORTH TRANSEPT.

NEW PUBLIC LIBRARY, WORKINGTON.

METROPOLE THEATRE, CAMBERWELL.

LYCEUM THEATRE, SHEFFIELD.

REGISTRATION OF ARCHITECTS.

SOME letters have appeared in the *Times* on the subject of registration *apropos* of the speeches delivered at the annual dinner of the Society of Architects. The following extracts will suggest their character. Professor Beresford Pite says:—The registration of architects will not effect any public benefit. Any one, honestly ignorant or incompetent, or dishonestly jerrybuilding, will still be able to endanger human life and will only be prevented by such an Act from calling himself an architect; the resources of æsthetic and scientific nomenclature are still open to him, and "artist and sanitary engineer" will be as ensnaring to the public as the then illegal term "architect." That completer and fuller education in building art will be beneficial to the public needs no proof, and if it is capable of enforcement as a corollary to the Education Act it will be welcomed by all architects, and should be imposed upon all who build, but whether Englishmen will ever consent to have their liberty of action in building castles of liberty curtailed by Act of Parliament is another matter. But no registration of architects alone will improve the building art of the country. Architecture, however, appeals to qualities of intellect and has imaginative range and purpose that demand its treatment as among the greatest of the liberal arts. To fetter its exercise by Act of Parliament will be as foolish as the action of the "Masters" of Florence in opposing Brunelleschi's appointment to build the Duomo dome because he was not registered by them, and a Registration Bill such as proposed by the Society of Architects would have prevented an Oxford don named Christopher Wren from building St. Paul's; while registering all the incompetent quacks whose claim to be considered architects is best judged by their works.

Mr. Jackson, R.A., says:—An attempt is, it seems, being made to revive the scheme for registering or "hall-marking" architects. One might have thought that its ghost had been laid in 1891, when, as Mr. Beresford Pite reminds your readers, a protest against it was made by an important body of artists, with the result that no more has been heard of it till within the last few days. The protest was signed by seventy artists. Such names as Anderson, Bodley, Butterfield, Champneys, G. Gilbert Scott, Sedding, Norman Shaw, Stevenson and Philip Webb among the architects, and Alma-Tadema, Armstead, Brock, Madox Brown, Burne-Jones, Ford, Herkomer, William Morris, Richmond, Rivière and Thornycroft among the rest, will suffice to show that the opposition was widespread, and not confined to one school. The reasons for our protest remain unchanged. Now, as then, architecture would suffer as a fine art if fettered by the chains of a close profession. Now, as then, we should hold that those artistic qualifications which differentiate the architect from the builder cannot be tested by examination; that a diploma of architecture would have no value, that it would separate architecture still more from the sister arts to which we should try to draw it nearer; and that—in the words of our protest—"no legislation can protect the public from bad design, nor could legislation help to prevent bad construction unless builders and all others who erect buildings were required to pass the test of examination as well as architects, inasmuch as architects are not employed in the majority of cases." If, then, the promoters of registration have the public interest really at heart, and not merely the increase of the architects' social respectability, with which, as I well remember, the movement began, let them enlarge their scheme to include all who build and from whose incapacity the public might possibly suffer. I think this is a fair challenge, and await their reply with interest.

Mr. W. Howard Seth-Smith writes:—Professor Pite speaks with great assurance for the Royal Institute of British Architects, but I have good reason for believing that a larger proportion of my fellow members share my views on this subject than his. That some of the most talented architects within and without the Institute object to the closing of the profession against ignorance and incompetence is not a very convincing argument in face of the fact that it was the opposition of the leaders in the great registered callings which deprived the nation for so many years of the benefits of highly-trained professions.

Every true architect holds with Professor Pite that architecture is one of the greatest of the liberal arts, and that it "appeals to qualities of intellect and has imaginative range." It is none the less impossible, either in training or in practice, to divorce the science of construction from architectural design. We hold that compulsory training in both, so far from stifling the imaginative faculties or fettering the exercise of this art, would give it a great impulse. The far more imaginative and emotional art of music has under an organised system of education and examination become a national art. It is, moreover, interesting to know that musicians are also seeking registration.

The following facts should surely modify the vehemence of the opposition to the principle of registration:—

1. The fourth International Congress of Architects, held at

Brussels in 1897, by a unanimous vote agreed to the following resolution:—

"That the architectural societies should unite and conduct an energetic campaign to obtain from their Governments the institution of the diploma."

2. The Fifth International Congress of Architects, held in Paris in 1900, passed a resolution, which was unanimously adopted, to the effect:—

"That Governments should take steps to protect and secure respect for the title of architect by reserving it for the future, and without retrospective action, for architects provided with a certificate of capability, or by forbidding its use by others; and, further, should place such certificate within the reach of all by the spreading of special architectural education and training."

3. The States of Iowa, Illinois and California have passed such a law, and other of the American States are seriously considering the question. The province of Quebec has adopted a similar policy.

4. Germany and Hungary oblige all public architectural officials (State or municipal) to have a Government diploma. In France the method of appointing Government officials approaches that of making a diploma necessary. In Italy, Spain and Russia our profession is a closed one.

Professor Pite urges that the protection of the public would be more effectively secured by examining builders. This may follow, but let us train our own ranks before legislating for others. His assertion that a closed profession would have prevented Wren from building St. Paul's is astonishing. Wren's earlier work betrays the fact that he had no early training in his art; is it fair to assume that genius which could triumph over such a disadvantage would have failed to pass an ordinary test of competency? Nor is the statement that "all incompetent quacks would be registered" any truer, for such an Act, in coming into force, would oblige claimants for the title of "architect" to make an affidavit as to established practice. This would, to begin with, exclude a vast number of charlatans, and, from that time, all entering the profession would be trained men.

Mr. Walter Emden says:—Having now for nearly twenty years actively worked for and supported the movement for a compulsory examination of architects, and hence their registration, may I ask space to answer the statements of Mr. Beresford Pite in your to-day's edition? I am afraid at the outset I must say the statements in his letter are very inconsistent. In the fourth paragraph he says, "Completer and fuller education in building art will be beneficial to the public" (the only statement in his letter with which I agree, and which in my opinion gives his whole case away); while in the third paragraph he says that "the registration of architects" (which means only their compulsory examination) "will not effect any public benefit." This, I think, shows how hollow the protest of Mr. Pite is against registration; but to deal with his statements separately shows this still more.

In paragraph 2 of his letter he says the movement has neither the countenance nor sympathy of the Royal Institute of British Architects, or of the leaders of the profession of architecture in or out of that body. These are statements which will not bear looking into, because the Royal Institute of British Architects has passed resolutions in favour of the principle, and I think I am speaking well within the facts when I say that the questions of difference with the Royal Institute of British Architects are rather as to details and whether the time has yet come to press the matter on the attention of Parliament, and also that many of the leaders of the profession have spoken in favour of registration.

The great bulk of the profession, as a matter of fact, belongs to other societies, or to none, and some years back they had an opportunity of speaking in answer to a circular sent as to whether they were in favour of registration or not, and the answer given was overwhelmingly in favour of the principle, and many among those who answered were men of most undoubted position from all parts of the kingdom. So much for this statement of Mr. Pite's.

Then he says anyone, honest or dishonest, will still be able to practise, simply calling himself by another name. Is it reasonable to suppose anyone would employ to do architects' work some one whom they knew had not the necessary knowledge? This argument, to be correct, ought to apply equally to the employment of doctors, surgeons, dentists and other such like professions which were at one time unregistered, and were, for the great benefit of the public, brought under Acts of Parliament and compulsory examination. There may be a few who go to unqualified men, but, apart from the law dealing with such unqualified persons, the number of such cases is practically a negligible quantity.

With regard to Mr. Pite's statement as to registration curtailing the liberty of the subject, and that art, intellect and imaginative power which are so necessary to the architect would be discouraged or prevented by an Act of Parliament making examination compulsory, I would ask, How would art

or construction or sanitation suffer by examination? The answer is so obvious that Mr. Pite's contention will not hold water for an instant.

Does a painter paint less well because he knows how to mix his paints or the nature of the colours he uses, or does a sculptor carve with less ability or artistic merit because he knows anatomy or the nature of the materials he uses? Or would even the architect design a less artistic building because he knew construction, from which the original art of architecture grew?

Can any one fairly say, with the lives often enough and the purses always of the public in their hands, that the public will not be benefited by all architects being compulsorily examined before being allowed to practise?

The last paragraph in Mr. Pite's letter shows how little dependence there is to be placed on his arguments. He says we should have lost Sir Christopher Wren to the profession, but Wren would not have been deterred, nor would he have been less capable, had there been compulsory examination in his day; if so, indeed, he would neither have been a don of Oxford nor the architect of St. Paul's Cathedral.

In conclusion let me say that in almost if not every country in Europe the architect has to pass a compulsory examination. Is it contended that the European architects are less artistic or less capable than their English brethren? I think not, but rather that the designs and buildings of the Continent are the best. How then can it be contended, either from the artist's point of view or from the point of view of construction or sanitation, that compulsory examination would deteriorate our architects?

Mr. Reginald Blomfield says:—The Council of the Royal Institute of British Architects, the official representative body of the profession, is against registration, and has taken steps to oppose the Registration Bill now before Parliament, and the leading architects of the day, whether members of the Institute or not, are opposed to the scheme as making confusion worse confounded. It is surely quite previous to talk of registration before some reasonable standard of average ability exists. The best efforts of all who care about architecture would be more wisely directed to the formation of some such standard by means of an improved and organised architectural training, rather than to the manufacture of a fallacious and misleading professional label.

CITY SURVEYOR'S DEPARTMENT, MANCHESTER.

A CHARGE was brought against Mr. Edward Birks before Mr. Brierley, the stipendiary magistrate in the Manchester City Police Court, for having published a libel on the city surveyor, Mr. T. de Courcy Meade. Mr. Hockin appeared for the prosecution, and Mr. M'Keever for defendant.

It was said by Mr. Hockin, according to the *Manchester Guardian*, that when Mr. Meade was appointed in 1894 he found the defendant, who had been engaged a few months before, occupying the position of assistant measuring surveyor in the department. The position occupied by the defendant was a responsible one, for upon his measurements depended whether the contractors for work done for the Corporation were properly paid or not. On January 25, 1901, the Corporation were erecting twenty-two cottages at Miles Platting. Mr. Birks sent in his certificate, which showed that the contractors were entitled to 67*l.* 9*s.* 4*d.* Mr. Meade reported the matter to his committee, and the result was that Mr. Jackson, a quantity surveyor who was appointed to measure the work, found that instead of 67*l.* 9*s.* 4*d.* being due the amount was 1*l.* 19*s.* 9*d.* less. The next case had reference to some alterations at the Mayfield Baths. In this case there was a different set of contractors. Mr. Birks certified that 205*l.* 10*s.* 8*d.* was due. The accuracy of that certificate was questioned, and Mr. Gregory, a quantity surveyor, not in the service of the Corporation at all, was instructed to measure. Mr. Gregory certified that the contractors had been overpaid to the extent of 128*l.*

Mr. M'Keever: I question that. The gentleman did not measure. He did not find the contractors had been overpaid 128*l.*, and in point of fact the city surveyor and the contractors tossed up and split the difference, and 102*l.* 10*s.* was paid instead of 205*l.* by agreement with the contractors.

Mr. Hockin: In another case the same procedure took place. The contract in this instance had reference to Monsall Hospital. An independent surveyor estimated that the contractors had been overpaid 526*l.* 7*s.* 8*d.*, and the Corporation had to succumb to the extent of half the contractors' claim because Mr. Birks had certified that the amount claimed was due. Dishonesty was not suggested. These matters having been investigated by the committee, Mr. Birks ceased to be in the service of the Manchester Corporation. From that date the libel began. On April 25 Mr. Meade received a printed paper containing the libel now under consideration. It was dated 27 Lyme Street, Stockport, April 2, 1903, and was

headed "Manchester Corporation Building Scandal. Disgrace and dismissal of Edward Birks, late measuring assistant City Surveyor's Department." The document was addressed to "the Right Hon. the Lord Mayor of Manchester and the members of the City Council." A clerk in the City Surveyor's Department opened the letter in the course of his duties, the envelope being open and stamped with a halfpenny stamp. A copy of the libel was sent to each member of the City Council and to some, if not all, the officials of the Corporation. One was likewise sent to Mrs. Meade. Mrs. Meade was away from home at the time, and a domestic servant opened the letter, in accordance with her mistress's instructions, to see if it was worth forwarding. For a time Mr. Meade, acting on advice, thought he would treat the libel with contempt, as certain members of the Council, who were also attacked in the document, did, but now he felt that, as a servant of the Corporation, he was bound not only in his own interest, but for the credit and honour of the Corporation, to take action. Mr. Hockin then read the statement containing the alleged libel. It was a long document, containing three or four thousand words. The document began as follows:—

"I am indeed sorry to have to trouble the members of the Manchester City Council again on this matter, but force of circumstances and the serious consequences it has brought upon myself and family make it my bounden duty to do my utmost to try and vindicate myself at whatever cost by putting the true facts before every member of the City Council. In addressing the Council for the second time, I desire to emphatically state I am prompted by no feelings of animus towards the city surveyor, my great anxiety being to clear my name from the foul stain upon it; at the same time to try and compel the city surveyor, if possible, to speak the truth. You will doubtless remember that on January 8, 1902, I was publicly charged in the council chamber, by Alderman Rushworth, seconded by Councillor T. T. Shann, and supported by Councillor W. B. Pritchard, with having certified for 1,000*l.* in excess of work executed on nine contracts. Councillor Pritchard quoted figures. Those figures could only have been supplied to him by the city surveyor. In one instance I am charged with having measured and certified for some 330*l.* in excess of work executed at Harrison Street lodging house. Now I solemnly tell you I have never seen Harrison Street lodging house in my life, never measured one foot of work done there or certified for one penny. The work did not belong to my department. Yet Councillor Pritchard remarked I ought to be severely punished, and most certainly I have for doing that of which I know nothing whatever about. I propose first to give a brief history of these nine contracts, consisting of six at Monsall Hospital, one at Mayfield Baths, one at Miles Platting cottages, and one at Jackson's Row joiner's shop." Then followed a detailed statement with regard to these contracts and the matters in question. In regard to Monsall Hospital, the defendant gave an account of an interview he had with the city surveyor and Councillor Pritchard. He denied that he took the responsibility of making the certificates final; he gave them without prejudice and so marked them, because he had not had sufficient time to deal with the matter. When asked by the city surveyor why he had not signed them he replied, "Because they are unsatisfactory, having been done in such a hurried manner, and each contract is very fully endorsed 'without prejudice.'" The document proceeded:—"The committee, unfortunately relying upon what had been said and the chairman's (Councillor Pritchard's) silence, gave the authority craved for, and the next I hear the accounts are sent to an outside surveyor, who takes considerably over eight months to do what I had done in two, and cannot find a single inch wrong in measurement, although assisted by some dozen labourers from the Paving Department excavating holes. The prices I omit, accepting no responsibility, not having gone into them. It was a deliberate trap laid for me by the city surveyor, and I refused to fall into it. Alderman Walton Smith, chairman of the sanitary committee, took such an interest in this matter that he sent to the contractors to get at the truth. He got the truth in plain honest language, and knows full well that instead of my having certified 525*l.* in excess on these contracts, the contractors have received from the outside surveyor a few pounds more than they would have got from myself had I been allowed to complete the accounts, and the sanitary committee, with the outside surveyor's fees (some 170*l.*) plus the paying committee's account for the labourers, have paid some 200*l.* more than they need have done through the conduct of the city surveyor, who ought to be surcharged with this 200*l.* utterly wasted. But why, sir, does Alderman Walton Smith, knowing these facts, remain silent, and where does Councillor Pritchard's over-certified 525*l.* come in? The baths committee have also paid hundreds of pounds in arbitration and surveyor's fees utterly wasted, and the amount ought also to be surcharged to the city surveyor, occasioned by his unscrupulous scheming to injure myself and deprive me of my position. It was part of the city surveyor's duties, for which he is paid a handsome salary, if he

suspected anything wrong to go into it and find out the alleged errors himself, and not put the committee to the expense of outside assistance. His great effort was to evade responsibility. "For the evasion of responsibility is the refuge of the incompetent." In regard to the Jackson Row contract the defendant stated that the city surveyor demanded from him the pencil draft of his measurement, and he never issued a certificate. The two certificates he did sign were for the alterations to the Mayfield Baths and the erection of the Miles Platting cottages. The duplicates would be found in the contractor's certificate book, and defendant asserted that these bills and certificates were correct, no matter what outside surveyors might say to the contrary. "To any fair-minded man," continued Mr. Birks, "if differences had arisen between these gentlemen and myself a referee or umpire would have been appointed to decide; but the word referee finds no place in the city surveyor's dictionary. He must be referee, to manipulate and mutilate, to suit his own purpose, and keep me entirely in the dark, which was done." He defied the city surveyor to place his finger on a single item in the bills that left his hands and say it was wrong. The document went on to deal with what the defendant had done for fifteen months "to get out the truth," and proceeded:—"Of all the gentlemen who have been driven from the service of the Manchester Corporation by the deception of the city surveyor, I appear to be the most bitterly attacked. My hard-earned character, which ought to be considered sacred—a very sacred treasure—until proved otherwise, is torn to pieces by this man, who when challenged shelters himself beneath the ample skirts of Alderman Rushworth and Councillors T. Thornhill Shann, J.P., and William Bridgett Pritchard, J.P., and they in turn hug close the stone wall of privilege. The only reason I can give for this bitter attack is that I always tried to do my duty to my employers." Further, it was said, "Thousands upon thousands of pounds of the ratepayers' money have been wasted in this department during the past nine years through sheer ignorance. Thousands of pounds have also been wasted by work being sent outside that could and ought to have been done in the office, solely to bring discredit upon the official in whose department it belonged. For years a plausible tongue, assisted by a polished manner and courteous bearing, has misled and deceived the committees. The city surveyor is the servant of the Council. You hold the power to call upon him to prove his accusations against myself, withdraw in as public a manner as they were made, or resign his position." Concluding, the document ran:—"Gentlemen, it is finished. I have sorely taxed your patience, but kindly remember it took, with the devil's assistance, over eight years to concoct and carry out this despicable and cruel policy, solely with the intent of depriving well-tried, faithful and experienced officials of their positions, no matter what the far-reaching consequences might be. My life has been miserable—at least, of late—but I will not cast away the gift of God while he affords me the means of defending it. I deny this charge. I maintain my innocence, and I declare the falsehood of the accusation. Gentlemen, my honour is in your hands. I most earnestly and respectfully plead and appeal to you for fair play without prejudice and justice without fear."

Evidence was then given of the publication and circulation of the libel.

The defendant pleaded Not guilty, adding, "I reserve my defence, and will justify all that I have said."

Mr. McKeever said the defendant was on January 8, 1902, charged publicly in the council chamber by Alderman Rushworth with having certified upon nine contracts for 1,000% over the amount certified by other surveyors called in to check the amount. That statement was corroborated by Councillor Pritchard, and subsequently Councillor Shann said he was quite satisfied the committee had taken the right course, and that Mr. Birks's measurements were wrong. Those statements could have only been made on the statements of the city surveyor. It was not for him to go into the truth or otherwise of the libel, but he would only say that members of the Corporation who had made the statements implicating the defendant in serious matters, if they had any regard for their reputations, would say what the source of their information was. If they had looked at the documents on the office files they would have seen that so far from Mr. Birks having certified as stated, or his measurements being wrong, nothing of the sort had happened. Mr. Birks was labouring under a grievous sense of wrong. He had appealed from time to time to the committee to be allowed to make a statement in his defence. Sir Bosdin Leech appeared to have protested and resigned his position as a member of the committee, and Sir John Harwood and Mr. Brocklehurst said it was not fair to discharge a man without giving him an opportunity of saying what he had to say in his defence. They were overridden, however, and Mr. Birks was not allowed to say a word. If the defendant had been carrying on any collusion with contractors and accepting bribes, he ought to have been prosecuted, and the Corporation

was invited to prosecute by the defendant. Instead of that, however, the Corporation called upon him to resign, and after he had refused to do so they gave him three months' notice to quit, and took other steps which took away from him any right of action for wrongful dismissal. Labouring under this sense of wrong, he wrote to the members of the committee, some of whom endeavoured to assist him, and others who treated his accusations with silence. Acting under that sense, too, he wrote to the city surveyor and various members of the Corporation. Looking at the documents carefully counsel did not think anyone could say Mr. Birks should have been proceeded against criminally. If proceeded against at all it should have been by a civil action. Again counsel complained that the charge was brought under the fifth section of Lord Campbell's Act, which prohibited him from offering any justification at this stage. The object, he submitted, was to close the mouth of the defendant. In support of his contention that the Court should not lend itself to actions of this kind Mr. McKeever cited the dictum of the late Lord Chief Justice Coleridge, who in 1888 at the Berkshire Assizes counselled a grand jury to ignore a bill in a case where criminal proceedings had been taken when a civil action should have been brought. In his Lordship's opinion criminal actions were not warranted unless the libel affected the Crown, or persons in a judicial position, or was so frequently repeated as to be likely to cause a breach of the peace.

Mr. Hockin said the libel had been going on since January 1902, and sending a copy to Mrs. Meade was, he submitted, likely to cause a breach of the peace.

Mr. Brierley said he thought the case was one in which he must commit, but he did not see how any jury, civil or criminal, could try the case if all those contracts had to be gone into.

Mr. Hockin: We shall see at the proper time.

The defendant was allowed his liberty on entering into his own recognisances to appear at the Assizes.

Already preparations are in progress for the trial. For the prosecution Mr. Shee, K.C., and Mr. Overend Evans are, it is said, retained. The defence is hoping to secure the services of Mr. Lawson Walton, K.C., M.P., or Mr. Marshall Hall, K.C., M.P. It is further stated that a fund has been started on Mr. Birks's behalf.

RESTORATION AT IONA.

IN a letter to the *Scotsman* Professor Baldwin Brown writes:—

Is it too late for the authorities of the Church of Scotland to reconsider this profitless and risky project for the restoration of Iona? It is admitted that there is no scheme according to which the restored buildings can be made of any practical service, and this fact deprives the project of the one plea that might be urged in its favour. When there is a distinct religious purpose which a ruined ecclesiastical building might serve and a purpose that cannot be so suitably served in other ways, then there come in considerations of great moment in favour of restoration. Only the fanatical anti-restorer would resist such works as those at Dunblane, Paisley or Hexham. In the case of Iona, on the other hand, there is no such practical purpose in view, and, indeed, the project was apparently due to certain private desires and apprehensions which do not seem to have much in them, and with which the public have little concern. Hence all the arguments which have been urged for the last fifty years against needless tinkering of our ruined Mediaeval buildings hold here their full validity. Of course, the ruined buildings of Iona, like all other monuments of the kind, should be carefully watched, and should be preserved according to means now well understood, on which the trustees could obtain expert advice from independent sources. One stands aghast, however, at some of the phrases in the report of the trustees, who are apparently prepared with light hearts to embark on one of those extensive campaigns of restoration against which the experience of the last half-century furnishes us with so many warnings. Some of the following phrases ring of the bad old times:—"The walls urgently required to be pointed outside and repaired inside, and the plan had to be laid as much in the style of the original as possible. After this, much remained to be done, and the trustees, with the view of carrying out a faithful restoration, in order to preserve the buildings and hand them down to posterity in as nearly as possible their original form, were about to obtain from their architects a comprehensive scheme, the details of which they hoped soon to make public." Common sense, as well as art, protest against all the money being spent in the transformation of the town we knew and loved, and the substitution of something "in as nearly as possible the original form." The old buildings of Iona are of considerable intrinsic beauty, and of still greater romantic interest and charm. Like all the works of man they are perishing, but very slowly, and they cannot be entirely

saved. A great value still remains to them, and there is a serious risk that this may be destroyed by the proposed "faithful restoration."

The question is not with the past, or one would doubt the ingenuousness of the statement that the trustees "had done what was universally acknowledged to be by those capable of judgment well done," for as a matter of fact the recent work has been rather sharply criticised. What we are concerned with now is the future, and I would appeal to the good sense of the trustees and of the public against any further prosecution of this unfortunate scheme. The Scottish Ecclesiological Society would be doing better service by safeguarding the unique treasure of the Iona of ten years ago, than by indulging in any extensive dreams of a forceful restoration of half the Mediæval ruins of Scotland.

ENCOURAGEMENT OF ART IN SOUTH AFRICA.

A SOCIETY for the Encouragement of Art in South Africa has been formed. The object of the Society is to provide a comprehensive art education, including crafts, in South Africa for South Africans by the foundation of an academy of arts. It is evident from the letter in the *Times* of April 23, by Mr. E. B. Sargent (Director of Education for the Transvaal and Orange River Colonies), that the time has now come for the initiation of a movement in this direction. The evident necessity of an organisation devoted to the study of art cannot be overestimated. The development of native talent, undoubtedly latent in the Boer, an offspring of a nation which has ever been foremost in art, having produced some of the greatest painters in the world, is certain to be an important element in the elimination of racial feeling and the subsequent fusion of the two peoples.

The Society is under the presidentship of Sir William B. Richmond, K.C.B., R.A., and has the support of the following distinguished persons:—Sir Edward Poynter, president, Royal Academy of Arts; G. F. Watts, Esq., R.A.; Josef Israels; Sir John Stirling-Maxwell, Bart., M.P., trustee, National Gallery; Lieutenant-General Sir John French, K.C.B., K.C.M.G., and others.

In furtherance of this object it is proposed to found a school of art at Johannesburg, Transvaal.

The system of education will be carried out, as far as possible, on lines analogous to the course of instruction provided in the schools of the Royal Academy of Arts and the Royal College of Art, London, and will endeavour to uphold and maintain the splendid traditions of the masters as handed down in those schools, thus developing its work on the basis of all true and serious art.

The Society is organising an exhibition of pictures by British and Dutch masters to be held in Johannesburg. Leading artists of both nationalities have promised to lend works.

It is hoped that the Society will meet with the active support and encouragement of private owners of works of art, and of all those who are interested in the progress of education and culture in our South African Colonies.

The following letters have been received by Mr. E. L. Van Someren:—

Royal Academy of Arts, London, W.:

February 15, 1903.

I have pleasure in recommending Mr. Edmund Van Someren as a competent teacher. He is desirous of setting up a school of art in South Africa, and such an institution appears to me very desirable in a country where, as yet, there can be little opportunity for those whose instincts lead them in the direction of art to gain proper instruction.

Mr. Van Someren, besides winning prizes in the Royal Academy schools, gained the Landseer Scholarship of 50*l.* a year, enabling him to continue his studies for two years in the schools under the best instruction to be found in England; he is therefore fully competent to give instruction in drawing and painting, and I hope that his school will be well attended, and be the beginning of a widespread movement towards the study of the higher forms of art in the colonies.

EDWARD J. POYNTER, President of the Royal Academy of Arts, London.

Limnerslease, Guildford: January 27, 1903.

Dear Sir,—I like the idea of your scheme very much. There must be a fine opportunity of starting an original school of art, which may also have the merit of helping to bring together the late opponents in the war. I believe greatly in music and art as factors in co-operation and good-fellowship. I should be glad to aid, but do not see how I can; my age and my health exclude me from taking an active part in any under-

taking, so I can only send you my interest in your projected work and good wishes for its success.—Very sincerely yours,

G. F. WATTS.

Beavor Lodge, Hammersmith: May 3, 1903.

Dear Sir,—I have read the epitome of your scheme which has regard to the establishment of an art scheme, or schools, in South Africa.

In common with all other forms of education, an art training, as well as exhibitions of good pictures, must help to cement good-fellowship; the cause of the pursuit of beauty is always elevating, and more than that, because it tends to promote peace—peace which has as its basis the common ground of love for all that is enlightening and intelligent. I think that the idea of an exhibition of Dutch pictures is admirably peace-making. What we ought to show the Boers is, in my thinking, this, that a large section of the English people has the higher education much at heart, and that if the type of Colonials is not the highest, England, or that section of it to which I have alluded, is desirous for its elevation by the refining influence of both art and letters.—I am, dear Sir, yours faithfully,

W. B. RICHMOND.

ROMAN KILNS.

A PARTY consisting chiefly of members of the Lancashire and Cheshire Antiquarian Society recently visited Stockton Heath, near Warrington, to examine two potters' kilns recently uncovered near to the site of the Romano-British civitas. The kilns have been explored at the expense of the museum committee of the Warrington Corporation and under the superintendence of Mr. Thomas May, who has in recent years discovered fortifications, iron and glass furnaces, and the remains of a jeweller's shop in the same locality. The potters' kilns in question are of undoubted Roman origin, a silver coin of the Emperor Antoninus Pius, in fine condition, having been found by Mr. May on the floor in front of the firehole of one of the kilns at 4½ feet from the present surface, and the pottery being all of the soft unglazed ware extensively made in Britain during the Roman occupation. Two years ago a furnace forming portion of another of these kilns was found at the same spot. Those now uncovered very much resemble an old-fashioned washhouse boiler in shape, without the iron boiler or fire-bars. There is a fire-hole in front and a false bottom, supported by a central pillar, on which the pots were arranged for baking, and around the sides of the false bottom a series of holes for conveying the heat from the fire into the chamber all round the sides of the vessels. The kiln was loaded by a circular opening on the summit, which was then covered with loose flakes of clay-like rough tiles. The base of the kilns was on a layer of natural clay at about 5 feet to 8 feet down, which was probably the raw material used for making the vessels of common soft red and grey smoke-tinted ware in the shape of mortaria, ollæ, urnæ, pateræ and patellæ, of which a great quantity of fragments were found all round and inside the kilns. Some of the vessels were noticed to be of fine thin paste and graceful contour, ornamented with "engine turning" and "rough cast" round the lower portion of the bulge. The kilns are built up entirely of massive clay, and the most perfect of the two is 3½ feet high, the other being broken down to nearly the level of the false bottom. They were met with at 2 feet below the grass, and have now been covered in to prevent damage by unlawful intrusion into a private garden.

TESSERÆ.

Mediæval and Modern Restorations.

W usually read of the ruinous and dangerous condition of the old church, of its recent destruction by fire or the like, and on the other hand Professor Willis has taught us, in the cases of Canterbury choir and Winchester nave, how much of at least the substantial masonry of the former building was often preserved through the most extensive reconstructions. But we must remember, as it has been acutely observed, that massive stone walls do not burn, and when we see the state in which contemporary structures have come down to us safe and sound, we cannot help being tempted to interpret such phrases as "ruinous" and "dangerous" with very considerable latitude. The building to which they are applied probably often stood in need of a thorough repair and no more; we may feel quite sure that a modern bishop or chapter would be satisfied, on every ground, with simple repair and restoration, without any rebuilding or even remodelling. So, also, chroniclers desirous to magnify the fame of their patrons doubtless exaggerated their works, and often described as complete rebuildings alterations which left a considerable portion of the former building standing. How strictly we are to interpret the "notoriam et evidentem ruinam" of the former nave of Canterbury, its complete demolition forbids us

from ascertaining; but from the extensive portions of the Norman nave of Winchester still existing, we may feel tolerably certain that, had any of ourselves been in the position of Wykeham, we should have been contented with a substantial repair instead of that complete remodelling which gave birth to his glorious work. The Perpendicular recasting of the choir of Gloucester can have been little more than a whim; the mass of the Romanesque walls is hardly touched; there is only a Perpendicular network awkwardly thrown over them. Even when rebuilding was absolutely necessary, as when at Ely "the steeple in a night fell down upon the quier, making a most horrible and fearful noise," with our feelings we should rather have followed in the new structure as nearly as might be the type of its predecessor, whereas Alan de Walsingham "built it in such order as now we see it, a pece of worke both for cost and workmanship singular." Had the siege of Lichfield taken place in the troubles of the fifteenth instead of the seventeenth century, the destruction of the great spire would probably have been seized upon as the occasion of its re-edification in some entirely different form. Perhaps the truest way of putting it would be that our ancestors did not often make any extensive changes simply for the sake of the supposed improvement in the effect, but that they eagerly grasped the opportunity afforded by comparatively slight dilapidations to reconstruct portions of much greater extent than any necessity required.

Da Vinci and Raphael.

The various operations in the province of art of the two main motive forces of the Renaissance—the impulse towards the scientific study of nature and the impulse to reinstate the Classic spirit—may be best illustrated by special reference to Leonardo da Vinci, Raphael and Michel Angelo. Of the scientific impulse we see the fullest expansion in that miracle of many-sidedness, Leonardo. A never-sated hunger for knowledge in every form, a desire, ever burning, to lift up the veil from every secret of creation, possessed and marked him through life. The hidden mechanism of the bodies of men and of animals, the structure of plants, the ways of rushing waters and of wandering winds, and every riddle in the book of nature were objects of his ardent curiosity and unwearied study. How far beyond the horizon of his day his prescient spirit carried him along the fields of science in which art is not involved has been told elsewhere. But we cannot in this strange man separate the scientific investigator from the artist. In his moody and fitful spirit, unrestingly straining forward in the quest of some intangible, new perfection, it was the same haunting sense of mysteries unsolved that led him, now towards scientific prophecy and now to the creation of a type of human beauty more subtle and complex than any the world had seen before. The influence of the revival of classicism, both in its spirit and as a form of æsthetic expression, is seen at its meridian in Raphael. To him the knowledge of such masterpieces of ancient sculpture as were brought again to the light in his day came when his precocious gifts were already about to reach maturity, and their example found a fruitful soil in his singularly well-poised genius, fitted as it was with a stately sense of beauty and chastened by a mind of rare refinement. Whatever was best in the Classic spirit was absorbed and eagerly assimilated by him, and imparted to the work of his best day that rhythm, that gentle gravity and that noble plenitude of form which are its stamp, and proclaim him the brother of Mozart and Sophocles.

Influence of Byzantine Painting.

The art of modern Europe at the beginning was a direct offshoot from Greek art, as modified by the influences of the "lower" or Byzantine empire—influences, we may note by the way, to which Western civilisation was infinitely more indebted in every direction than Western pride has commonly allowed. Without entering upon the question of antique art, we may safely aver that, owing to the peculiar direction of the Byzantine mind, painting had been gradually elevated and narrowed to the expression of religious facts or feelings, whilst sculpture disappeared almost entirely under the prevalence of the "iconoclastic" sentiment. The technical methods, however, of painting, and the general idea of treating a subject, were still those which had been handed down by tradition from the days of free Hellas. Art, thus conceived and practised, held by but a slender thread to its proper and natural sphere. As the means of conveying a certain class of pleasure by the representation of all pictorially representable things, it had almost no existence. We call it art, yet it was only another mode in which theology reproduced itself. Under these conditions painting migrated to Italy towards the beginning of the twelfth century—that great European revolutionary epoch in which the main principles of the Renaissance were really, though often unconsciously, developed. Immediately, therefore, a remarkable change began to pass over the art which had made its way from the East. There, we repeat, it had not only restricted its functions to performing the part of a handmaid and interpreter of theology, but in so doing all effort on

the part of the artist, with all wish to distinguish himself individually, had well-nigh vanished. The whole design of every subject, down to its smallest details, had been long elaborated, and could not be deserted without danger of heterodoxy. One painter was, consequently, as good as another for the task required from art; and this peculiar stationary position has, as is well known, been prolonged in the East and in Russia (the barbarian caricaturist of Byzantium) to the present day. In the West, art at once felt the stirring atmosphere of what we may roughly characterise as Teutonic free thought. It was vivified; but the vitality infused carried with it the seeds of its own decay; the decadence of the sixteenth century was implicitly contained in the dawn of the thirteenth. At first, however, this decay was invisible and unthought of. Painting, now reinforced by sculpture, retained its original impulse. Its office was, not to represent all things that are representable, not to give pleasure by such representation, but to aid religion and morality; to inspire the meditations of the cloister; to re-echo the lessons of the preacher; to colour this life with images of another. For a certain time in Italy, for a certain time in Swabia and the valley of the Rhine (the word Germany would imply far too large an area), these ends were carried out with a completeness and a variety which the Byzantine parent of the European schools never reached. So far as we know, the "religious idea" was at no time, not even in early Hellas, expressed with the energetic naïveté of Giotto, the exquisite intensity of Angelico, the spiritual insight of Buonarrotti. But these splendid names, marking the progress of individual genius in the art, mark also the signs of the inevitable decline of art under its original impulse. Painting cannot at once be the handmaid of theology and the expression of the idiosyncrasies of the painter. When what is thought of is the progress of a school, the style of an individual artist, there will soon be an end of religious interpretation, of devotional incitement. The Virgin of St. Sixtus may invite and receive the worship of the connoisseur; but the long gaze of ecstasy, the sigh of passion, are reserved for the dingy Madonna, huddled in brocade and garlanded with tinsel.

Catania, in Sicily.

The main interest of Catania is not antiquarian; it is before all things the city of lava, the city at the foot of Ætna. The one object which, in a cursory view of the modern-looking town, carries us back to any of the great times of Sicilian history is the fragment of the Norman or Saracenic minster, the three black apses of Count Roger. Catania has no Hellenic temples like Syracuse, no Mediæval palaces like Palermo. The Greek city has vanished; so has the Saracen city; so has the Norman city, all but that one ecclesiastical fragment and that castle of Frederick II. which does not show itself as we pass through the chief streets of the modern town. The lava has covered a considerable part of the once habitable city; it has choked up the haven where Magôn displayed the trophies of Phœnician victory, and into which Pyrrhos sailed in triumph, greeted with rejoicings and golden crowns as the deliverer of Greek and Italian alike from the Phœnician yoke. Small indeed is now the haven of Catania, but except where the lava has ruled otherwise, the extent of the city has not very greatly changed in Roman, Mediæval and modern times. Grass grows in some of the streets, but there are no visibly forsaken ancient quarters, as at Rome and Syracuse, nor has the modern town so greatly outstripped the ancient boundaries as in many other cities. We may fairly say, as we walk through modern Catania, that Roman Catina is still there below the ground. And, indeed, a little search will show that a good deal of Roman Catina is left above ground also. The city is positively rich in remains of that one age, her Roman colonial age. Only there is no one object to stand out and give a character to everything, like the theatres of Tauromenion and of Orange. And yet, in one way of looking at it, Catania is rich, above almost all other cities, in this particular article of theatres. Arles has its theatre and amphitheatre far outshining their Catanian rivals, but Catania has further, what Arles cannot boast, its lesser theatre, its Odeion, hard by the greater. Now it is in the theatres that we are to seek, if anywhere, for remains of the Greek city. And as we stand in the Catanian theatre we would, of course, gladly believe that these are the very seats on which the hearers of Alkibiadês sat. But it is unlikely that any building can have stood through the eruption of B.C. 123, and nothing is more certain than that all the architectural features of the building are of Roman work. Still, there is no reasonable ground for doubting that the site and extent of the present building date from Hellenic times. Professor Holm rules in favour of the antiquity of the lava-wrought watercourse at the bottom of the seats. We may say the same of the Odeion beside the theatre. It stands a precious fragment, though in its present state a little hard to examine, and by it lies a vast fragment of itself, a mighty mass of Roman masonry blown up by a private possessor whose tale Professor Holm has not failed to put on record.

The Düsseldorf School of Painting.

There is scarcely a painter of note, hardly a phase—whether Christian and spiritual, or realistic and naturalistic—in the history of modern German art which has not been more or less intimately connected with Düsseldorf. The great Cornelius—termed by some the Goethe of the art of painting—was born at Düsseldorf, and to Cornelius, a man conspicuous from his youth up for large comprehensive intellect, the Academy of Düsseldorf owed its resuscitation, and art in general that signal revival of which Munich, Berlin and other chief cities give signs in our times. This giant, the Michel Angelo of Germany, gathered around him a compact band of scholars, ardent as himself for the revival of fresco-painting. The new school received timely encouragement from King Ludwig in a commission to decorate the then recently erected Glyptothek in Munich. The cartoons for this arduous work were prepared during the winter months in Düsseldorf, and then when summer came masters and pupils went to the Bavarian capital to carry out the frescoes. In like manner at Coblenz, Bonn and the Castle of Heltorf, "monumental art" got a fair start; thus the Italian method of fresco-painting learnt by Cornelius, Schadow, Veit and Overbeck in Rome, having been transplanted to Düsseldorf, took root throughout Germany. Yet it was not without difficulty that the young school of Düsseldorf struggled into life and paid its way. The fame of the Academy became so great that pupils flocked in from all parts, but success brought with it perplexity. Genius became in excess of the demand, the market was overstocked. The secret had been discovered whereby high art could be manufactured wholesale, and yet for the commodity when produced no purchasers were forthcoming. Fortunately King Ludwig was ready for the rescue. Moreover, the emergency called into existence the famed "Kunstverein für die Rheinlande und Westphalen," an art-union localised within the Academy, with the express purpose of subsidising works which proved in advance of public taste. It is interesting to know that this Kunstverein on its twenty-first anniversary was able to announce that, in addition to 900 great and small pictures distributed by lottery, it had been the means of securing to churches both Protestant and Romish, to museums and public buildings, twenty-seven altar-pieces and eleven large oil-pictures. Among the works thus fostered are the famous frescoes from the history of Charlemagne in Aix-la-Chapelle; also may be mentioned a masterpiece by Overbeck now in Cologne Cathedral; likewise Professor Keller's engraving—the largest in line ever executed—of Raphael's *Disputa*. Düsseldorf, indeed, has long been a chief centre for the publication of religious prints engraved from pictures by the best known painters in the Düsseldorf "Christian school." Such are among the means taken to educate the people of Germany up to the standard of high art. In fact Düsseldorf does as much for religious art in a twelvemonth as London in a century.

Building Easements in Roman Law.

A summary remedy provided by the edict against a person who was making an opus novum was known as operis novi nuntiatio. An opus novum consisted in either adding something in the way of building or taking away something so as to alter the appearance of a thing. The object of the nuntiatio was either the maintenance of a right, or to prevent damage or to protect the public interest. The owner of the property which was threatened with damage by the opus novum or he who had an easement in such property had the jus nuntiandi. Nuntiatio consisted in protesting against and forbidding the progress of the opus novum on the spot where the work was proceeding and in the presence of the owner or of some person who was there present on his account. The nuntiatio did not require any application to or interference on the part of the prætor. It was a rule of law that the nuntiatio must take place before the work was completed; after it was completed the operis novi nuntiatio had no effect, and redress could only be obtained by the interdict quod vi aut clam. If the opus novum consisted in building on the complainant's ground or inserting or causing anything to project into his premises, it was better to apply at once to the prætor or to prevent it per manum; that is, as it is explained, "jactu lapilli," which was a symbol of the use of force for self-protection. The edict declared that after a nuntiatio nothing should be done until the nuntiatio was declared illegal or a security was given. If the person to whom the notice was given persevered, even if he had a right to do what he was doing, yet as he was acting against the prætor's edict he might be compelled to undo what he had done. By the nuntiatio the parties were brought within the jurisdiction of the prætor. In cases where there was danger from the interruption of the work, or the person who was making the opus novum denied the right of the nuntians, he was allowed to go on upon giving a cautio or security for demolition or restoration in case the law was against him. When the cautio was given or the nuntians waived it the party was entitled to an interdictum prohibitorium for his protection in prosecuting the work. The effect of the nuntiatio ceased when the cautio was

given, when the nuntians died, when he alienated the property in respect of which he claimed the jus nuntiandi, or when the prætor permitted the work to go on.



Registration and the Institute Election.

SIR,—I had little idea when, at the request of others, I took up this question, that it would lead to so much correspondence, and, in two or three instances, so much resentment. But this I shall in a measure disregard. I am dealing with a public question, affecting not only the vital interests of our profession, but also those of the public at large. I contend that we have a right to know the views of every candidate for a representative position before we cast our vote, and from that I shall not swerve. I hold out no threats; I don't say who I shall vote for. I claim my right to exercise the ballot that is given to us under the constitution of the R.I.B.A., after I have ascertained the attitude assumed by each candidate for my suffrage. I will do my best to place other members in the same position in regard to facts before they give their votes, but without indicating any preferences, as my desire is that all may cast their ballot as they please, after a proper disclosure of the facts. This circular might not possibly have been issued but for the letters of Messrs. Grüning and Carøe. After that I had no choice, and so beg now to give the correspondence up to date.

In consequence of the volume of inquiry I have had as to how other candidates for the Council would act on the registration question, I issued my circular letter of the 19th, and to this I have received the replies which are given below.—Yours faithfully,

SILVANUS TREVAIL.

Palace Chambers, Westminster, S.W.:
May 25, 1903.

(Copy of circular letter sent to each nominee for the Council.)

R.I.B.A. ELECTIONS.

Palace Chambers, Westminster, S.W.: May 19, 1903.

Dear Sir,—I observe by the list issued by the Secretary that you have been nominated for the Council.

Before filling up and returning my voting paper I shall be glad if you will kindly inform me whether you are in favour of the statutory registration of duly qualified architects or not?

I enclose a stamped addressed envelope for reply.—Yours faithfully,

(Signed) SILVANUS TREVAIL.

6 Montagu Place, Baker Street, London, W.:
May 20, 1903.

Dear Sir,—In reply to yours of yesterday's date, I write to say that I am in favour of the statutory registration of duly qualified architects if the measure is undertaken by the Institute.—Yours faithfully,
ARTHUR C. BLOMFIELD.

To Silvanus Trevail, Esq., F.R.I.B.A.

3 Verulam Buildings, Gray's Inn, London, W.C.:
May 20, 1903.

Dear Sir,—In reply to your inquiry of yesterday's date. My attitude with regard to statutory registration would depend entirely upon the details of any proposal which might be brought forward, and especially as to what is intended by the words "duly qualified."

In any case I can see no objection to the principle of registration, though I conceive the difficulties of framing a satisfactory scheme to be very great. I am disposed to think that the time has come for the Institute to make a definite pronouncement on the subject.—Yours truly,

JOHN W. SIMPSON.

Silvanus Trevail, Esq., F.R.I.B.A.,
Palace Chambers, Westminster, S.W.

11 Gray's Inn Square, W.C. (and Bancroft, Hitchin):
May 20, 1903.

Dear Sir,—In reply to your letter of yesterday's date, I am of opinion that no one should be allowed to practise as an architect without a Government diploma.—Yours faithfully,

S. B. RUSSELL.

Silvanus Trevail, Esq.

4 Adam Street, Adelphi, London: May 20, 1903.

Dear Sir,—In answer to your letter, I have in the past been more or less opposed to a measure for the statutory registration of architects, largely because I have been of opinion that such a measure would not be of real use.

However, my friend Mr. Cross and others with whom I am working for a common policy are very much in favour of registration, and I have therefore undertaken to sink my objections (such as they are) and work with them in this particular too.—Yours faithfully, HERBERT W. WILLS.
Silvanus Trevail, Esq.

i Vernon Place, Bloomsbury Square, London, W.C.:

May 20, 1903.

Dear Sir,—I do not think you would consider that I was in sympathy with your views on registration.—Yours faithfully,
S. Trevail, Esq. F. W. LANCHESTER.

18 Maddox Street, W.: May 20, 1903.

In reply to Mr. Trevail's inquiry, Mr. Ernest George begs to say that he is decidedly opposed to the scheme of statutory registration.

44 Parliament Street, Nottingham: May 20, 1903.

Dear Sir,—In answer to your letter of the 19th inst., I desire to inform you that I am strongly in favour of the statutory registration of qualified architects.—Yours faithfully,
A. W. BREWILL.

To Silvanus Trevail, Esq.,
Palace Chambers, Westminster, S.W.

6 Princess Street, Manchester: May 20, 1903.

Dear Sir,—Replying to your favour of May 19, I think you know I am not only in favour of statutory registration but also competition reform.—Yours very truly, CHAS. HEATHCOTE.
Silvanus Trevail, Esq.

58 Conduit Street, Regent Street, W.: May 20, 1903.

Dear Sir,—I am heartily in favour of the statutory registration of architects.—Yours faithfully, ALFRED W. S. CROSS.
Silvanus Trevail, F.R.I.B.A.

11 Dowgate Hill, Cannon Street, London, E.C.:

May 20, 1903.

Dear Mr. Trevail,—In reply to your letter, you will remember that we discussed the question of statutory registration the other night, and until I see the Bill proposed to be introduced it is impossible for me to express an opinion beyond this, that if every person who now * dubs "Architect" after his name is to be placed on the register, as was the case with dentists before they got their charter, I could not support it.—Yours faithfully, J. DOUGLASS MATHEWS.

Silvanus Trevail, Esq.,
Palace Chambers, Westminster, S.W.

3 Scroope Terrace, Cambridge: May 21, 1903.

Dear Sir,—I am afraid that we are not agreed on registration question.

I cannot vote for you, so pray do not vote for me.—Yours truly, W. M. FAWCETT.
S. Trevail, Esq., F.R.I.B.A.

180 New Bond Street, London, W.: May 21, 1903.

Dear Sir,—Replying to your note of the 19th inst., my mind is perfectly open on the subject you mention.—I am, yours very truly, WM. FLOCKHART.

Silvanus Trevail, Esq., F.R.I.B.A.

29 New Bridge Street, Ludgate Circus, London, E.C.:

May 21, 1903.

Dear Sir,—In answer to your inquiry of 19th instant, I am decidedly in favour of the statutory registration of duly qualified architects.—Yours faithfully, F. R. FARROW.
Silvanus Trevail, Esq.

7 Dawson Street, Dublin: May 21, 1903.

Dear Sir,—Referring to your circular of the 19th, I am in favour of the statutory registration of duly qualified architects as a general principle. The want of a clear definition of what an architect is is greatly felt in Ireland, especially in relation to appointments by local councils under the control of the Local Government Board. I have already expressed my views on this matter in response to a previous circular, and reserve my right to keep an open mind on the question until the provisions are more clearly defined.—I am, yours faithfully,
G. C. ASHLIN, F.R.I.B.A., R.H.A.

Silvanus Trevail, Esq., F.R.I.B.A.

* This is strictly provided against by the Bill now before Parliament.—S.T.

20 New Cavendish Street, Portland Place, W.:

May 21, 1903.

Dear Sir,—During eleven consecutive sessions of the R.I.B.A. I have occupied a seat on the Council, and I have done so in an entirely independent attitude. If therefore I decline to give you a definite answer to the question which you have every right to ask, it is neither out of discourtesy to yourself nor from lack of interest in any matter that concerns the welfare of our Institute and our profession. My feeling on such questions is that our elections not being Parliamentary elections on party lines, there is happily no reason for candidates to pledge themselves unalterably to the views of any body of constituents. In other words, I have preferred to feel, when elected, that I was at liberty both to use my own judgment and to listen to the reasonable arguments of those with whom I may not hitherto have agreed.

But that you may not consider me altogether incapable of an opinion in the present matter, I may inform you that I have no sympathy with any Registration Bill hitherto drafted and no personal wish to be a registered architect.—I am, dear Sir, yours faithfully, PAUL WATERHOUSE.

To Silvanus Trevail, Esq.

St. John Street, Newcastle-on-Tyne (and Bishop

Auckland): May 21, 1903.

Dear Sir,—Thanks for your letter of the 19th inst. I am in favour of the statutory registration of duly qualified architects, but think it should be carried through by the Institute. If elected on the Council I shall be pleased to support you in your efforts to bring this about. The matter has not been officially brought before the Northern Architectural Association Council, but from conversations I have had with several of the members of that body, I find they share my views.—Believe me, yours faithfully, J. W. TAYLOR.

Silvanus Trevail, Esq., F.R.I.B.A.

25 Gresham House, Old Broad Street, E.C.:

May 21, 1903.

Sir,—I have duly received yours of the 19th inst., from which I understand that I shall not have the benefit of your support at the coming election unless I at once state whether or not I am in favour of the statutory registration of duly qualified architects.

Under no circumstances should I commit myself to any such statement without the fullest and most careful consideration, and I feel bound to observe also that in no case would I associate myself with any party canvassing for election (in itself, as I think, a most undesirable proceeding) whose methods were similar to those adopted by you, and which I consider to be detrimental to the character of any member of an honourable profession.

I hold myself at liberty to make any use I may think fit of this correspondence.—I am, your obedient servant,
Silvanus Trevail, Esq. EDW. A. GRÜNING.

(Copy.)

STATUTORY REGISTRATION OF QUALIFIED ARCHITECTS.

Palace Chambers, S.W.: May 22, 1903.

Sir,—I beg to acknowledge the receipt of your favour of the 21st inst.

There is nothing in my letter of the 19th inst. indicating that I should withhold my vote from any honourable, straightforward opponent, and you will perhaps, on reflection, pardon me if I take the liberty to say that you are not quite justified in making the inference you do in the first paragraph of your letter. It is not always wise to jump hastily at conclusions.

I submit, sir, in all humility, that you have no right to charge me with "canvassing." To state definitely and decisively one's views upon a question which the majority of the profession believe to be of vital consequence, not only to themselves but to the public at large, and to say to each member of the Institute, if you agree with my views on this question, then vote for me, but if you do not, then vote against me—is one thing; but to "canvass," in the objectionable sense of the term, is quite another.

Unless there be a declaration of views on both sides how can any council call itself representative? And which is the more derogatory to an honourable profession—for a would-be representative to give his views openly and frankly before an election and take his chances upon them for what they are worth, or to withhold his views until the election is over, and then to act in direct opposition to what he knows to be the wishes of the majority of his constituents?

To be fair in this correspondence you will, of course, give me a straightforward reply to this question.

I thank you for the expression of your opinion as to what is detrimental, and what is not, to the character of members of an honourable profession. You are entitled to your views upon this subject, as I am entitled to mine, and it will be for

the majority of the members of the Institute to say which view they prefer and support. My only regret is that the voting papers will have been mostly returned before your views can have been known.

Like yourself, I not only hold myself at liberty "to make any use I may think fit of this correspondence," but I shall take steps at once to publish it, not in ill temper or bad feeling, but in what I believe to be the best interests of the profession and the Institute.—I am, Sir, your obedient servant,

SILVANUS TREVAIL.

To Edward A. Grüning, Esq., F.S.I., F.R.I.B.A., &c.,
25 Gresham House, E.C.

8A Whitehall Place, London, S.W.: May 20, 1903.

Sir,—It seems to me that your proceedings in reference to your candidature for election upon the R.I.B.A. Council are not such as to entitle you to any reply to your letter of May 19, 1903.

To me they appear to be wholly derogatory to membership of an honourable profession, and I reserve to myself the right to make such use as I may think fit of your letter and my reply.—I am, yours truly,

W. D. CARÖE.

S. Trevail, Esq.

(Copy.)

STATUTORY REGISTRATION.

Palace Chambers, Westminster, S.W.: May 22, 1903.

Sir,—I am much surprised at the discourteous tone of your letter. I shall be glad if you will kindly explain wherein "my proceedings have been wholly derogatory to membership of an honourable profession," or to withdraw such an offensive allusion. I contend most respectfully that I or any other member of the R.I.B.A. have a perfect right if we please to bring to the front any question that we either rightfully or mistakenly believe to be of vital consequence to the profession, and to take all legitimate and fair means of doing so. How is the general body of the membership of the Institute to know who they wish to vote for unless the views of those nominated for the Council are expressed, and how can the latter claim to be representative without this? The question of registration is not a personal matter to show temper and spite upon, but one vitally affecting the interests of the general public, as well as those of the profession to which we belong. If you allow your name to appear as one of my would-be representatives on the Council I maintain that I have the right to ask you what your views are upon an all-important question before I entrust you with my franchise. I desire your reply to this, and, like you, claim the right of making what use of the correspondence that I think proper.—I am, sir, your obedient servant,

SILVANUS TREVAIL.

To Wm. D. Caröe, Esq., M.A., F.S.A., F.R.I.B.A., &c.,
8A Whitehall Place, S.W.

243 St. Vincent Street, Glasgow: May 22, 1903.

Dear Sir,—Yours received on my return this morning. I am in favour of architects being duly qualified and registered, and wish I could see and devise some way in which it could be done.—Yours truly,

HORATIO K. BROMHEAD.

Silvanus Trevail, Esq., F.R.I.B.A.

Leicester: May 23, 1903.

Dear Sir,—I have a perfectly open mind on the question of the registration of architects, but honestly I am not yet convinced.—Yours truly,

ARTHUR WAKERLEY.

Silvanus Trevail, Esq., F.R.I.B.A.,

Palace Chambers, Westminster, S.W.

46 Lincoln's Inn Fields, London, W.C.:
May 22, 1903.

Dear Sir,—As I read the paper on the "Statutory Education of Architects" which originated the recent movement, assisted in drafting the present Bill, and have never lost a fitting opportunity of advocating my views on this subject, both at the R.I.B.A. and the Architectural Association, as well as in public, you will need no further evidence of my attachment to the idea.—Yours faithfully,

W. H. SETH-SMITH.

Silvanus Trevail, Esq., F.R.I.B.A.

6 Millstone Lane, Leicester: May 23, 1903.

Dear Sir,—I am in favour of registration, but I consider that the R.I.B.A. is the only body who ought to promote a Bill upon such a matter.—Yours faithfully,

Silvanus Trevail, Esq.

S. PERKINS PICK.

35 Park Street, Bristol: May 23, 1903.

Dear Sir,—In reply to your inquiry, may I say that the statutory registration of architects, qualified on examination, appears to me to be desirable, and I should probably give any vote

I might have in its favour should the question be entertained by the Institute.—Yours very truly,
Joseph Wood.

Silvanus Trevail, Esq., F.R.I.B.A.

Charles Street Chambers, Cardiff: May 23, 1903.

Dear Sir,—In reply to your letter of the 19th inst., I beg to say that I am in favour of the statutory registration of all duly qualified architects.—Yours faithfully,
DAVID MORGAN.

Silvanus Trevail, Esq., Westminster.

The other gentlemen nominated have made no reply.—S.T.

GENERAL.

A Memorial Statue of Charles Sellier, the Lorraine painter, was unveiled last week at Nancy. The sculptor was M. Finot.

The London County Council have decided that the elevations of the new buildings in the Strand, Aldwych and Kingsway must be "such as the Council shall approve as worthy of the position."

A Hostel is proposed to be established in Paris for the benefit of Russian students of art. The chief feature will be a large atelier to be used as a studio, a meeting-place and an exhibition gallery.

The First Commissioner of Works has stated that when the sanitary works now in progress at the Palace of Holyrood are completed it will be a suitable residence for the Sovereign on any future visit to Edinburgh.

A Circular has been issued by the Irish branch of the Surveyors' Institution drawing attention to the extremely critical position in which the Irish land agents will be placed when the Irish Land Bill now before Parliament comes into operation. It is pointed out that one result of the measure will be the extinction of the land agents' profession and their consequent financial loss, which in many cases will amount to ruin, and this through no fault of their own; indeed, the more actively they assist the working of the Act the sooner their extinction will occur.

M. Paul Soyer, a French painter, died last week. He was a native of Paris and studied under Cogniet. He devoted himself to scenes from the life of rustics and labourers. One of his principal works was *The Ironworkers' Strike*, which was suggested by a poem by M. Coppée.

The Late Professor Roger Smith has left property which has been valued at 6,741*l*.

Mr. John Wheeler, builder, of Wantage, who was often employed by the Ecclesiastical Commissioners, has died in his eightieth year. He restored about sixty churches.

The Phoenix Park, Dublin, is not called after the fabulous bird, for the name is derived from an Irish phrase expressive of clear water. When the Earl of Chesterfield was the Lord-Lieutenant in the eighteenth century he set up a column surmounted by a gilded figure of the phoenix. As it is supposed to be an obstruction an effort is being made to have the column removed.

Mr. F. W. Ruckstuhl, the New York sculptor, is engaged upon the model for a colossal "National Peace Monument." Two and a half million dollars have been privately subscribed for the monument, which will be erected on the bank of the Hudson river. Its main feature will be an Ionic column 600 feet high, resting upon a two-storey building, which in its turn stands upon a platform 300 feet square. On the top of the column a glass globe, 40 feet in diameter, will serve the purpose of a lighthouse.

The Estate of the late Mr. A. Marcet, of Greenhithe, has been proved at 87,338*l*. 16*s*.

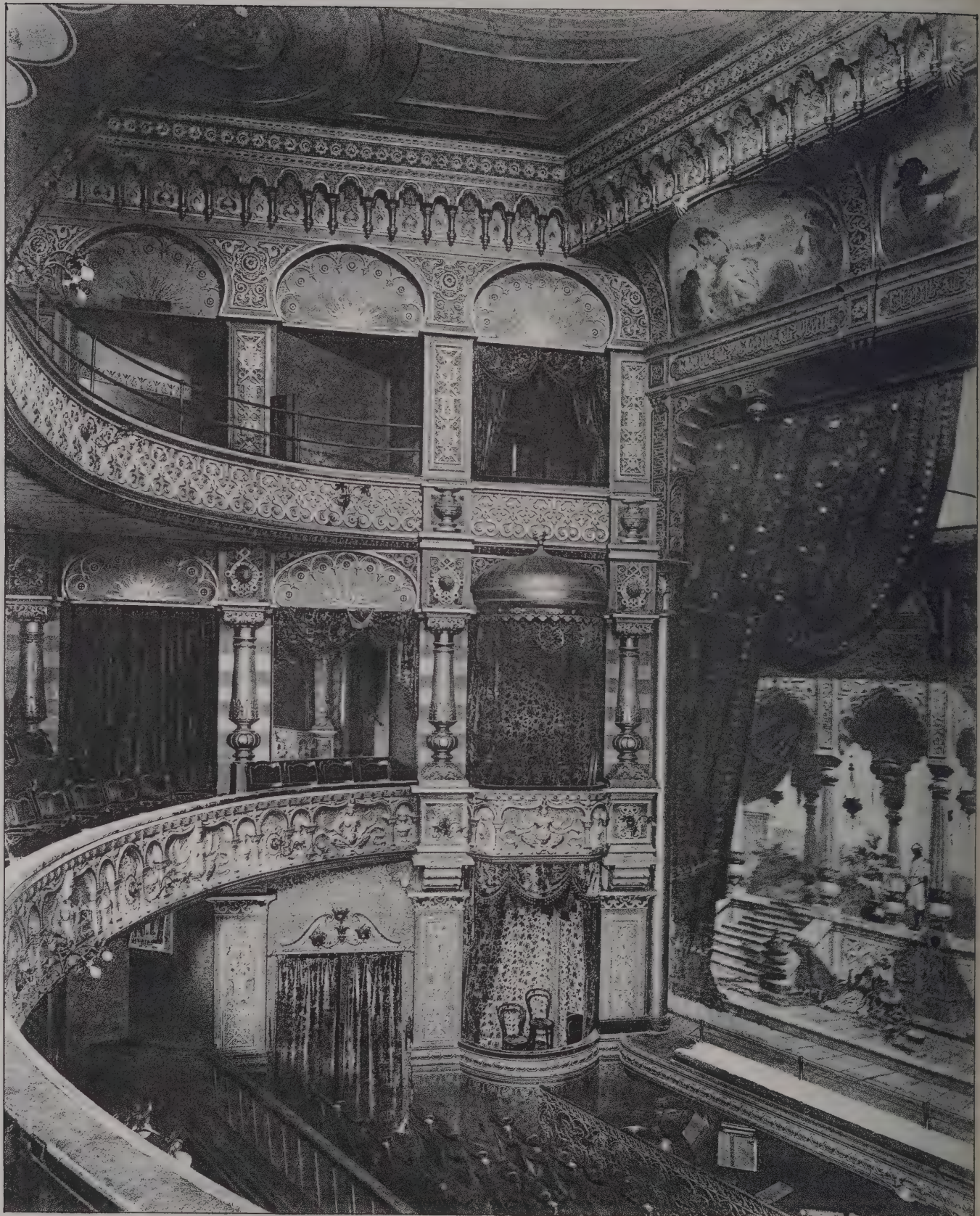
An Innovation will be introduced at the ceremony of laying the foundation-stone of the Carnegie Library, Hartlepool. The Patent Victoria Stone Company, Ltd., are supplying their material for the building. The foundation-stone will also be a specimen of Patent Victoria Stone, and there is no doubt it will be found in good condition should a search be necessary at a remote time.

A Site has now been fixed upon for another Glasgow public library for Bridgeton and Calton districts. The architectural assessor is Mr. Horatio K. Bromhead, F.R.I.B.A., the president of the Glasgow Institute of Architects. At his suggestion the Corporation have added premiums of 50*l*., 30*l*. and 25*l*. for the best designs in the competition. This will be the sixth district library in Glasgow with Mr. Bromhead as architectural assessor.

The Northern Architectural Association will hold a meeting on Wednesday next, June 3, when the Conssett Iron Company's works will be visited.

A Series of water-colour drawings of the inundated temples of Philæ and of other parts of Egypt, by Fredk. F. Ogilvie, will be exhibited at the Modern Gallery, 175 Bond Street, during June. The private view takes place on Saturday, June 6.

The Architect, May 29th 1903.



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METROPOLE THEATRE, CAMBERWELL.

W. G. R. SPRAGUE, Architect.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



9th 1903.



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y of Art, Glasgow.



The Architect, May 29th 1903.



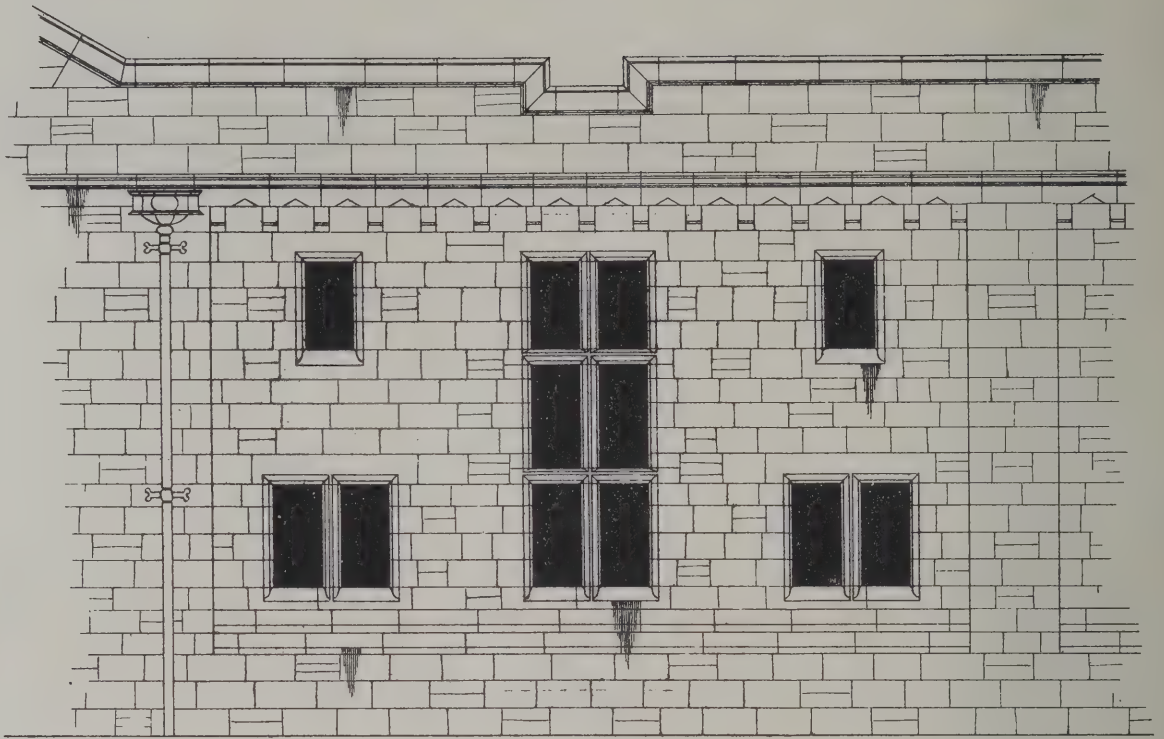
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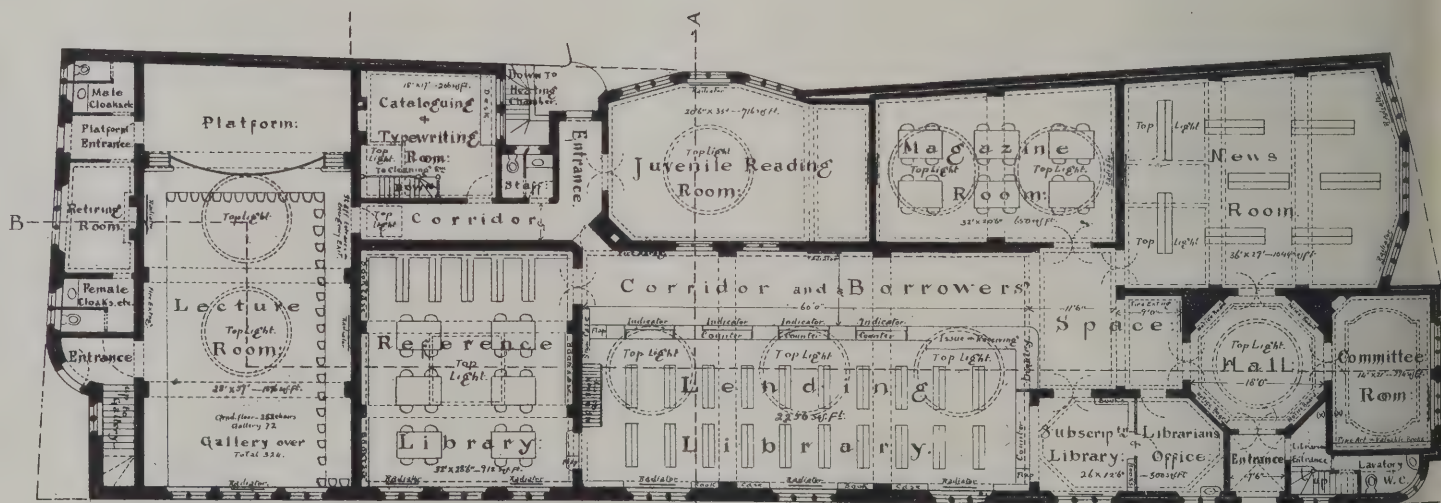
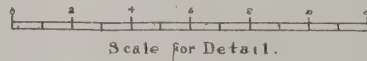
LYCEUM THEATRE, SHEFFIELD.

W. G. R. SPRAGUE, Architect.

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Half-inch Detail of part of Elevation to Finkle St.



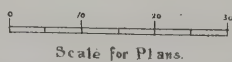
The Lecture Room with Retiring Rm etc is proposed to be built later at an additional cost of not more than £3,000—:

Ground Floor Plan:

A door at 6000 out of Committee would enable members to use the Librarian's Lavatory in the arrangement required.

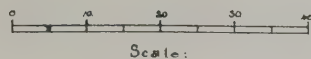


Basement Plan:

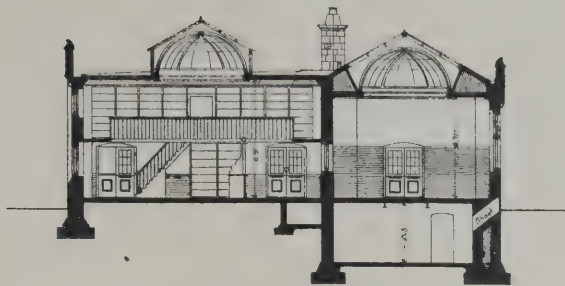


Caretaker's or Librarian's Apartments

First Floor Plan:



Scale:



Cross Section A-A:



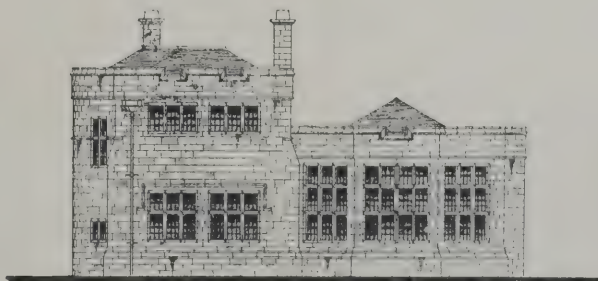
Longitudinal Section B-B:



Elevation to Finkle Street:



Elevation to Warwick Road:



Elevation to Vulcan Lane:

The Architect, May 29th 1903.





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CATHEDRAL SERIES, No. 445.—WORCESTER: LOOKING INTO NORTH TRANSEPT.

THE
Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BRIDLINGTON.—June 19.—Schemes are invited for providing the village of Flamborough (1,000 inhabitants) with an efficient supply of water. Mr. John B. Simpson, clerk, Rural District Council, Bridlington.

CROYDON.—June 9.—Competitive designs and estimates are invited for a children's home and two relief stations to be erected in Croydon. A premium of £15 15s is offered for the best design for the children's home and £10 10s for the second best, and a premium of £10 10s is offered for the best designs for the two relief stations. Mr. Harry List, clerk, Union Offices, Mayday Road, Thornton Heath.

IRELAND.—June 18.—The Trustees of the Limerick free library and museum invite designs from architects in independent practice for the proposed Carnegie library and museum to be built in the People's Park, Limerick. Prizes of 75% and 25% respectively will be awarded to the designs placed first and second in the competition. Mr. W. M. Nolan, town clerk, Town Hall, Limerick.

POPLAR.—June 23.—Competitive designs are invited for a public library to be erected in Cubitt Town, Poplar, E. A premium of 75% is offered for the design accepted by the

Council, which will be deducted from the architect's commission should he be employed as architect in the execution of the work. Mr. Leonard Potts, town clerk, High Street, Poplar.

SCOTLAND.—June 13.—Competitive plans are invited for the formation and laying-out of ground for new cemetery at Wellhall, extending to about 9½ acres. Mr. A. L. Smith, 25 Duke Street, Hamilton.

TAUNTON.—July 20.—Competitive designs are invited for a library building to be erected in Corporation Street, at a cost not exceeding 5,000*l.* inclusive. Premiums of 30*l.*, 20*l.* and 10*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. George H. Kite, town clerk, Municipal Buildings, Taunton.

WALES.—June 2.—A premium of 20*l.* is offered for the best plan and design for a library at Abergavenny, Monmouthshire. Mr. E. H. Restall, librarian.

CONTRACTS OPEN.

ALTRINCHAM.—June 10.—For additions and alterations to the county police station at Altrincham, Cheshire. Mr. H. Beswick, county architect, Newgate Street, Chester.

BARNES.—June 12.—For the erection of four shops, High Street, Barnes. Messrs. F. & W. Stocker, architects, 90 and 91 Queen Street, Cheapside, E.C.

BARNSTAPLE.—June 2.—For the erection of a residence on an estate adjoining the Tawton Road. Mr. W. C. Oliver, architect, Barnstaple.

BOSTON.—June 3.—For the erection of a villa to be built at Bicker, near Donnington and Boston, Lincs. Mr. H. Kidd, Kirton.

BRADFORD.—June 3.—For the erection of sixty-six workmen's dwellings at Faxfleet Street, West Bowling. Mr. F. E. P. Edwards, city architect, Whitaker Buildings, Brewery Street, Bradford.

BRIXHAM.—June 16.—For rebuilding the Buller's Arms inn, at Brixham, Devon. Mr. Fred Wm. Vanstone, architect, Palace Chambers, Paignton.

BURNLEY.—June 6.—For the erection of laundry and workshops. Messrs. Keighley, architects, Nicholas Street Burnley.

BURSLEM.—June 9.—For the erection of a branch post-office at Burslem, Stoke-on-Trent. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

CAMBORNE.—June 12.—For the erection of two dwelling-houses of six rooms each at Penponds, Camborne, Cornwall. Mr. W. Raven, Praze, Crowan.

CARLISLE.—June 5.—For the rebuilding of retaining sea-wall in concrete, and alternatively in rubble, at Castletown, Rockliffe. Mr. John William Kirsopp, highway surveyor, 18 Hart Street, Carlisle.

CARLISLE.—June 8.—For alterations to 7 Victoria Place. Mr. Joseph Graham, architect, Bank Chambers, Bank Street, Carlisle.

CHICHESTER.—For repairs to the spire and tower of the parish church, Bosham, near Chichester. Messrs. Colson, Farrow & Nisbett, architects, 45 Jewry Street, Winchester.

CLEETHORPES.—June 3.—For the erection of Council offices, Cleethorpes, near Grimsby. Mr. Herbert C. Scaping, architect, Court Chambers, Grimsby.

COPMANTHORPE.—June 3.—For the erection of station buildings, warehouses and weigh offices at Copmanthorpe, Bolton Percy and Ulleskelf, for the North-Eastern Railway Co. Mr. William Bell, the company's architect, York.

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DEVONPORT.—June 6.—For the erection of a farmhouse at Torpoint, on the Antony Estate. Mr. W. J. Carder, architect, 8 Athenæum Terrace, Plymouth.

DUBLIN.—June 8.—For the erection of two platelayers' cottages near Beauparc, and three platelayers' cottages at Killester, near Ralleny, for the Great Northern Railway Company (Ireland). Mr. T. Morrison, secretary, Amiens Street Terminus, Dublin.

EAST ARDSLEY.—June 11.—For the erection of branch store and house at East Ardsley, Yorks. Messrs. R. Castle & Son, architects, London City and Midland Bank Chambers, Cleckheaton.

EYEMOUTH.—June 8.—For the erection of latrines at Eyemouth (Berwickshire) public school. Mr. J. Donaldson, Parish Council Office.

FINCHLEY.—June 2.—For the erection of a sorting office at Church End for the Commissioners of H.M. Works and Public Buildings. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

FOLESHILL.—June 1.—For alterations and additions at Foxford Board schools, Foleshill, near Coventry. Mr. T. F. Tickner, architect, High Street Chambers, Coventry.

GORRON.—June 6.—For the erection of a bullocks' house, with barn over, and a root-house, at Treveage farm, close to Gorron Haven, Gorron, Cornwall. Mr. F. C. Jury, architect, St. Austell.

GRIMSBY.—June 4.—For the erection of lavatory at town hall. Mr. H. Gilbert Whyatt, borough surveyor, Town Hall Square, Grimsby.

HALIFAX.—June 3.—For the erection of four shops, paper warehouse, stable, &c, Horton Street, Halifax. Messrs. Walsh & Nicholas, architects, Museum Chambers, Halifax.

HANWELL.—June 2.—For the erection of a sorting office. Mr. J. Wager, H.M. Office of Works.

HOLBEACH.—June 9.—For additions to the Holbeach Union infirmary. Mr. F. Burdett Ward, architect, 7 York Row, Wisbech, Lincs.

HORNSEY.—June 8.—For the erection of workmen's dwellings (140 houses) in Hawthorn and Beechwood Roads. Mr. E. J. Lovegrove, engineer to the Urban District Council, 99 Southwood Lane, Highgate, N.

HOUGHTON-LE-SPRING.—June 20.—For the erection of a Wesleyan minister's house, Houghton-le-Spring, Durham. Mr. J. P. Tulip, 6 William Street, Houghton-le-Spring, R S O.

HUDDERSFIELD.—June 3.—For the erection of a dwelling-house in Wentworth Street. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

HULL.—For the erection of St. Patrick's Church, Spring Street. Messrs. Brodrick, Lowther & Walker, architects, 77 Lowgate, Hull.

IRELAND.—For the erection of shops and stores in Main Street, Bangor. Messrs. J. T. Brice & Son, auctioneers, Bangor.

IRELAND.—June 1.—For the erection of fifteen cottages in Nicholas Street, Limerick. Mr. John F. Power, Carr Street, Limerick.

IRELAND.—June 2.—For rearranging sewerage system of the central block of the Sligo District lunatic asylum and repairing roofs of the kitchen and old dining-hall of the asylum. Messrs. Kaye, Parry & Ross, architects, 63 Dawson Street, Dublin.

IRELAND.—June 5.—For the erection of a maternity hospital in the Cork workhouse. Mr. John Cotter, clerk to Guardians.

IRELAND.—June 10.—For the erection of a house on main street, Derrygonnelly. Mr. D. Elliott, Derrygonnelly.

ISLINGTON.—June 9.—For brick paving to the floor of the public washhouse at the Hornsey Road baths. Mr. J. Patten Barber, Town Hall, Upper Street, Islington, N.

LEEDS.—June 9.—For the erection of boiler-house and engine-room at the New Wortley gasworks. Mr. R. H. Townsley, general manager, Gas Offices, Municipal Buildings, Leeds.

LITTLEBOROUGH.—June 9.—For the erection of a rubble retaining wall on the Halifax main road, Littleborough, Lancs. Mr. W. H. Schofield, surveyor, County Offices, Preston.

LITTLE BROUGHTON.—June 4.—For the erection of two dwelling-houses at Little Broughton, Cumberland. Mr. John Goodfellow, Broughton.

LONDON.—June 9.—For the erection of workshops at the new savings bank, West Kensington. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

LONDON.—June 23.—For the erection of the second portion of the new car-sheds at Clapham, S.W., including about

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LONDON.—June 24.—For widening and enlargement of Victoria station, for the London, Brighton and South Coast Railway Company. Mr. J. J. Brewer, secretary, London Bridge Terminus, S.E.

MACCLESFIELD.—June 1.—For the erection of a laundry, chimney-shaft and lavatory accommodation at the workhouse. Messrs. Whittaker & Bradburn, architects, 19 King Edward Street, Macclesfield.

MAIDENHEAD.—June 12.—For the extension of the central station buildings in Braywick Road. Mr. Percy Johns, borough surveyor, Guildhall, Maidenhead.

MIDDLESBROUGH.—For the erection of St. Mary's Catholic church, Grangetown, near Middlesbrough. Messrs. Brodrick, Lowther & Walker, architects, 77 Lowgate, Hull.

MILNSBRIDGE.—June 4.—For the erection of a residence in Morley Lane, Milnsbridge, Yorks. Mr. Arthur Shaw, architect, Golcar.

MORLEY.—June 4.—For alterations to smith's shop, Dartmouth Arms, Morley, Yorks. Mr. W. H. Smith, Church Street.

NEWCASTLE-ON-TYNE.—June 3.—For the erection of sub-station buildings at Pandon Dene, Cullercoats, Benton and Kenton, in connection with electrification of branch railways, Newcastle-on-Tyne, for the North-Eastern Railway Company. Mr. William Bell, the company's architect, Central Station, Newcastle-on-Tyne.

NEWTON ABBOT.—June 6.—For the erection of ten cottages at Salem Place, Wolborough Street, Newton Abbot, Devon. Messrs. Segar & Stooke, architects, Newton Abbot.

PRESTON.—June 10.—For the erection of an isolation cottage (Contract No. 24) at the Preston and County of Lancaster Queen Victoria Royal Infirmary. Mr. F. E. Dixon, architect, 49 Lune Street.

PONTEFRAC.—June 9.—For the erection of Wesleyan church (with tower) and Sunday-schools at Purston, near Pontefract. Messrs. Garside & Pennington, architects, Pontefract.

RAMSGATE.—June 3.—For the erection of superstructure of new pavilion, concert hall, shelters, tea-rooms, shops, public

conveniences, &c. Mr. E. B. Sharpley, town clerk, Albion House, Ramsgate.

REDCAR.—For alterations and additions to offices and manager's dwelling-house, West Dyke Road, Redcar, for the Gas Company. Messrs. Moore & Archibald, 27 Albert Road, Middlesbrough.

REDHILL.—For the erection of an east wing to the Market Hall, Redhill. Messrs. Clayton & Black, architects, 152 North Street, Brighton.

ROTHERHAM.—June 3.—For the erection of an hotel at Swinton, near Rotherham. Mr. H. L. Tacon, architect, 11 Westgate, Rotherham.

ST. MARYLEBONE.—June 10.—For the erection of a block of tenement dwellings in John Street, Edgware Road. Mr. Harry B. Measures, architect, 16 Great George Street, Westminster, S.W.

SCOTLAND.—June 1.—For additions to farm buildings at Blackhills of Dalvey. Mr. Peter Fulton, architect, Forres.

SCOTLAND.—June 3.—For the erection of a dwelling-house at Druidsfield, two cottar houses on the farm of Whiteside, byre and men's room on the farm of Redhouse, and for re-roofing byre at Balquaharn. Messrs. Alexander Stronach, jun., & Son, advocates, 20 Belmont Street, Aberdeen.

SCOTLAND.—June 8.—For the erection of a post office at Musselburgh. Drawings, specification and a copy of the conditions and form of contract may be seen at H.M. Office of Works, 3 Parliament Square, Edinburgh.

SCOTLAND.—June 13.—For additional hospital accommodation at Craiglockhart poorhouse, Edinburgh. Mr. And. Ferrier, clerk, Parish Council Chambers, Castle Terrace, Edinburgh.

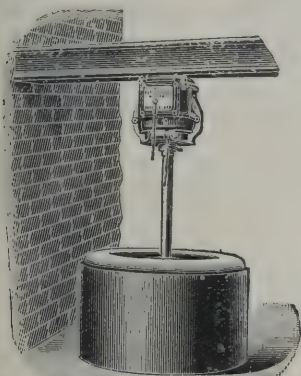
SHEFFIELD.—For the erection of branch stores, Cricket Inn Road. Mr. Henry Webster, architect, Norfolk Row, Sheffield.

SHEFFIELD.—June 4.—For pulling-down and rebuilding the Rising Sun inn, Nether Green. Messrs. Gibbs & Flockton, architects, 15 St. James's Row, Sheffield.

SHEFFIELD.—June 8.—For the erection of Board-room and union offices at Union Road, The Edge, Sheffield. Messrs. Ellis Bros, architects, Orchard Street, Sheffield.

STOCKWELL.—June 9.—For the erection of a new sorting office at Stockwell. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

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STOKE-UPON-TRENT.—June 3.—For the erection of a mortuary at the workhouse and other works. Mr. C. Lynam, architect, Stoke.

STOWMARKET.—June 16.—For alterations and additions to the union house and laundry and drainage scheme. Mr. John Corder, architect, Ipswich.

TAMWORTH.—For the erection of new licensed premises at the Red Lion inn, Hopwas, Tamworth. Mr. Chas. Owen, architect, Arcade Balcony, Walsall.

THIRSK.—June 12.—For the erection of school and classrooms to the Wesleyan church, Thirsk, Yorks. Mr. Thomas Stokes, architect, Thirsk.

ULVERSTON.—For the erection of stable, &c., at Todbusk, Ulverston. Messrs. Settle & Farmer, architects, Ulverston.

WALES.—June 1.—For erection of six houses at Waun Lwyd, Mon. Mr. George Tudgay, 13 Glan Ebbw Terrace, Victoria, Waun Lwyd, Mon.

WALES.—June 1.—For rebuilding Calfaria Welsh Independent chapel, Bargoed. Mr. T. Roderick, architect, Clifton Street, Aberdare.

WALES.—June 1.—For the erection of twenty houses at Rhymney. Mr. T. Roderick, architect, Glebeland Street, Merthyr.

WALES.—June 2.—For the erection of an infants' school at Rhymney, Mon. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—June 2.—For the erection of two superior cottages on land near the White Horse inn on the Watton Road, Brecon. Mr. C. J. E. Large, architect, 8 Lion Street, Brecon.

WALES.—June 2.—For the erection of a classroom at the Buckley Board school, Flints. Messrs. J. H. Davies & Sons, architects, Newgate Street, Chester.

WALES.—June 2.—For the re-erection of the Patriot hotel, Dowlais. Messrs. Llewellyn Smith & Davies, architects, Aberdare.

WALES.—June 2.—For the erection of two dwelling-houses, shop and out-offices in High Street, Narberth. Mr. J. Preece James, architect, Tenby.

WALES.—June 3.—For the erection of a residence at Maindy Crescent, Ton Pentre, near Pontypridd. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WALES.—June 4.—For extensions to the wards, &c., at the Merthyr General Hospital. Mr. C. M. Davies, architect, 112 High Street, Merthyr Tydfil.

WALES.—June 4.—For the erection of a parish hall, adjacent to St. John the Baptist's Church, Risca Road, Newport. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank Chambers, Newport, Mon.

WALES.—June 4.—For the erection of a schoolroom, &c., adjoining Zoar Welsh Independent chapel, Merthyr. Mr. T. Roderick, architect, 50 Glebeland Street, Merthyr.

WALES.—June 6.—For alterations and improvements to Aberdare police station. Mr. T. Mansel Franklen, clerk, Glamorgan County Council Offices, Westgate Street, Cardiff.

WALES.—June 8.—For the erection of a school for infants to accommodate 300 children, with out-offices, boundaries and playground, at Blaenau-Gwent, Abertillery, Mon. Mr. R. L. Roberts, architect, Abercarn, Mon.

WALES.—June 8.—For enlarging the three departments of Williamstown Board school to provide additional accommodation for 110 boys, 50 girls and 56 infants, and enlarging and improving the master's house at Porth Board school. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—June 11.—For the erection of chapel, for the committee of Bethel Baptist church, Cwmpark. Mr. Jacob Rees, architect, Pentre.

WALES.—June 23.—For the erection of the superstructure and other works for the new lunatic asylum at Whitchurch, near Cardiff. Messrs. Oatley & Skinner, architects, Edinburgh Chambers, Baldwin Street, Bristol.

WALES.—June 30.—For the erection of a schoolroom and reseating and erecting new galleries at Bethany Baptist chapel, Pembroke Dock. Messrs. George Morgan & Sons, architects, 24 King Street, Carmarthen.

WANDSWORTH.—June 2.—For the construction of river wall adjoining the public baths, High Street. Particulars may be obtained at the surveyor's office, 41 High Street, Wandsworth.

WINDSOR.—June 5.—For the erection of a boundary-wall, &c., at Clewer mortuary, Clewer, Windsor. Mr. J. E. Gale, clerk, 3 Sheet Street, Windsor.

WORKINGTON.—June 1.—For the erection of a stable and other outbuildings in Pow Street, Workington. Messrs. W. G. Scott & Co., architects, Victoria Buildings, Workington.

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WREXHAM.—June 3.—For the erection of four houses in Hampden Road, Cae Shac, Wrexham. Mr. Walmsley Smith, Gate Hangs High inn, Rhosnessney.

YORK.—June 3.—For carrying-out the following architectural works on the Gosforth and Ponteland Branch Railway, for the North-Eastern Railway Company, viz. station buildings, warehouse, weigh offices, stationmasters' houses and cottages at Coxlodge, Fawdon, Kenton, Callerton and Ponteland. Mr. William Bell, the company's architect, Central Station, Newcastle-upon-Tyne.

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Cook & Son	37	12	0
Sillifant & Sons	37	0	0
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For electric lighting, &c., at Tempsford Hall. Mr. MORGAN WILLIAMS, engineer, 39 Victoria Street, Westminster, S.W.

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V. G Middleton & Co.	£1,795	5	4
Belshaw & Co.	1,705	15	0
A. V. Gifkins & Co.	1,548	0	0
(alternative)	1,541	0	0
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H. M. LEAF (accepted)	885	0	0
R. Warner & Co.	849	0	0

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A. V. Gifkins & Co.	270	0	0
R. Warner & Co.	258	0	0
H. M. LEAF (accepted)	221	0	0

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For rebuilding the Bay Horse inn, Bentley, Yorks. Mr. JOHN ATHRON, architect, Carr View, Doncaster.

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W. Johnson & Son	3,050	0	0
F. Beastall	2,972	0	0
D. Gill & Son	2,950	0	0
C. Sprakes & Sons	2,840	0	0
MULLINS & RICHARDSON, Shotton Street, Doncaster (accepted)	2,829	13	9

BRACKENBROUGH.

For electric lighting and power plant, for Mr. Joseph Harris, Brackenbrough, Calthwaite, near Carlisle. Mr. MORGAN WILLIAMS, engineer, 39 Victoria Street, Westminster, S.W.

With 17-h.p. engine.

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Holmes & Co. (alternative)	2,191	0	0
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Wallis & Watson	2,385	0	0
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Holmes & Co. (alternative)	2,228	0	0
Cox-Walkers	2,179	0	0
Lowdon Bros.	2,002	10	0

BRADFORD.

For completion of the unfinished portion of Legrams Mills, Bradford. Messrs. MOORE & CRABTREE, architects, York Chambers, Keighley.

Accepted tenders.

I. Taylor, Lees, near Keighley, joiner.

S. Rishworth, 68 Briggate, Shipley, Yorks, plumber.

W. Hargreaves, Barkerend Road, Bradford, plasterer.

I. Rushworth, Clayton, near Bradford, Yorks, contractor.

Hill & Nelson, Edmund Street, Bradford, slater.

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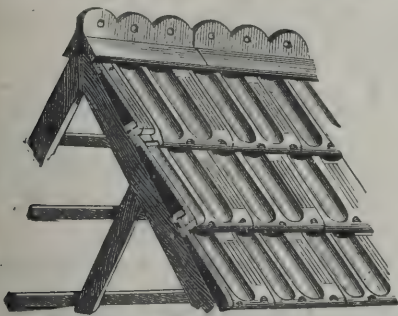
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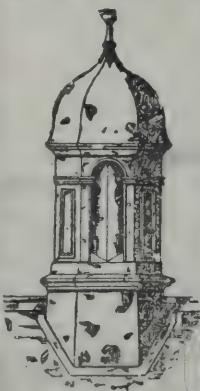
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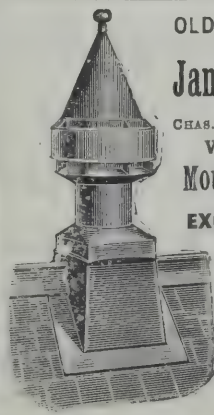


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H. Dart	1,034	0	0
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G. Gwyn	1,985	13	2
E. Iles	1,954	0	0
Foster Bros.	1,888	0	0
Gilman & Rayner	1,796	16	11
G. Bell	1,737	0	0
Lawrence & Thacker	1,696	10	9
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S. Keenan, Distington, Whiteham (decorating, &c) 27 0 0
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DEARHAM.

For rebuilding farm buildings at Craika Hall, Dearham, Cumberland. Mr. J. S. MOFFAT, architect, 53 Church Street, Whitehaven.

Accepted tenders.

J. Moore, Wigton, mason and brickwork.
G. Fell, Wigton, slater.
H. Archer, Dearham, joiner, plumber, glazier and painter.

EXMOUTH.

For the erection of two houses, Cranford Avenue, for Mr. H. Avery. Mr. ERNEST E. ELLIS, architect, Exmouth and Salterton. Quantities by the architect.

J. Tremlett	£3,461	2	6
Westcott, Austin & White	3,117	0	0
H. Gould	3,053	15	0
F. Abell	3,040	0	0
N. Pratt	2,932	0	0
W. H. Perry	2,623	0	0
R. B. Ponsford	2,619	0	0
W. H. Chown	2,611	0	0
H. DART, Exmouth (accepted)	2,293	10	0
Architect's estimate	2,500	0	0

For the erection of a detached house, Gussiford Road, for Mr. J. J. Bastin. Mr. ERNEST E. ELLIS, architect, Exmouth and Salterton.

W. H. PERRY, Exmouth (accepted) £707 10 0

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Sloan Electrical Co.	65	0	0
Crompton & Co.	65	0	0
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HALIFAX.

For the erection of a dwelling-house at Far Butterworth End Farm, Norland. Mr. LISTER COATES, architect, Waterhouse Street, Halifax.

J. Riley, Gratrix House, Sowerby Bridge, mason	£145	0	0
F. & E. Whittaker, Norland, Sowerby Bridge, carpenter and joiner	90	0	0
O. S. Hill & Co., Greetland, near Halifax, slater and plasterer	30	0	0
C. Firth, Luddenden Foot, via Manchester, plumber and glazier	14	10	0

HULL.

For the erection of the superstructure of buildings on the west side of Victoria Square. Mr. JOSEPH H. HIRST, architect, Town Hall, Hull.

Arnold & Son	£19,981	0	0
G. Houlton	19,320	0	0
Bowman & Sons	18,795	0	0
J. Peers	18,348	0	0
T. Goates	18,095	0	0
J. T. Levett	18,082	0	0
Quibell, Son & Greenwood	18,050	0	0
Hebblewhite & Wilson	17,994	10	0
G. H. PANTON, Anlaby Road, Hull (accepted)	17,920	0	0

IRELAND.

For the erection and completion of a new temperance hall, opposite the Cathedral, Sligo. Mr. P. J. KILGALLEN, architect, Abbey Ville, Sligo.

D. MC LYNN, Bridge Street (accepted) £5,856 8 0

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IRELAND—continued.

For extension to the electric-light station, Londonderry. Mr. DANIEL CONROY, architect, 21 Shipquay Street, Londonderry.

Shannon & Routledge	£7,532	0	0
Smyth Bros.	6,374	0	0
M. Sweeney	5,970	0	0
R. COLHOUN, Strand Road (accepted)	5,500	0	0

For enlargement of the infirmary of Cookstown workhouse.

J. Donnolly	£435	0	0
J. & J. McCooke	387	10	0
J. Burnett	339	0	0
J. McNALLY, Cookstown (accepted)	324	10	7

KING'S LYNN.

For the construction of a 9-inch glazed stoneware pipe sewer, 615 yards in length, in Saddlebow Road. Mr. H. J. WEAVER, borough engineer.

J. F. Oultram	£938	13	8
R. Shanks	574	0	0
A. F. Foreman	530	5	0
T. & J. Burgoyne	472	5	8
Renant Bros.	460	0	0
J. Medwell	450	0	0
Barrell Bros.	435	0	0
J. J. BONE, Blackfriars Road, King's Lynn (accepted)	398	0	0

LONDON.

For rebuilding 91 Great Titchfield Street, W., for Mr. H. J. Bale. Mr. WILLIAM PYWELL, architect, Cumberland House, Hanwell. Quantities by Mr. MAX CLARKE.

R. D. Lown & Sons	£3,773	0	0
E. Lawrance & Sons	3,486	0	0
J. Carmichael	3,400	0	0
W. G. Minter	3,357	0	0
T. H. Kinglerlee & Sons	3,227	0	0
W. Whitehead	3,065	0	0
B. E. Nightingale	3,025	0	0
W. WALLIS (accepted)	2,999	0	0

For alterations to mortuary at the North-Western hospital.

T. COLE, 125 Offord Road, Barnsbury, N. (accepted)	£82	0	0
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LONDON—continued.

For enlargement of Walham Green sorting-office, for H.M. Office of Works, &c.

Jones Bros.	£2,341	10	0	£13	10	0
W. Hooper	2,175	0	0	30	0	0
Braid, Pater & Co.	2,123	0	0	—	—	—
Spencer, Santo & Co., Ltd.	2,100	0	0	13	0	0
B. E. Nightingale	2,099	0	0	—	—	—
G. Godson & Sons	2,062	0	0	45	0	0
Spiers & Son	2,019	0	0	43	0	0
W. J. Renshaw	1,993	0	0	100	0	0
T. Bendon	1,950	0	0	32	0	0
C. Dearing & Son	1,938	0	0	20	0	0
Speechley & Smith	1,926	0	0	20	0	0
Foster Bros.	1,913	0	0	25	0	0
H. Flint	1,910	0	0	15	0	0
W. H. Lorden & Son	1,888	0	0	—	—	—
J. Shelbourne & Co.	1,858	0	0	47	0	0
J. Burges & Sons	1,850	0	0	23	0	0
Edwards & Medway	1,750	0	0	44	0	0

A. Credit old materials.

For painting, repairs and other work at St. George's Infirmary Hanover Square.

King & Son	£650	0	0
T. Coulthard	370	0	0
T. Haylock	366	0	0
M. MCCARTHY (accepted)	343	0	0

LONDON SCHOOL BOARD.

The exteriors of the following schools will be painted between May 16 and June 13:—

Gravel Lane (including enlargement opened in 1899).

Parrott & Ison	£247	0	0
Martin, Wells & Co., Ltd.	145	0	0
J. Greenwood, Ltd.	143	0	0
Macey & Sons, Ltd.	143	0	0
W. Hornett	134	0	0
Johnson & Co.	110	0	0
Staines & Son	109	0	0
Gavin Bros.	103	10	0
BELCHER & CO., LTD. (accepted)	86	15	0

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BRISTOL:

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Chapel Street, St. Philips Marsh.

LONDON SCHOOL BOARD—continued.

Hugon Road.

J. & M. Patrick	£238	0	0
Hudson Bros.	207	0	0
General Builders, Ltd.	189	0	0
R. S. Ronald	185	0	0
C. Curd & Sons	145	0	0
E. Flood	145	0	0
W. HAMMOND (accepted)	119	0	0

Blackstock Road.

T. Willson	£237	0	0
G. Kirby	188	0	0
C. & W. Hunnings	185	0	0
McCormick & Sons	177	0	0
Stevens Bros.	168	0	0
J. Grover & Son	159	0	0
H. Runham Brown	158	0	0
BATE BROS. (accepted)	156	15	0

Newington Green.

W. Silk & Son	£335	0	0
Barrett & Power	310	0	0
T. Willson	304	0	0
A. Porter	297	0	0
W. Martin	285	0	0
J. Stewart	266	0	0
H. Runham Brown	250	10	0
Marchant & Hirst	234	0	0
C. DEARING & SON (accepted)	232	0	0

Campbell Street.

Viney & Stone	£652	0	0
T. Cruwys	220	0	0
W. Densham & Sons	215	0	0
F. Chidley	199	0	0
W. Brown & Sons	193	0	0
W. CHAPPELL (accepted)	185	0	0

Mulgrave Place.

W. J. Howie	£179	0	0
Martin, Wells & Co., Ltd.	150	0	0
H. Groves	149	0	0
W. Banks	135	17	6
W. Hayter & Son	135	0	0
E PROCTOR & SON (accepted)	115	0	0

LONDON SCHOOL BOARD—continued.

Poole's Park.

J. Stewart	£168	0	0
J. Grover & Son	164	0	0
H. Wall & Co.	154	0	0
G. Kirby	148	0	0
STEVENS BROS. (accepted)	134	0	0
Bate Bros.	130	0	0
C. & W. Hunnings	130	0	0

Canonbury Road.

C. Dearing & Son	£140	0	0
W. Martin	138	0	0
McCormick & Sons	135	0	0
G. S. S. Williams & Son	133	0	0
G. Wales	128	5	0
F. W. Harris	124	15	0
Marchant & Hirst	118	0	0
C & W. HUNNINGS (accepted)	111	0	0

Regent Street.

W. Hayter & Son	£335	0	0
W. J. Howie	293	0	0
J. C. Chalkley	268	0	0
S. E. Musgrove	267	2	0
T. D. Leng	250	0	0
H. Groves	234	0	0
G. KEMP (accepted)	203	0	0
E. Proctor & Son	194	0	0

Cranbrook Road.

W. Silk & Son	£310	0	0
A. Porter	285	0	0
F. Bull	232	10	0
Barrett & Power	213	0	0
G. Wales	212	0	0
R. Woollaston & Co.	212	0	0
Belcher & Co., Ltd.	182	10	0
J. Haydon & Sons	171	0	0
G. BARKER (accepted)	165	0	0

Baring Road.

W. Banks	£97	18	6
W. Hayter & Son	83	0	0
G. Kemp	85	0	0
W. J. Howie	67	0	0
H. GROVES (accepted)	66	0	0

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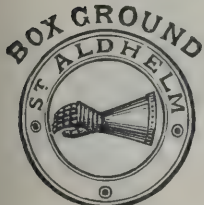
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LONDON SCHOOL BOARD—continued.

Adys Road.

H. Line	£295	0	0
W. Sayer & Son	217	0	0
J. F. Ford	198	0	0
W. J. Mitchell & Son	188	0	0
Maxwell Bros., Ltd.	187	15	0
W. Hooper	187	0	0
J. & C. Bowyer	186	0	0
J. GARRETT & SON (accepted)	164	0	0

Choumert Road.

W. Sayer & Son	£250	10	0
H. Line	199	0	0
W. J. Mitchell & Son	156	0	0
W. V. Goad	145	0	0
W. Hooper	128	0	0
G. Kemp	127	0	0
Maxwell Bros., Ltd	124	0	0
J. GARRETT & SON (accepted)	108	0	0

Scarsdale Road.

J. R. Sims	£277	0	0
W. Sayer & Son	253	0	0
J. C. Chalkley	249	0	0
Lathey Bros.	209	0	0
J. Garrett & Son	204	0	0
W. Hooper	190	0	0
E. Triggs	187	0	0
H. J. WILLIAMS (accepted)	182	18	0

Eardley Road.

R. A. Jewell	£237	0	0
E. P. Bulled & Co.	235	7	6
W. Johnson & Co., Ltd.	165	0	0
J. & C. Bowyer	158	0	0
H. Leney & Son	158	0	0
E. B. TUCKER (accepted)	102	0	0

Sussex Road.

H. Leney & Son	£198	0	0
W. Read	185	0	0
General Builders, Ltd.	179	0	0
W. Downs	177	0	0
Rice & Son	147	0	0
W. Smith & Son	143	0	0
E. Triggs	130	0	0
MAXWELL BROS., LTD. (accepted)	127	15	0

LONDON SCHOOL BOARD—continued.

Waterloo Road.

T. L. Green	£234	0	0
W. King & Son	197	0	0
W. Downs	186	0	0
H. J. Williams	157	17	0
J. R. Sims	154	0	0
Holloway Bros. (London), Ltd.	150	0	0
RICE & SON (accepted)	126	0	0

Bell Street.

Viney & Stone	£555	0	0
C. F. Kearley	305	0	0
S. Polden	286	0	0
G. H. Sealy	275	0	0
A. Balfour & Co.	193	10	0
W. Densham & Sons	172	0	0
F. T. CHINCHEN & CO. (accepted)	130	0	0

Moberly (Boys, Girls and Infants).

A. Balfour & Co.	£228	15	0
T. Cruwys	170	0	0
F. Chidley	165	0	0
W. R. & A. Hide	141	10	0
F. T. Chinchén & Co.	119	10	0
W. Chappell	118	10	0
W. Brown & Sons	118	0	0
BRISTOW & EATWELL (accepted)	97	7	0

Thomas Street.

Vigor & Co.	£314	0	0
J. F. Holliday	306	4	0
A. J. Sheffield	300	0	0
J. Haydon & Sons	293	2	6
D. Gibb & Co.	284	0	0
J. Dolman & Co.	258	0	0
A. W. Derby	234	0	0
CORFIELD & CO. (accepted)	225	0	0

Fairfield Road.

J. Dolman & Co.	£168	0	0
A. W. Derby	152	0	0
Corfield & Co.	149	0	0
F. Bull	144	0	0
A. E. Symes	144	0	0
J. F. Holliday	118	10	0
A. J. Sheffield	114	0	0
G. BARKER (accepted)	104	10	0

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LONDON SCHOOL BOARD—continued.

Keeton's Road.

W. Hayter & Son	£385	0	0
J. & M. Patrick	305	0	0
H. J. Williams	283	5	0
W. Sayer & Son	265	0	0
Johnson & Co	242	0	0
J. Greenwood, Ltd.	239	0	0
E. Triggs	234	0	0
LATHEY BROS (accepted)	217	0	0
E. Proctor & Son	203	0	0

MILNSBRIDGE.

For the erection of a manse, Cowlersley Lane, Milnsbridge,
Yorks. Mr. JOHN E. LUNN, architect, Milnsbridge.

Accepted tenders.

Hirst Firth & Bros, Golcar, mason.
J. C. Saville, Milnsbridge, joiner.
A. Hall, Paddock, plumber.
Pickles Bros, Huddersfield, tiler
G. H. Day, Milnsbridge, plasterer and painter.
Hill & White, Marsh, concreter.
T. Allison, Ltd, Milnsbridge, bellhanger.

NORTHWICH.

For extension and repair of the Verdin public baths, North-
wich.S. APPLETON, Northwich, extension £484, repair £160
(accepted).

NUNEATON.

For sewerage works in Abbey Green. Mr. F. C. COOK,
engineer.

T. Philbrick	£932	2	0
T. Smith	920	0	0
J. Holme	799	10	11

For sewerage works at the isolation hospital, Tuttle Hill. Mr.
F. C. COOK, engineer.

T. Philbrick	£528	17	4
T. Smith	366	0	4
J. Gott	319	11	6
J. Holme	309	5	2

PAKEFIELD.

For sewerage works at Pakefield. Mr. C. F. R. WESTON,
surveyor, Oulton Broad.

Wright & Walling	£408	18	9
T. W. Pedrette	435	1	0
Langley Bros. & Tozeland	394	18	4
F. J. Hipperson	392	14	11
G. Rackham	364	5	4
T. & J. Burgoyne	349	13	6
E. J. EDWARDS, Norwich (accepted)	334	19	10

POOLE.

For the construction of a salt-water tank in brickwork at Con-
stitution Hill and the erection of a public convenience in
brickwork at Thames Street. Mr. JOHN ELFORD, borough
engineer.

T. C. RIGLER, Longfleet, Poole (accepted). £517 0 0

PULHAM MARKET.

For alterations and additions to the workhouse at Pulham
Market, Norfolk. Mr. ALFRED CLARKE, architect,
126 London Road, Lowestoft.

F. R. Hipperson	£1,291	10	0
R. Morris	1,288	10	0
A. Cook	1,275	4	0
H. Hipperson	1,276	0	0
Boddy & Son	1,238	0	0
J. GAZE, Carlton Colville (accepted)	1,232	18	0

RICKMANSWORTH.

For alterations and additions to the Foresters' arms. Mr. G.
HEATH, surveyor.

F. DUPONT & Co., Watford (accepted). £175 0 0

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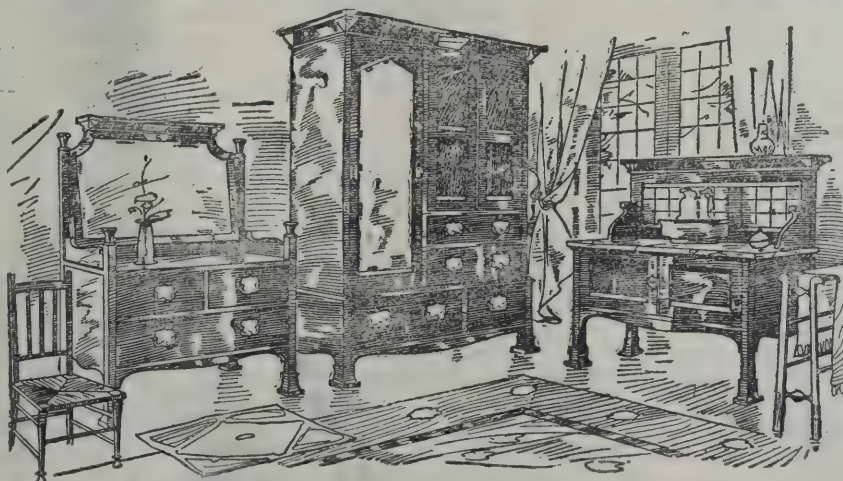
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Opposite Goodge Street.

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For street and sewerage works in the neighbourhood of Lower place, Rochdale. Mr. S. S. PLATT, borough surveyor.
J. MOORE, 23 Entwisle Road (accepted).

ROTHERHAM.

For whitewashing and cleaning workhouse infirmaries and the cottage homes in Alma Road.
F. FRANCE & SON, 6 Wellgate (accepted) . . . £97 19 8

ST. AUSTELL.

For drainage, repairs, &c., at Higher Trehiddle, St. Austell, Cornwall. Mr. J. MUTTON, architect, Charlestown, St Austell.
R. Richards, mason £68 0 0
C. Clemo, mason 61 6 0
A. R. Bennett, plumber 54 8 0

SCARBOROUGH.

For the construction of the approach road to the Marine Drive, including concrete viaduct, harbour walls, slipway, drainage, &c. Messrs. BEARD & SMITH, engineers, Town Hall, Scarborough.

Dixon & Co. £15,990 0 0
H. Arnold & Son 14,750 0 0
Parker & Sharp 12,451 3 10
R. C. Brebner & Co. 11,623 7 8
J. Brunton 11,617 16 9
A. Graham & Son 11,170 0 0
A. Brunton & Son 11,083 11 4
G. Bell 10,143 12 2
J. Jaram & Son 10,035 0 0
G. K. Waghorn 9,670 0 0
B. COOKE & CO, Westminster, S.W. (accepted) 8,500 0 0

STOCKSBRIDGE.

For supply of a street-watering cart, 200 gallons, delivered, Deepcar, Great Central.

Brettel £28 15 6
E. Smith 28 10 0
Glover & Sons 25 10 0
W. Smith & Sons 25 0 0
Bayley, Ltd. 25 0 0
Baker & Sons 24 0 0
BARROWS & CO, LTD, Banbury (accepted) . . . 21 15 0

SHOEBURYNNESS.

For the erection of an infants' school (to accommodate 200 children), offices, &c., at Richmond Avenue, Shoeburyness. Messrs. BURLES & HARRIS, architects, Clarence Chambers, Southend-on-Sea

G. Ventris £4,630 0 0
J. Dowsett 3,998 15 0
Dowsing & Davis 3,930 0 0
A. J. Golding 3,875 0 0
Whur & Campkin 3,850 0 0
Dupont & Co. 3,785 0 0
F. & E. Davey, Ltd. 3,779 0 0
S. E. Moss 3,655 10 0
Davis & Leaney 3,649 0 0
A. R. Whur 3,590 0 0
J. Alp 3,496 0 0
E. West 3,479 0 0
W. E. Davey 3,244 0 0
HARRIS & ROWE, LTD, Shoeburyness (accepted) 3,198 0 0

TAMWORTH.

For the erection of an infirmary at the workhouse. Mr. JAS WM. GODDERIDGE, architect, 4 Bolebridge Street, Tamworth.

J. Evans £10,200 0 0
W. Shelborne 9,565 0 0
Kelley & Sons 9,123 0 0
H. Gibbs 8,976 0 0
Lowe & Sons 8,950 0 0
J. Herbert 8,797 0 0
E. WILLIAMS, Tamworth (accepted) 8,792 0 0
Gowing & Ingram 8,779 0 0
J. Dallow 8,770 0 0
T. Mason 8,565 0 0
Radford & Greaves 8,450 0 0

TUNBRIDGE WELLS.

For alterations and additions to the homœopathic hospital. Mr. C. H. STRANGE, architect.

Mansfield & Son £2,275 0 0
Crates & Son 2,231 0 0
Jarvis & Son 2,113 0 0
Leney & Son 1,989 0 0
STRANGE & SONS, Tunbridge Wells (accepted) 1,973 0 0

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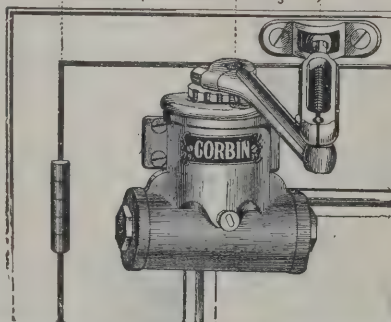
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WANSTEAD.

For painting, &c, at Cobbold Road, Cann Hall Lane girls and infants' school; latrines, &c, at Trumpington Road, Downsell Road and Cann Hall schools; and caretaker's cottage at Trumpington Road school. Mr. JOHN T. BRESSEY, architect, 70 and 71 Bishopsgate Street Within, E.C.

J. A. Reed	£529	0	0
Barrett & Power	525	0	0
S. Kind	472	0	0
B. Young	455	0	0
Vaughan & Mordey	444	10	0
A. R. Brand	424	15	0
A. W. Robins	412	0	0
A. Reed	393	10	0
Sands, Palmer & Co.	366	0	0
H. Robinson	332	4	6
Woollaston & Co.	321	0	0
Vigor & Co	294	0	0
Smith & French	276	14	0
H. Adams	274	2	0
R. Athey	264	12	6
Woollaston Bros.	240	0	0

WEST HAM.

For supply of a cast-iron tank, with rolled-steel joists and stanchions, to be erected at the Canning Town Stores, Quadrant Street, Canning Town. Mr. J. G. MORLEY, borough engineer.

E. C. & J. Keay	£1,195	0	0
Grays Steel Construction Co.	1,194	5	0
Baker & Co.	1,090	0	0
Edie & Co.	988	6	0
Dorman, Long & Co.	975	0	0
Young & Co.	955	0	0
Russell & Son	893	0	0
Newton, Chambers & Co.	877	0	0
Lucy & Co.	871	0	0
Piggott & Co.	862	10	0
Howden & Son	831	0	0
R. Carr & Co.	830	0	0
E & J. DEMPSTER, LTD., Gas Plant Works, Manchester (accepted)	780	0	0

WELLS-NEXT-THE-SEA.

For providing and laying about 550 yards of cast-iron gas main.

C. T. Baker, Ltd.	£225	0	0
G. RACKHAM, 16 Bishops Bridge Road, Norwich (accepted)	185	10	0

WHITEHAVEN.

For excavating and building a motor chamber and for enlarging present organ chamber in St. Nicholas Church, Whitehaven. Mr. J. S. MOFFAT, architect, Whitehaven. H. KITCHEN, Whitehaven (accepted).

WINSFORD.

For structural alterations to the Meadow Bank school.

W. W. DICKENSON, Delamere Street (accepted)	£468	7	0
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WINSLOW.

For sewerage works. Mr. H. A. JOHNSON, engineer, Bradford.

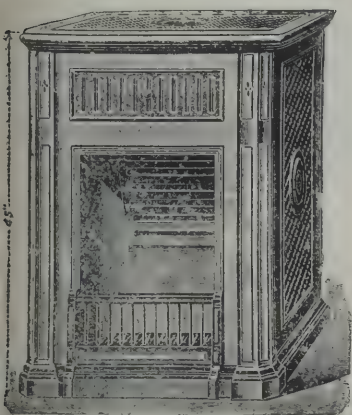
Johnson Bros.	£6,548	0	0
Johnson & Langley	6,234	10	3
J. Moffatt	5,160	8	1
Meridith	5,000	0	0
E. Iles	4,801	0	0
H. H. Barry	4,747	0	0
H. Manders	4,709	15	0
H. Williams	4,584	8	2
W. Briggs	4,477	2	0
Braithwaite & Co.	4,410	0	0
S. Wood	4,403	9	2
Green & Co.	4,297	0	0
G. E. Raynor	4,238	2	0
A. Dickson & Co.	4,160	0	0
Grounds & Newton	4,157	13	0
T. Yirrell	4,085	0	0
W. Morley & Sons	4,069	16	6
Davies, Ball & Co.	4,036	0	6
MATTHEWS BROS, Winslow (accepted)	3,761	13	0

WOLVERHAMPTON.

For street works in Court No. 3, Bilston Street. Mr. GEORGE GREEN, borough engineer.

J. Owens	£87	0	0
H. Holloway	79	9	10
W. H. READING, Molineux Street (accepted)	77	16	8

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VARIETIES.

ON the 23rd inst. the public baths erected by the Swinton and Pendlebury Urban District Council, at a cost of 5,880*l.*, were formally opened.

A NEW and commodious hospital, which has for nearly two years been in course of erection for the Duchess of Bedford at Woburn, and is intended for the accommodation and treatment of patients resident within the radius of the Duke's extensive estates in the Woburn district, was formally opened on Monday by the Duchess, who was accompanied by the Duke.

THE new church of St. Thomas, which has been erected in the populous district of Earl Kirkby, in the parish of Kirkby-in-Ashfield, Notts, in the diocese of Southwell, was consecrated on Saturday. The cost of erection is nearly 6,000*l.* The church, which will accommodate 380 persons, is of brick with stone dressings, and the style of architecture is English Gothic of the early fifteenth century.

SINCE the proposal to erect a new workhouse at Evesham was defeated the expenditure upon various buildings at the old workhouse has reached a total not far short of the estimate for the new building. At Monday's meeting of the Board of Guardians there was a rather lively discussion as to a proposal to spend 230*l.* upon a corridor connecting the new and old infirmaries. The Rev. E. B. Shekell suggested that there was a lack of foresight, or these "extras" would not be continually cropping up, and he asked where the expenditure was going to stop. The Chairman said the corridor would save the services of a nurse, and the building was sanctioned.

ON Saturday, May 23, about fifteen members of the Manchester Society of Architects, under the leadership of Mr. G. W. Lord, made a sketching visit to Mobberley Church, Cheshire. The rector, Rev. H. L. Mallory, kindly explained various points of interest. By the kindness of Mr. Ernest Leycester, Mobberley Old Hall was also visited and several sketches made of it. On Tuesday evening about sixty members visited the new Midland Hotel, Manchester, by kind permission of the architect, Mr. C. Trubshaw. The visitors were shown round by Mr. Elwell and Mr. Lund, who explained the general design of the building and the elaborate warming and ventilating arrangements.

TUESDAY was the last date for receiving applications for the office of town clerk of Dundee, rendered vacant by the death of Sir Thomas Thornton. The applications came from various parts of the country, and included in the names are

Mr. James W. Davidson, depute town clerk of Aberdeen; Mr. Andrew Grierson, depute town clerk of Edinburgh; Mr. James F. Johnstone, depute town clerk of Paisley; Mr. J. Burn Fergusson, Hamilton, clerk and treasurer to the Middle Ward of Lanarkshire; Mr. W. F. Mackintosh, town chamberlain of Arbroath; Mr. Archibald Smith, town clerk of Kirriemuir; Mr. James Burns, town clerk of Motherwell; and Mr. John W. Thain, W.S., Edinburgh. Amongst the Dundee solicitors mentioned in connection with the vacancy are Messrs. James Thomson, Hubert Carlton, John L. Stevenson, Thomas Littlejohn, James Allison, W. F. Hill, W. H. Blyth Martin, William Nixon, James Urquhart, G. B. Carmichael and David Gowans. The committee who have charge of the matter were to finally consider the applications to-day.

THE popular passenger-steamers *Royal Sovereign* and *Koh-i-Noor* will commence their sailings from London Bridge (Old Swan Pier) to Southend, Margate and Ramsgate to-morrow, the 30th inst., at same times of sailing as last year, viz. *Koh-i-Noor* at 8.50 A.M. for Southend and Margate and back, and *Royal Sovereign* at 9.20 A.M. for Margate and Ramsgate and back; the fares will be the same as in previous seasons. The New Palace Steamers Company announces that during the past winter months the steamers have been thoroughly overhauled and all the Board of Trade requirements have been complied with and improvements made, so that the public may rest assured that everything possible has been arranged for their comfort. The company also announce that they are prepared to offer specially reduced fares for parties of twelve and over, and party organisers will do well to write to the company at their offices at 50 King William Street, E.C., for particulars of their trips before deciding on their excursion. The catering on board the steamers will be on the same liberal scale as hitherto, and worked entirely by the company.

BUILDING AND BUILDERS.

FOR the new Congregational church which is about to be built at Hither Green, London, Messrs. Church & Son, of 12 South Place, Finsbury, London, E.C., have been appointed architects.

THE foundation-stone of the new Roman Catholic church of the Holy Ghost and St. Stephen, at Shepherd's Bush, has been laid. The church, which will be built in the Romanesque style, will be completed in six months time and provide accommodation for a congregation of 700.

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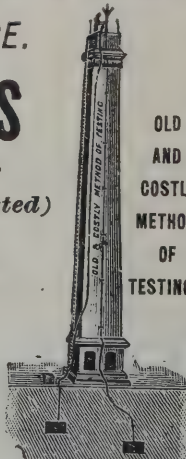
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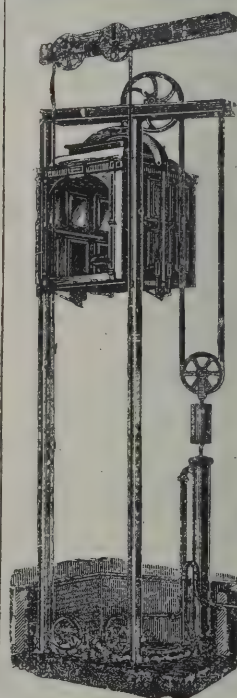
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Scotland—W. Regan, 2 Doune Terrace, Gourrock.

Dublin—Booth Bros., Upper Stephen Street.

Holland—Hausmann Bros., Wynstraat 46, Wijnhaven 37 Rotterdam.

For Index of Advertisers, see page x.

VOLUME LXVIII OF THE ARCHITECT.
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MEMORIAL-STONES of a new Wesleyan Sunday-school at inley were recently laid. Two years ago the Midland Railway Company took the old school for their extensions. The new building will be much nearer the railway station, in a central situation.

THE Seisdon Rural District Council at their last meeting unanimously approved the scheme of sewerage and sewage disposal for the parishes of Penn, Penn Fields and Bradmore which has been prepared by their engineer, Mr. R. E. W. Harrington, M.I.C.E., of Westminster and Wolverhampton. The estimated cost of the scheme is 14,000*l.*, and the Council have applied to the Local Government Board for sanction to borrow that amount.

THE new denomination, the Free Church of the Welsh, on the 23rd inst. opened their second permanent place of worship at Merton Road, Bootle. Hitherto the congregation have worshipped in the Masonic Hall, Bootle, and their communicants number 270. The large hall of the new structure will accommodate 600 persons, and there are attached to it classrooms, kitchen, vestry, lavatories, cloak-room and a school-room with seating capacity for 250 people.

A LONG discussion took place at a meeting of the governors of the Gordon's College, Aberdeen, over an application by the gallery committee for a piece of land within the precincts of the college grounds for the construction of a sculpture hall, towards which 7,000*l.* had been offered by the trustees of the late Mr. John Clark, advocate. The finance committee reported that it was highly expedient for the governors, before entering with any of the ground, gratuitously or otherwise, to consider their own probable requirements in the near future, and recommended that a remit be made to a committee to consider the subject from that point of view. Treasurer Wilkie opposed that the ground be granted as requested by the gallery committee, and this was agreed to by eight to four votes.

THE foundation-stones were laid on the 21st inst. in connection with the new Wesleyan Sunday-schools at Halebank, which are being erected on land adjoining the chapel, which has been secured from Lord Derby. Provision is being made for one large room to accommodate 200 scholars, and three classrooms, obtained by the conversion of the present school, which will be connected by a corridor to the new building, with necessary cloakroom and other accommodation. The building will be erected by Mr. Edwin Wood, contractor, of Widnes, from designs by Mr. John K. Newburn.

THE opening service of South Cliff Congregational church, Lowestoft, was held on Thursday, May 14. The church consists of nave and double transepts, the latter as at present erected, only projecting a few feet; these, however, can at any time, when extension is found necessary, be extended or increased in depth so as to provide considerably larger accommodation (about 180 extra). The facings are of red brick, and the dressings of white Costessey work. The roofs are of open timber construction of the hammer-beam type. The seating is of oak, wax polished. A bold square tower with angular pilasters, and terminating with a lead-covered spirelet and weather vane of quaint design, forms a prominent feature of the design. The contract was let to Mr. John Ashby, Woodbury, Lowestoft, and amounts to 1,698*l.* The accommodation of the building is about 430 adults. The architects are Messrs. G. & R. P. Baines, 5 Clement's Inn, Strand, London, W.C.

THE movement on foot for the erection of a permanent church in the Maney district of Sutton Coldfield to replace the present iron structure has advanced a stage. At a recent meeting Mr. G. H. Lloyd pointed out that to accommodate 400 persons would involve an outlay, including the site which had been purchased, of 6,000*l.*, while a building to accommodate 600 would cost 8,000*l.* It was decided to instruct Messrs. Cossins, Peacock & Bewlay, of Birmingham, to prepare plans of a church to provide sittings for 600 people, the plans to be prepared in such a manner that if found necessary part only of the church capable of holding 400 might be built. The funds already in hand amount to 2,300*l.*

TRADE NOTES.

THE well-known business of Messrs. Mellows & Co., of Sheffield and London, roof-glazing manufacturers and plumbing contractors, has been converted into a limited company, bearing the name of Mellows & Co., Limited, with a capital of 50,000*l.*, divided into 50,000 shares of 1*l.* each, of which 25,000 are 5 per cent. cumulative preference shares and 25,000 are ordinary shares. The registered office is at Corporation Street, Sheffield; London offices, 28 Victoria Street, Westminster, S.W.

THE Teale Fireplace Co., 28 Berners Street, Oxford Street, London, W., have been honoured with an appointment under Royal Warrant as fireplace manufacturers to H. M. the King.

THE Westminster Iron Roof and House Building Company, of 1 Tothill Street, Westminster, have just completed

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their contract with Messrs. Charles & Albert Kiralfy for erecting at the Nottingham exhibition six steel and iron buildings, comprising the two minor halls, Japanese refreshment-house, English restaurant, theatre and variety hall.

THE National Provident Institution for Mutual Life Assurance, whose offices are at 48 Gracechurch Street, have just issued their valuation returns as taken on November 20, 1902, at which date the amount of funds stood at 5,878,924*l.* 5*s.* 10*d.*, an increase in the quinquennial period from November 1897 of no less than 645,506*l.* 9*s.* 7*d.*, a result on which the directorate may be congratulated, especially as progress on a commensurate scale has been made in all directions.

OWING to the continued and increasing demand for the Simplex steel conduit system, and with the object of furthering the mutual interests of their customers and themselves, the Simplex Steel Conduit Co., Ltd., have considered it desirable to open premises of their own in Glasgow, and they now have a branch office and stores at 165A West George Street, Glasgow, under the management of Mr. D. G. Brooks, and have there a large stock of all grades of conduits and fittings ready for immediate delivery.

THE Columbian Fireproofing Company, Ltd., 37 King William Street, E.C., have secured the contract for the whole of the steel construction and erection and fireproof floors for the new premises for Messrs. Laurie & McConnell, Ltd., general providers, of Fitzroy Street, Cambridge, whose premises were destroyed by fire some time ago. This will be the first entirely steel frame building of the warehouse class erected in England, and the architect is Mr. R. Frank Atkinson, of 8 Sackville Street, Piccadilly, who has designed the new buildings in Oxford Street for Messrs. Waring, Ltd.

NEW CATALOGUES.

MESSRS. SAMUEL ELLIOTT & SONS, LTD., of Caversham, Reading, have sent us a copy of their new and voluminous catalogue illustrated by upwards of 1,500 sketches of the wood mouldings which are the specialty of the firm. To emphasise the artistic value of these mouldings, photographic views are given of a sumptuous banqueting-hall designed by Mr. R. Norman Shaw, R.A., in the elaborate wainscoting of which they are freely introduced. Mr. Samuel Elliott, Sen., was the founder of the high-class moulding and joinery business at

Newbury, and he and his three sons have fitted up and equipped the Reading Works with all the latest machinery for an up-to-date moulding and joinery mill.

MESSRS. STANLEY BROS., LTD., of Nuneaton, have just issued a new catalogue of their well-known roofing tiles which, as most of our readers are aware, are made in red and red mottled, both kinds being of the same material and make; but the latter are subjected to a greater heat and prolonged process in firing, the result being a darker and more modified tone of colour which architects generally prefer. These can be supplied in lighter or darker shades. The demand for these goods has latterly increased to such an extent as to necessitate the doubling by Messrs. Stanley Bros. of the plant for their manufacture.

THE General Iron Foundry Company, Ltd., 43 Upper Thames Street, have sent us two sectional catalogues, the first section being devoted to the illustrated description of their Moline's patent wrought-steel windows, which, as they say, have been used for forty years at home and abroad in all classes of buildings. They are light but incomparable for strength, and the chilled bosses obviate the disadvantages of the mitred joints, where only a small portion of each bar is retained. In the Moline's patent windows the joints are unbreakable under ordinary circumstances, and the full strength of the sash-bars is retained. The other section, also illustrated, treats of different varieties of wrought-iron casements, &c.

OTHER catalogues are to hand from Messrs. James Allen, senr., & Son, Elmbank, Glasgow, of architectural, ornamental and sanitary iron castings; Messrs. Alfred Dodman & Co., Ltd., King's Lynn, engines; and Ratner Safe Co., Moorgate Street, safes, strong rooms, iron doors, &c., &c.

THE PALMDAY ROLLING PARALLEL RULER.

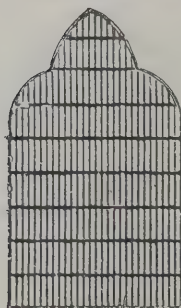
MESSRS. B. J. HALL & CO., of 39 Victoria Street, S.W., are introducing a new rolling parallel ruler, which will, no doubt, be found of great service to draughtsmen and others. As the illustration shows, this ruler is fitted with a graduated cylinder, which revolves with the rollers; a small pawl falling into each notch clearly indicates by a slightly arrested motion the distance traversed. The pawl can be moved so as to give any division down to 1/32nd of an inch, or can be placed out of action altogether. This arrangement is invaluable for drawing equidistant lines, it insures even cross-hatching and affords an easy means of producing accurately squared paper.

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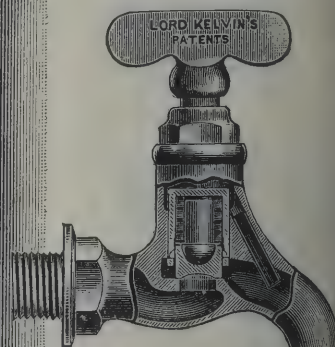
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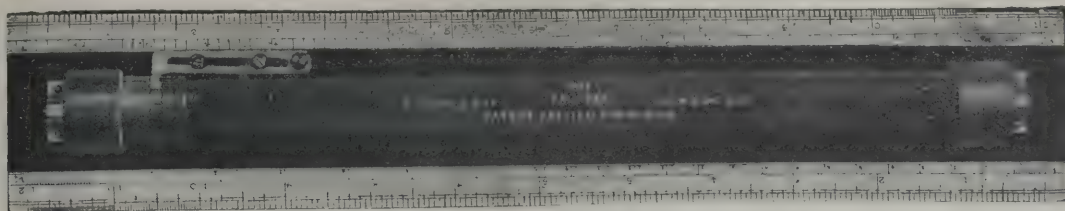
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DUBLIN HARBOUR WORK.

ON Saturday the members of the Engineering and Scientific Association of Ireland were invited to view the chief points of interest in connection with the Port of Dublin.

The members, numbering over sixty, were conducted by their hospitable host to the portion of the wall now in progress of reconstruction, opposite the Great Southern and Western Railway terminus. Here they had an opportunity of viewing the coffer-dams and excavations, some of which have been carried down to depths of 28 to 32 feet under low-water mark till firm foundation was reached, also the powerful dynamos and other machinery used for pumping and other operations connected with the works. Having embarked on the *Majestic* and the *Erin* launch, the visitors were conducted to the Alexandra basin, now in course of construction, and which promises to be at some future date one of the most capacious docks for shipping in the world.

It was pointed out that the whole of the machinery and appliances used in this great work were designed by Mr. Bindon B. Stoney, the late chief engineer of the Port and Docks Board, and a model of his powerful shears used for lifting concrete blocks weighing 350 tons was exhibited and explained on the deck of the steamer.

The foundation of the blocks was first excavated by a steam dredger to within two feet of the finished level, and the remainder of the excavation was taken out by men working in a large diving-bell 20 feet square and 6½ feet high. Access was obtained to this chamber by a wrought-iron shaft and air lock. One of the most important features of this mode of construction is the absence of coffer-dams, staging and pumping, and it has proved exceptionally economical, the quay walls having been built for about 40¢ per lineal foot, inclusive of the cost of all special plant. The next object of interest was the tank-steamer employed for dredging purposes by a new system

of suction tubes. The sand on the bar outside the mouth of the harbour must be kept constantly dredged in order to enable vessels of heavy tonnage to enter the Liffey. The sand is sucked up, together with a portion of sea-water, and conveyed by this tank-steamer to the jetty inside the Alexandra Basin; here it is discharged by means of extremely ingenious pumps at great velocity over the surrounding slob-lands through a pipe, and the sand and water is spread so that the sand deposits and the water flows off back to sea, thus forming a foundation upon which soil may be deposited and subsequently solid ground obtained for the erection of buildings.

On leaving the basin the steamer conveyed the party to the Eastern Breakwater, which will ultimately form a portion of the entrance to the dock. Here the fog-bells were sounded, and the party proceeded on to the entrance of the harbour, where they inspected the Poolbeg and North Bull lighthouses.

ST. BRIDE'S EPISCOPAL CHURCH, KELVINSIDE.

It is about ten years since the little wooden church, in which the congregation of St. Bride's are still worshipping, was brought from Douglas Castle and erected on a site in Beaconsfield Road. It accommodates about 150 sitters, but on special occasions, such as was the case a few Sundays ago, many more have found places. The new church will have chairs for 750, and will consist of nave, aisles and chancel. The entire length of the building will be 130 feet by 70 feet wide, and the height from floor to apex of roof 56 feet, while the spire will rise to fully 100 feet. The chancel is 36 feet long by 29 feet, and is divided from the nave by a beautifully designed rood-screen of carved oak; while a similar screen marks off the chancel from a side chapel on the south side, under which an arched mortuary chapel has been placed. The nave is 102 feet long by 26 feet wide, while the aisles on each side are 14 feet wide. The aisles are separated from the nave by arcades of five

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arches, supported on beautifully moulded and clustered columns, the arches rising to a height of 27 feet. The building is entirely of red stone, outside and in, plasterwork being debarred. The architect of the building is Mr. G. F. Bodley, R.A.

In the case of the new St. Bride's, no estimates or contracts have been entered into; but a stipulation for the very best work has been made. The cost will probably be close on 40,000*l*. The builders are Messrs Stephens, Bastow & Co., London and Bristol; and Mr. Arthur Barber is clerk of works. The memorial-stone was laid by Mr. R. T. N. Spier, of Culdees, convener of the Home Mission Board of the Representative Church Council.

LIMITS OF HIGH BUILDING.

It is satisfactory for the rest of the world that New York should proceed as fast as it can to the logical extreme in high building. What the rest of the world wants to know is, What will it come to? What is the limit, and what are going to be the consequences of building up to the limit?

The limit in height is practically in sight, says Mr. W. A. Langton in the *Canadian Architect*. Passenger elevators, which were the generating factor in these buildings, are also fixing their limitations. Accessibility to the street level is what is required for an office; and, when buildings are so high that time is wasted in going and coming in the elevator, the offices in the highest floors will not rent sufficiently well. The device of express elevators gets over the difficulty to some extent, but in the first place there is a limit to the percentage of floor space that can be given up to the elevator shafts if the building is to pay, and in the second place there is a speed limit in elevators. What is known as a "nausea limit" is recognised; anything above this rate of speed is found to be uncomfortable—at least for landsmen. For men this rate is said to be 720 feet a minute; for women not more than 600 feet, and the descent must be much less rapid than this. Anything faster than 400 feet a minute going down is distressing; so that about 600 feet per minute up and 400 feet per minute down is the maximum for an express elevator. The floor to floor elevator is still further reduced in speed to enable the operator to make a prompt stop. If with higher speed he bobs up and down at every floor—a consequence partly of human weakness and partly of the elasticity of steel rope—

there is no ultimate gain in speed and considerable waste of power. Limiting calculations are often upset by new inventions; but where the human body is the measure there is a standard which may be relied on not to change. It is difficult to conceive of more rapid motion up or down for human beings than the present nauseau limit, or of more abrupt stops at this rate of speed without great discomfort to the occupants of the car; and we may therefore accept as a scientific datum the present opinion of engineers in New York that the limit of business buildings due to the limited speed of elevators is between twenty-five and thirty storeys.

This may be the limit of height, but how to fix the limit of continuity? A skyscraper at intervals is a gain in every way; it gives well-lighted, airy and quiet offices, and it makes the street picturesque. A row of skyscrapers converts the street into a box canyon of unwholesome gloom; but it is not to be compared to the gloom and unwholesomeness within the buildings themselves. This condition of affairs is rapidly approaching in New York. There is what almost amounts to a skyscraper war going on. The early tall buildings in which, with more confidence than judgment, the party walls were filled with windows, are now in an awkward position. Skyscrapers are rising beside skyscrapers and blocking up whole walls of windows. Rooms which, when the buildings were erected, had the winter sun and the summer breeze, are now sealed up in darkness for ever, and the sanitary consequences are beginning to cause alarm. In the lower rooms, in a street of continuous skyscrapers, there is no light anyway, and if darkness is to invade the upper storeys too the unwholesomeness of the overcrowding in these expensive offices is going to be as bad as that in the poor tenements which so much effort has been made to stop. At a recent meeting of the Municipal Art Society a prominent speaker said:—

"I read in my newspaper to-day of the benevolent project to build a great hospital for consumptives, the victims of tuberculosis, where they may have air and sunlight. And in the same paper I read of plans for a thirty-storey building. What are we trying to do? What do we mean by putting up these horrible structures, to the lower floors of which no light can ever penetrate? . . . We build hospitals for the poor consumptive, and then we turn around and erect skyscraping structures where consumption may breed, so that we shall not lack for patients."

It is not merely the darkness, but the crowding of the streets and buildings which is a menace to health and safety.

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his same speaker calculates that "when Broadway is lined with these structures there won't be room for the tenants, unless they are packed horizontally 30 feet thick." It is not hard to believe that this calculation, if checked, will be found to be not far from the truth. It was calculated at the beginning of the year that the buildings of nine storeys or more in the lower part of Manhattan Island, below Leonard Street—that is to say, only in the tall building district proper—have added the floor area above their fifth storeys, 180 acres of area, to the island. The estimated cost of these buildings was 3,000,000 dols. There is said to be 10,000,000 dols. worth of buildings of the same sort in process of erection now, so that, as area may be presumed to compare consistently with price, when these are completed, which will not be long at the rate these buildings go up now, there will be added to this small district 240 acres of standing room above the streets; but there will be only the same old streets to walk in, and these more than ever filled with vehicles from other parts. The Broad Exchange building has a floor area of 12½ acres and a normal population of 4,000 persons. Apply this rate of population to the sixty acres or so of floor area (above the fifth storey) which are now being constructed, and it will appear that this portion of New York is about to receive an increase in daily population of at least 20,000 souls. If they only were souls, if "in going from place to place" they need not "pass through the intermediate space," it would be all right; but 20,000 hustling bodies in streets where one has already, in going to keep an appointment, to allow time for hindered progress—it is nearing the limit.

The cure is exhibited in a trio of buildings on Broadway—a two-storey bank between two skyscrapers. This is, at any rate, the solution of the light and air problem. It would also solve the problem in design. The two storeys of the bank run with the two storeys which constitute the base of the tall building; the bank's cornice with the top member of this base; their columns and arcades are fairly comparable. Here is dignity without monotony, picturesqueness without extravagance, height without gloom; every gain without any loss except loss of space, and loss of space is gain in this case.

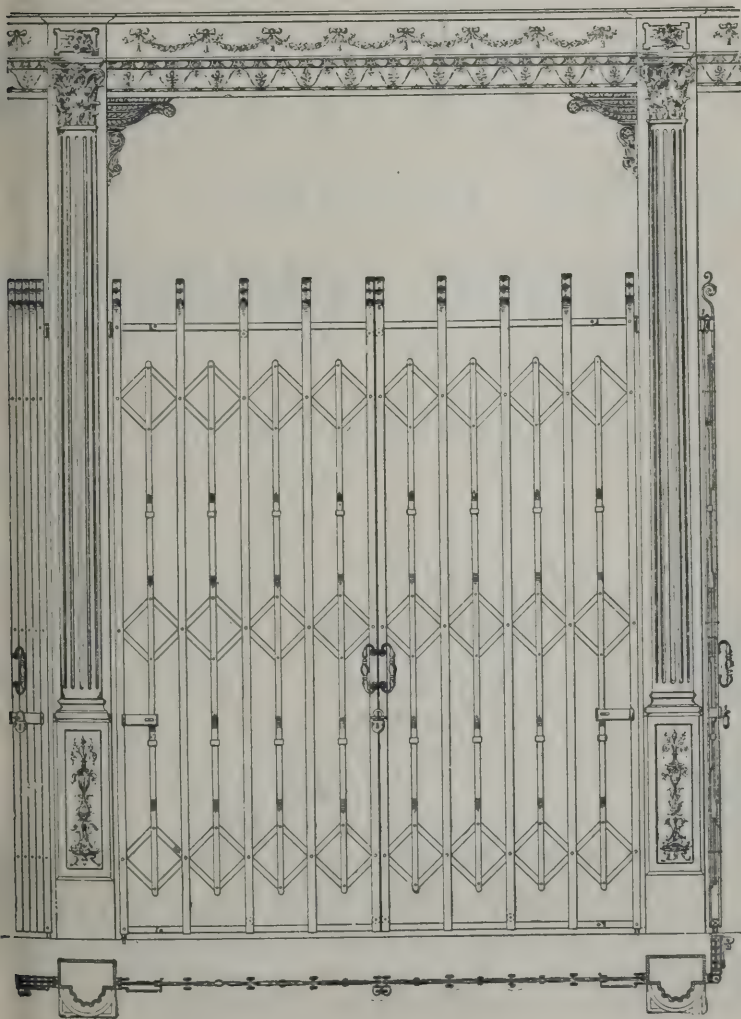
What other cities have to learn from New York is to put the limit out of the question by taking precautions in time. The limit is not practical. It is not worth while to shut numbers of people in darkness for the sake of getting them all together, only to find that it would be better if there were not quite so many together. The limit of elevators and the limit

of traffic and transit in the streets seem to point to the same moderation in close building which is indicated by the requirements of planning for light. It is no extreme to advocate the attainment of this moderation by municipal regulation requiring that every tall building shall be isolated above such height as usually forms the base storeys of a skyscraper. This allows for such an arrangement as is suggested by the bank on Broadway between two such buildings. It would make a satisfactory street effect if the cornice at this height were continuous and the sky-line above broken at intervals, more or less regular, by buildings more or less tall.

A way to bring this about would be to require every high builder to isolate his upper storeys by the purchase of land sufficient for the purpose. This would not be tyrannical legislation. If any criticism is to be made of it, it might be called grandmotherly legislation, for it is looking after the interests of the high builder himself to compel him to guard the value of his building in this way. It is not, however, entirely grandmotherly, for the interests of the public are also guarded in matters for which it is certainly within the province of the City Fathers to care, viz. light and air and reasonable density of population. There is also plenty of precedent in cities which owe part of their success to regulations of this kind for requiring that the low part of the building shall have, for æsthetic considerations, a cornice line of a fixed height.

GAS FROM CHALK.

A REPRESENTATIVE of the *Sussex Daily News* recently called at the office of the Natural Gas Fields of England, Ltd., at Heathfield Station, to make inquiries concerning the progress of the discovery which has been the subject of so much comment for the last year or two. Most Sussex people are acquainted with the discovery of the gas at Heathfield. Although some workmen really had the gas alight in 1895 while sinking a deep artesian bore tube in the stable yard of the Heathfield Hotel, nothing was done until the following year, when a similar discovery was made on the railway. Mr. Charles Dawson, F.G.S., F.S.A., of Uckfield—who is now geologist to the large company owning the undertaking—went to Heathfield, and practically discovered natural gas in the district. It is well known, too, that for a long time Heathfield Station has been lighted by it, and that the engine which pumps the water for use of the locomotives passing through the



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station is also driven by natural gas. Many houses and business premises in Heathfield are also lighted by it, and the users speak in terms of unqualified praise with regard to the gas. At Mayfield Station a deep boring has been made without apparent success, and it is considered that the gas-bearing strata was full of water when the boring was made, and as it was cased to keep the water back, that it has been passed. Hopes are still entertained of finding gas there. The company have made some twelve boreholes in the Heathfield district, and have been successful in finding gas on each occasion. This work has gone on now for some eighteen months, and the yield of gas has continued the same during the whole of the time. The advice of the highest authority has been sought, and there is a consensus of opinion that there is a very large quantity to be found throughout the district. The gas has its origin in the Timmeridge clay, which is stated to smell strongly of petroleum, or mineral oil, throughout its vast area. In point of quality the natural gas of England has an advantage over that of America. The latter, burnt in the ordinary fish-tail burner, is practically devoid of illuminating power, while the English gas, burnt in the same way without previous enrichment of any kind, gives a candle-power of about 14.

That the discovery is one of national importance everybody will admit. Given further success at the borings and a continuance of supply the possibilities are multitudinous. Not only might various towns all over the South of England be supplied with the gas, but power-generating stations could be established on such a scale that the manufacturing industries would be revolutionised. It is said that more than one American millionaire owes a great deal to natural gas. Mr. Carnegie in 1885 said:—"In our steel rail mills we have not used a pound of coal for nearly a year, and in our iron mills for the same period the change is a startling one." Where we formerly had ninety firemen at work in one boiler-house and were using 400 tons of coal a day, a visitor now walks along the long rows of boilers and sees but one man in attendance. The cost of the coal is not only saved, but the great cost of firing and handling it, while the repairs to boilers and grate-bars is much less." Preparations are being made at Heathfield for establishing factories; there is a rumour that negotiations are pending for electric power to be supplied from Heathfield to the London, Brighton and South Coast Railway to run trains by electricity from Tunbridge Wells to Eastbourne. Gas has been found at Mayfield, and efforts will shortly be made to find it at Crowborough, Groombridge and other places in the

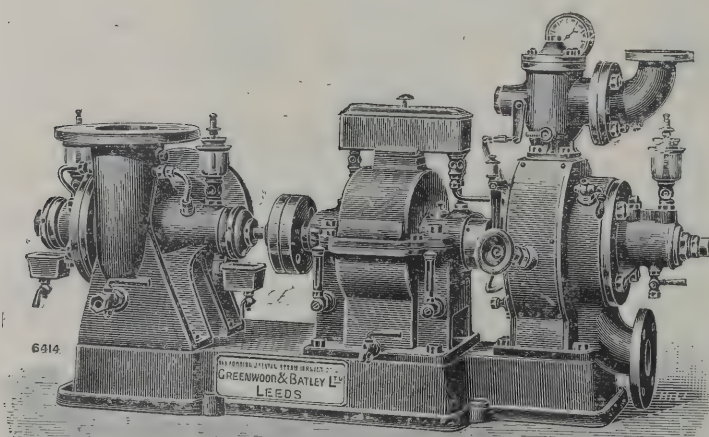
district. The only question in the mind of the public has been, "How long is it going to last?" That, of course, is an important question—at least, it has been—and, as has been said before, the highest advice as to the probable length of supply has been obtained. It is, however, no longer a question of importance, and the *Sussex Daily News* has been furnished with details of an invention which will doubtless be the subject of conversation throughout the scientific world before the week is over. Natural gas may last for years, or, on the other hand, the supply may cease, but with the new gas there can, it is stated, be no question of failure of supply.

The new invention, our representative was informed, is to be called "The Pearson Gas," after the managing director of the Natural Gas Fields of England, Ltd., whose discovery it is, and it may be said at once that it has been tested by Professor C. Vernon Boys and Professor W. J. Atkinson Butterfield, both of whom have pronounced it an unqualified success. It is claimed that while it will be from 25 to 30 per cent. better than ordinary gas for heating purposes it can be produced at so small a cost that it could be sold at the rate of 2d. per thousand feet, while the price of lime will be reduced from approximately 12s. 6d. per ton to about 5s. 6d. The process by which it is claimed this revolution will be achieved will be by obtaining gas from chalk, and in all probability Lewes and the South Downs will soon hear a good deal more about the matter. To every hundred tons of chalk will be mixed about ten tons of coke or coke breeze, and from this it is claimed 10,500,000 cubic feet of gas will be obtained. After the gas leaves the limekilns it will pass through a series of converters and regenerators, which will be blown up to a great heat, and all the power for this purpose will be generated by the waste heat from the various processes. The calorific value of the "Pearson" gas is 52½ heat units per cubic foot, which shows a great advantage over other gases—Siemens's being 30 heat units, the Dowson gas 37 and the Mond 47. The chemical analysis, too, is greatly in its favour, giving the following figures:—CO 44, hydrogen 20, CO₂ 6, nitrogen 30. It is highly probable now that, instead of supplying gas to Eastbourne and other places from the natural gas supply at Heathfield, a plant will be laid down for the manufacture of the "Pearson" gas. To a county like Sussex, abounding in chalk, the discovery of this method of manufacturing gas holds forth untold possibilities, while it should also mean a considerable reduction in the price of almost every article in the making of which either heat or power is used.

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THE WEEK.

THE calamity at Eton on Monday morning, when two boys lost their lives through the fire in one of the houses of "Baldwin's End," reveals that on such occasions few buildings can be considered as secure. Special arrangements for escape are rarely demanded by building owners, and if they were more general they might help to create uneasiness among nervous people. At the inquest on the victims no cause was assigned for the outbreak of fire. The electric light was used throughout, and although there was gas also there was no danger from its coming in contact with anything inflammable. One of the boys who lived in the house said smoking was not allowed, and he never knew of any interference with the lights or playing with fire. It was also proved that the fire was not caused by electricity. Although the house was old and there was lath and plaster within, yet the fire lasted four hours in spite of all the efforts of the firemen. Three of the windows were barred, and it was owing to the failure to break one of the uprights with a crowbar that one of the victims suffered. The jury, while admitting there was no evidence to show how the fire originated, recommended electrical communication with the engine-house for every boarding-house in the college, and that printed lists be placed prominently in every house. They also advised the removal of bars from all windows at once. The bars were introduced for safety, and their removal may lead to accidents. What is more desirable at Eton, as in schools and institutions where there are many inmates, is special drilling. The headmaster, Dr. WARRE, must have had a presentiment of the tragedy, for in January last he wrote to all the house masters, saying:—"It is the duty of every house master to see that in cases of fire there are ample appliances for dealing with it in its initial stage, and, secondly, sufficient ways and means of escape for all the inmates of the house. It is advisable also that the boys in every house should have fire drill once or twice in a schooltime, and that each and all should be taught what to do in case of emergency."

THE médaille d'honneur at the salon of the Artistes Français in the section of architecture has been awarded to M. RAYMOND CHAUSSEMICHE. First class medals have been won by M. NODET and M. MUNIER. Second-class medals by MM. LAPEYRÈRE, FORTIER, ROUSTAN and HÉBRARD. Third-class medals by MM. RIPIN, DAVI, DELAPORTE, CRET, BRUNEL & POTTIER and HERLOSSON. In the section of painting the successful artist is M. GABRIEL FERRIER. Although there were several candidates, the contest lay between him and M. HENRI MARTIN, who is one of the representatives of sober Impressionism. In the first voting, when 430 votes were given, M. MARTIN obtained 142 and M. FERRIER 113. In the second, out of 452 M. FERRIER obtained 216 and M. MARTIN 184. In the third, out of 407 M. FERRIER obtained 243 and M. MARTIN 148. M. FERRIER is a native of Nîmes, and studied under M. PILS and M. HEBERT. He won the Prix de Rome in 1872. One of his principal works is a ceiling painting having for subject *The Glorification of the Arts*, which was executed in the French Embassy at Berlin. M. FERRIER is well known to many English painters through his connection with the Académie Julian. In the section of sculpture M. HANNAUX has gained the medal. In the second voting M. HANNAUX obtained 103 and M. SOULIS 30. M. HANNAUX is a native of Metz and studied with MM. DUMONT, THOMAS and BONNASSICUS. He has not been fortunate heretofore in obtaining rewards, and he was not distinguished in the Ecole des Beaux-Arts.

At the last meeting of the Anthropological Association of Berlin a paper was read by Dr. STÖNNER on the Temple of Nakhon Wat. Probably it is no more than a preliminary exercise for a large volume on the subject. It is doubtful whether in the East there is a more remarkable temple. FERGUSON devotes several pages to it. It is almost an exact square and measures an English mile each way. The walled enclosure of the temple is 1,080 yards

by 1,100 yards, and is surrounded by a moat 230 yards wide. The outer enclosure has an area of 370,000 square feet. This is, however, exceeded by the Temple of Karnac, which has 430,000. The sculpture, it is calculated, represents from 18,000 to 20,000 figures, mostly battle scenes. The relief is so low as to be taken at first sight for incised work. "The Gothic architects," says FERGUSON, "attempted to incorporate their sculpture with the architecture in the same manner as the Indian architects. The Greeks, on the contrary, kept them distinct; they provided a plain wall outside the cella of the temple for their paintings and sculpture, and protected it by screens of columns precisely as the Cambodians did, and it is difficult to say which was the best principle." Dr. STÖNNER found that a large part of the sculpture was in good condition, but nothing was done for the conservation of those wonderful works. Vegetation is allowed to appear everywhere unchecked. Some of the doors were so large that an elephant with its howdah could easily pass through. Although many kings have taken a share in the building, it was never completed. Dr. STÖNNER was able to show a vast number of photographs of the sculpture and other portions of this marvellous building, and he expressed surprise that so little was known of the structure by Europeans.

THE census return of the number of houses in England and Wales shows a steady increase during the century which ended on April 1, 1901. On that date there were 6,260,852 inhabited houses and 448,932 described as uninhabited. But among the latter were 189,137 which were utilised for business or other purposes during the day, but were without inmates on the census night. There were also 61,909 houses building. The increase of inhabited houses in the ten years between 1891 and 1901 was 14.87 per cent. The houses in course of erection indicated a larger increase, for in 1891 there were 38,387 against 61,909 in 1901. The latter number was larger than in any of the decennial periods, the nearest approach to it being 46,414 in 1881. The inhabited houses in 1801 numbered 1,575,923. The increase during the century has therefore been nearly four-fold. The families or separate occupiers of houses in 1801 numbered 1,896,723, consisting of 8,892,536 persons. In 1901 there was an increase of families to 7,036,868, and of persons to 32,527,843. The ratio between occupiers and houses was nearly similar in the first and last period, but there were slightly fewer persons in each house in 1901, or, in other words, there was in general less crowding.

THE statue of DEMOSTHENES in the Baccio Nuovo has long been considered as one of the noblest examples of ancient portraiture. RICHARD COBDEN was more captivated by it than by any of the great works in the Vatican. Instinctively, he said, everyone who was the advocate in a great cause must believe in the fidelity of the likeness. The figure, it will be remembered, holds a partly unrolled scroll in both hands, and the strained arms are in keeping with the pose and with the determined look on the face. The whole force of the orator's soul appears to be concentrated in the expression he uttered at the moment. For a long time doubts have arisen about the correctness of the attitude. Why should he hold a scroll? His speeches were no doubt most carefully prepared, but DEMOSTHENES was never likely to read from a manuscript in public. There would, however, be no extravagance in supposing he was reading from a record or commenting on an indictment of one of his enemies. There was a statue in Athens which had clasped hands, for the story is told of a robber placing some money he had stolen within them. It was supposed by some archæologists that the scroll was an addition, and the hands were originally differently placed. Dr. PAUL HERTWIG has, however, brought evidence in support of the existing arrangement. Last year remains of a statue were found in a Roman garden, which appeared to be a copy of the *Demosthenes*. The hands were tolerably well preserved. A cast was obtained of the statue in the Braccio Nuovo, and there was little difficulty in adapting the hands to the arms. In one there was a very slight difference, which rather confirmed the conclusion. There is sure to be discussion on the subject, but at present there is less doubt about the introduction of a scroll in the orator's hands.



TYPES OF COSTUME :—ANGLO SAXON.

FIREPROOF CONSTRUCTION AT EARL'S COURT.

DURING more than fifty years there has been a struggle in the great exhibitions between business and recreation. In Hyde Park, in 1851, there was little scope for the latter, but the dawdlers of society were supposed to have their wonder excited in some degree, and to be gratified, as far as they were able, by such an amazing amount of industry. As time went on recreation gained the upper hand, and the last Paris Exhibition, which was believed to be the climax, derived any success it attained through the arrangements made for diverting the mind from arts and industries. The Earl's Court Exhibitions have been so long associated with amusement, it is difficult for the public in general to believe they can have any other purpose. There has always to be a modicum of reality, and the cleverness of the management is shown by making it serve as a nucleus around which spectacular displays of a gorgeous kind can be arranged. But it must be owned it is a disadvantage for those to whom the nucleus is everything to find themselves and their productions relegated to the positions of mere atoms, which are likely to be overlooked amidst an immense mass having diverse elements. Many people object to such a sacrifice of themselves. That we believe to be the principal cause why the exhibition of means for fire prevention and fire extinguishing at Earl's Court has not the comprehensiveness that is desirable with a subject of such vast importance.

The exhibitors can feel justifiable pride in knowing that if they were absent the *raison d'être* of the exhibition would not be apparent. We do not suppose if a different class of objects were suddenly introduced into the "Queen's Palace" and "Imperial Court" there would be any diminution of sightseers. But there is logic in the theory of spectacle production as well as in graver matters, and the elimination of such "industrial exhibits" as belong to fireproof construction would deprive the whole show of a piquancy otherwise unattainable.

It requires, however, a spirit of resignation for an exhibitor to be satisfied with what takes place. There are undoubtedly invaluable inventions to be seen in the spaces assigned for the display of "industrial exhibits" at Earl's Court. But with so many counter-attractions, each of which strives to monopolise the attention, what chance of being recognised has a piece of concrete which no ordinary fire can overcome, or an apparatus which by timely use can prevent the extension of flames? It was an old fable that HERCULES, when placed between pleasure and duty, inclined to the former, and weak mortals should be excused if they prefer music, chutes, fiery lava, glacier glides and other sights and sounds to the modest triumphs of inventiveness, each one of which represents not only a large outlay of money, but years of patient labour in experiment. The exhibitors have of course the possibility of finding amidst such large crowds an occasional appreciator. On the other hand, a great many people visit the exhibition

repeatedly without condescending to cast a glance on the part which in one sense is of most consequence for the public, and the most deserving of attention. For that reason we have resolved to confine our notices to what are called "industrial exhibits"—a phrase that is not only inadequate, for it does not even suggest the scientific character of methods of construction, engines, apparatus, &c., but refers also to the polishes, lace, confectionery, tobacco, jewellery, which are assigned places near the inventions.

That martyr to duty, JAMES BRAIDWOOD, one of the victims of the great Tooley Street fire, considered that before means of preventing or extinguishing fires could be attained it was necessary to consider the causes of fire in this country. The result of his experience as superintendent of the London Fire Brigade he gave in the following enumeration:—(1) Inattention in use of fires and lights; (2) improper construction of buildings, &c.; (3) furnaces or close fires for heating buildings, or for mechanical purposes; (4) spontaneous ignition; (5) incendiarism. The order in which the causes were arranged corresponded with the knowledge acquired during his time, or about fifty years ago. The same causes still prevail, although their relative danger may have been altered. In the Earl's Court Exhibition there is nothing to suggest the improvements which diminish the risks of heating and lighting. Spontaneous ignition may be overlooked, for only two cases arose in 3,400 fires, and incendiarism, of which fortunately there were only six cases, is not easily prevented by inventions. We may therefore divide the exhibits in the section into two great classes—those relating to the construction of buildings and those relating to the extinguishing of fires. At present we shall deal with the former.

In construction what appears to be most remarkable is the attention given to concrete. The name is too generic, for there is not much affinity between the colossal masses used in Roman structures and the refined but tough material of which we see specimens in the exhibition. But there is still an inherited prejudice in favour of coarseness, for one of the drawbacks to the use of concrete is the prevailing belief that untrained labourers are adapted to carry out the work.

Messrs. HOMAN & RODGERS, who have been constructing concrete floors for about thirty years, use concrete in flat slabs of 6 or 7 inches. They employ a flat-boarded centreing which can be removed in four or five days. The construction has the advantage of tension bars between the steel joists, and therefore the concrete has rigidity in length and breadth, and can meet a variety of strains. Another method of theirs derives aid from the use of a fireclay hollow brick especially made in a manufactory of the firm at Parkstone. It is of triangular section, but the sides are not of uniform thickness, for each has ridges which form an excellent key for both plaster and concrete. With steel joists 18 inches apart this flooring is of great strength, and has been used in public buildings, factories.

warehouses and other places where heavy loads have to be sustained. From the experience of the firm in steel construction there is surety that the desired strength will be always secured.

The Columbian Fireproofing Company make floors which may well be described as monolithic. Their main girders are of the ordinary I section, but the ribbed bars auxiliary to them, and serving as cross-ties, may be called smaller I bars, with the web extended above the top and bottom flanges. The dimensions, of course, are adapted to the load and the span. In some cases the bars are much more elaborate, and resemble three or more small I joists superimposed. Care is taken in the arrangement to avoid rivetting, and from their peculiar sections the bars can be held firmly in stirrups. The concrete slabs for lower flanges of girders are held on by hoop-iron anchoring. The system makes an excellent floor. It is claimed that the floors are proof against falling loads on account of the action of the rib-bars. In a warehouse at Pittsburg a drop-test of 238 lbs. falling 8 feet was sustained. That is a more severe test of adhesiveness than a great but quiescent load. On a floor where the spans were 16 feet a load of 9,000 lbs. was placed on a base of 3 feet by 3 feet, or a load of 1,000 lbs. to the foot. In Boston a load of 1,400 lbs. to the foot was applied. A floor constructed to carry 175 lbs. per foot safe live load was tested by placing 24,000 lbs. on the centre of a 16-foot span. The floor was detached; that is to say, it was only partly constructed, and was not continued to the wall or abutment. The load was equal to a distributed one of 48,000 lbs. It was found that "the total deflection on a 16-foot span was $\frac{3}{4}$ inch, and the load remained on the floor for forty eight hours without any further deflection. The load was then removed and the floor returned to its original and level position without the slightest crack in concrete." The fire-resisting qualities are also remarkable. In New York a floor with a load of 150 lbs. per foot was subjected to 2,200 degrees of heat for five hours, then drenched with water and loaded to 600 lbs. to the foot without any injury. In London a floor with a load of 168 lbs. per foot was subjected to a heat of 2,500 degs. Fahr. for two and a half hours without the fire passing through the concrete, for the wood fillets on the upper surface were uninjured. The number of American buildings in which the system was employed is remarkable. The Boston Wharf Company have used 520,000 feet of it. There is a lengthy list of English buildings, including Windsor Castle, the Patent Office, many banks, theatres, large electric power-houses, &c.

Granolithic pavement has long been in request for out of door use. It is now extensively employed as a fire-proof flooring. The whole of the floors, roofs and staircases in the North British Railway station, Edinburgh, are of the material supplied by STUART'S Granolithic Stone Company, comprising 253,000 super feet of flooring, 43,000 lineal feet of casing of beams, 21 acres of plastering on walls and ceilings, 15 miles of cornices and 15 miles of cement skirting. The use of the material has enabled elaborate ceilings with very deep coffers to be constructed. Hence there is an impressive architectural effect obtained as well as safety. The building, it is known, was only lately constructed, and indicates the extended use of fireproof material in this country. The examples to be seen at Earl's Court show the applicability of the material to flooring, arching, columns, casing of girders, steps, &c.

There was at one time a belief that timber might be protected if covered with sheet-iron. But FARADAY and Sir WILLIAM TITE said if the heat were continuous, the iron did more harm than good. Uralite, which might be considered as flexible, can act as a preservative for wood or other substance for a long space of time regardless of the strength of the flames. If it were only as a protection, there would be a wide field for the employment of the material, but Uralite has many uses. Until an experiment is witnessed, a sceptic might doubt that what seems to be as frail as a piece of Bristol board can defy intense heat to which other materials succumb. It can be used for ceilings, partitions, and walls, with advantage. Messrs. MATHER & PLATT produce doors and fire shutters in which it is an essential element. Insurance offices accept the material as fireproof. It owes its fire-resisting qualities partially to asbestos being one of its constituents. It is

one of the materials which have given a new power to architects. As it is now made in the British Uralite Company's works at Higham, in Kent, it becomes a national manufacture of which the use will extend in course of time.

People have often wondered why the general use of the bamboo by the Japanese has not become suggestive in this country. It is an example of nature's mechanics, for it combines strength and toughness with economy of material. In the Mack slabs, of which Messrs. J. A. KING & Co. are the manufacturers, we have a material which seems to be peculiarly adapted for partitions. About the lightness there is no question, and as the slabs are made in lengths of 6 feet by 1 foot, they can be fixed with expedition. As sometimes happens with new materials the fire-resisting quality excites surprise; they have stood tests of more than 2,000 deg. Fahr. and remained intact. Another advantage is that they are sound-proof, owing to the air cells formed by the introduction of hollow reeds. They can be coated with plaster if desired, but they can be finished in such a way that plastering is not required, and the papering may be applied a few hours after erection. The Mack slabs can be used with steel joists and thus become a valuable fireproof flooring. They are also applied in connection with roofing, and remove some of the inconvenience of mansards and pitched roofs. They have also been applied as a casing for stanchions and girders. In the North British Railway hotel the slabs were employed for the fireproof partitions.

At the stall where the slabs are exhibited Gypo, a fire-resisting plaster, and LAWES'S Keene's cement can be seen. The name of the producers, JOHN BENNET LAWES & Co., is a guarantee of the efficiency. There is also a very ingenious steel corner plate, from Mr. W. F. PARKER, of New York. Many builders have wondered at the expedition with which American structures are raised. One of the aids and appliances is this corner. It removes the difficulties in forming vertical arrises, and serves as a trimming for windows and doors. It is at the angles that the wear and tear of buildings becomes most manifest, but with this invention even mischievous corner boys would have to respect masonry.

When expanded metal was first proposed to be used in connection with concrete there was some incredulity about the results. It was predicted there would be a repetition of the consequences following the employment of cast and wrought-iron for compound girders. Dissimilar materials could never, it was believed, co-operate at the same instant when the greatest strength was necessary. Experience has set aside all those apprehensions. The slight trelliswork has been found to impart new qualities to the material. Concrete can be used either as slabs or as flat-arching, in partitions, in ceilings, or in arches, and in all cases it is found that a vast accession of strength is acquired by the introduction of metal in a suitable form. The trelliswork has many properties of its own, but its main importance in construction is that by means of it the tensile strength of concrete, which was formerly one-tenth the compressive endurance, is now equalised. Or, to put it in another way, concrete represented the cast-iron beam; with the intercalation of expanded metal it becomes like a wrought-iron or a steel beam. The invention is exhibited by the New Expanded Metal Co., Ltd.

A system of construction largely employed in Scotland by such architects as Messrs. HONEYMAN & KEPPIE, Messrs. PEDDIE & BROWN, Mr. J. CHALMERS, Messrs. BAIRD & THOMSON, Mr. F. M'GIBBON, Messrs. H. & D. BARCLAY and Mr. W. LEIPER is the Fram arch-block. The system is ingenious. Let a small flat arch be supposed which is thicker at the haunches than near the centre; let it be divided in two for the sake of manufacture and that the centre part is thickened, and we then have a rough idea of the form of the blocks. The haunches are shaped so as to allow of seating on the flange of a girder or the off-set of a wall. The soffits form a not unpleasing ceiling which recalls an arch with fluting. The blocks are largely utilised for warehouses, factories, printing offices, &c. It is adapted to various kinds of floors, and time is saved because as soon as the blocks are laid they have no need of drying. All that is needed to be put up are the steel joists, and the arch blocks can be laid without staging or centreing. The system is exhibited by Messrs. G. ASTON & SON.

Another example of the applicability of hollow bricks for partitions is seen in the "Shepwood," called after the makers. The bricks are made in various forms. They can have grooves in which plaster may be inserted on both sides, and then the thickness is only about 3 inches. The face can also be left plain when there is lime-whiting or distempering. The system has been adopted in several hospitals, banks, offices, and for cubicles in homes.

A variety of the use of metal in connection with concrete is seen in HAYES'S patent. The sheet steel is punctured in oblong forms, the metal thus forming tongues which act as a key to the concrete or whatever material is employed. From their flexibility the plates may be used as a covering for boilers over which a non-conducting material can be placed.

Windows have long been recognised by firemen as among the most dangerous spots in a building. As BRAIDWOOD said, as soon as fire breaks through a window or skylight the whole place becomes an immense blast furnace. Every minute during which a window remains whole is therefore precious, perhaps more so than as regards any other part of the premises. Hence wired rolled glass, manufactured by Messrs. PILKINGTON BROS., of St. Helens, is a boon for which the public should be grateful. A window and a skylight in which wired glass was used have been subjected to flames and water without allowing an entrance to air. The case seems to bear some affinity with the use of metal netting in concrete, but however explained the result is most satisfactory.

In a constructive sense the St. Pancras Ironwork Company, Ltd., could hardly fail to be prominent in such an exhibition. They do not exhibit large buildings, but there are examples enough to suggest the wide range of their operations. Everyone who has taken an interest in fires must acknowledge how painful is the effect in seeing stables in which vigorous but helpless animals have been destroyed. The company were the pioneers of the revolution which has compelled every gentleman who professes to have tender feelings to secure his stables as well as his residence against fire. But there are other dangers to horses besides fire, and they also are overcome. The necessity for external staircases has enabled the St. Pancras Ironwork Company to extend a class of work long recognised as one of their specialties. The advantages of their system are manifested by the large number of hospitals at which their staircases have been set up. In times of panic the least vibration or slipping may lead to a catastrophe. A new patent non slipping stair tread has been introduced, in which steel and a peculiar concrete is combined. The new staircases can be adopted externally or internally, and there are many cases where they are urgently demanded.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

CHAPTER XII. (continued).

IN designing terrace-houses it is unnecessary to consider any claim for symmetry in regard to a single house. The whole block may take a symmetrical form, or a lesser number of the houses may be so combined.

The first principle affecting the typical terrace-house is one of economy of construction; or, at the very least, the avoidance of extravagance. Consequently, everything tending to strengthen the expression of the principle is commendable—pretentiousness is particularly out of place. In the spirit of inquiry it might be asked, What constitutes the quality (or vice) of pretentiousness, and in what respects are columns, balconettes and pedimented windows, &c., more to be deprecated for terrace-house designs than are porches, gables, balconies and so on? Clearly the answer would be that all features which are solely ornamental are unsuitable wherever the requirements are strictly utilitarian, or, to word it scientifically—the use of ornament should vary inversely as the claims of economy. It might, however, be urged that the various specimens of the genus "speculative builder" pin their faith on features ornamental as distinct from utilitarian, with the hope of attracting victims, that is to say, householders. Defective principles,

however, cannot be justified by an appeal to the foibles of mankind.

Frequently speculative houses other than terrace-blocks are met with, where the principle of utilitarianism will be consistently modified in accordance with the rule stated above. It is well known that many blocks of terrace-houses are designed for tenants of wealth and consequence, and their treatment from a decorative standpoint will be in keeping with the altered requirements.

Some notes on the principle of *Continuity* may be included here.

It is largely dependent on that species of truth which appeals to the imagination, and which must be satisfied, in addition to what may be termed constructive truth. When the essential purposes of a column, an arch, and a lintel are under consideration, it will be observed that we obtain, in the first case, direct vertical support, and in the other cases, the support of evenly-distributed loads over voids.

It is desirable, for æsthetic reasons, to refrain from exaggerating supports, even as it is necessary to avoid overloading them constructively.

Recognising then, what are the essential purposes of a column, an arch and a lintel, the design should fully express these purposes. The arch should carry its burden from the centre to either side of the void that it spans, and the eye should be able to grasp clearly the fact that this is effected. If, however, as may so frequently be observed, square projecting voussoirs alternate with other voussoirs flush with the wall surface, or in a plane set back from that occupied by the square blocks, the effect of spanning the void is interfered with (see fig. 78); for the alternating faces

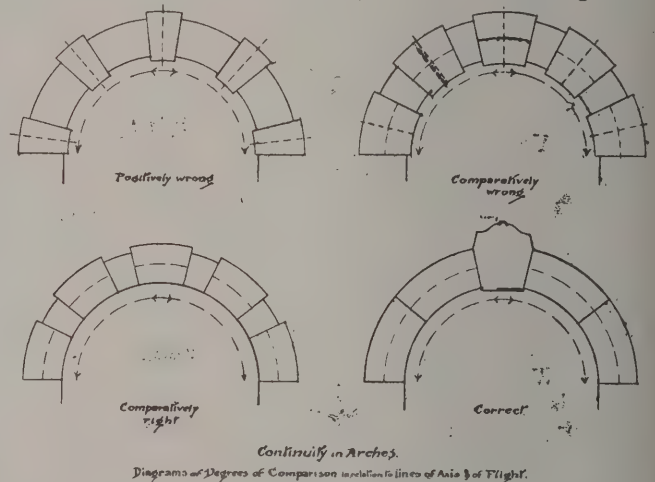


FIG. 78.

seem to break the continuity of the arch, though, as a detail of construction, adverse comment is uncalled for. The fault is greatly due to the misuse of contrast.

There would be less objection if the blocks were oblong, having the major axis in the line of flight of the arch; but still, the disturbance is æsthetically wrong. With arches objection cannot be taken to a projecting keystone, even though its main axis be vertical, as the distribution of the load is effected both ways from the centre to the sides of the void. If the voussoirs are all flush one with another, the manner of jointing is not of consequence, as the flight of the arch will then provide the lines of greatest prominence. Consequently, the knowledge that the radiating joints in a brick arch are both numerable and in a contrary direction to the axis of flight, does not act as a disturbing factor in good design.

The above remarks apply with equal force to the continuity of lintels; in truth, the application has rather greater force, as the basic idea or principle of the lintel is the spanning of a void by a single stone. It is wrong to use arcuate construction for a seeming lintel, and it is equally wrong to break up a seeming lintel into a succession of blocks. The eye should be carried from end to end of the lintel without pause, and most assuredly there should not be a keystone, to which the beam principle is utterly opposed.

A different line of reasoning is pursued respecting the necessity of continuity in columns. The support, in order to be effective, must have a good foundation, and though it is not necessary that the latter should be apparent to the

eye, there should not be any cause (real or illusory) to doubt that the support is both adequate and firmly based. Anything, therefore, that tends to destroy the line of continuity between the points of application and foundation of support interferes with the expression of the truth first alluded to—that is, perceptive truth.

There is also another element introduced by the want of continuity, and this is the appearance of malformation caused by the alternation of cubical and cylindrical blocks. The plea, often advanced, that an effective play of light and shade is provided, has a semblance of justification that does not outweigh or even balance the disadvantages. And if the alternation of blocks is merely as between cylinders of different diameter, an appearance of monotony is created, from which the continuous column is entirely free. And it is this element of malformation that is so frequently accountable for the feeling of repugnance created when viewing many modern buildings, whose squat columns and pilasters are still further dwarfed by this treatment of blocking-out, and whose window architraves, instead of forming a pleasing framing, are tortured to an extent that places the spectator's sensation of repugnance beyond the charge of affectation.

Whilst it is graceful, when writing, to indulge in praise or commendation of co-existent brother professionals, mentioning their names, it is invidious to specify those whose work gives occasion for detraction; and this is more especially the case, as it would be an obvious criticism against the critic that the latter might be condemning what was purely a matter of individual taste.

The use of this latter phrase leads by an easy process to some remarks on *individuality* in design, a quality that has legitimate scope for display. It is a quality of personalism, and academic rules cannot be laid down on any but the broadest lines; the utmost that can be advanced is that the creations of designers should faithfully interpret their ideals—granting, as a necessary preliminary, that the ideals are worthy. Amongst contemporary architects, Messrs. NORMAN SHAW and ERNEST GEORGE, in grafting their own artistic ideas on a good architectural trunk, have produced work whose individuality is both justifiable and satisfactory.

The effect of personalism may, however, in some cases be justifiable without being satisfactory, as some of the modern work exemplifies. In the ranks of historic architects, the works of WREN and ROBERT ADAM show this quality in pleasing fashion, that of the latter more especially in surface decoration. It is a quality that will admit of extension amongst architects; with artists it is prevalent, and to mention two merely as types, Mr. ORCHARDSON, R.A., is an individualist in colour, and the late GEORGE CRUIKSHANK in technique.

With the subject of personalism is connected the use of what may be termed *conceits*; that is, little tricks and mannerisms that may or may not be traceable to a logical basis. For example, Sir WILLIAM CHAMBERS introduced *bucrania* (ox skulls) on many of the metopæ in his designs, and this ornament (!) was as unpleasing as it was illogical; in the ancient temples there was sense in the use of this feature, symbolical as it would be of the sacrifices on the altars. As another case, consider the gryphons, to whose use ROBERT ADAM was so addicted; it may be granted that the feature cannot be justified on any grounds of distinct appropriateness, but this justification is unnecessary; the ornament is a graceful one, and does not carry with it any objective significance as noted above in the case of an ox skull; so that on negative grounds it may be permitted, even if some be found to demur as to its positive suitability.

Another feature whose use now is nothing more than a "conceit" is the gargoyle. Originally these grotesque figures acted as rain-water outlets from the roofs, and projected sufficiently to throw the water clear of the wall surface; passers-by below had, however, to look after their own interests, and in this very fact lies the justification for any grotesqueness or impishness conveyed in the carvings, though it is not claimed here that the mediævalists reasoned thus. Water is now carried from the roofs more soberly, and with due regard to the common-law rights of individuals; consequently, gargoyles are quite out of place, though their introduction may well be condoned on such a building as the

Natural History Museum, London, when its purport is remembered.

The use of MEDUSA's head, masks and satyr-faces on keystone voussiors, as also the use of a lion's face resting on the paws (as in fig. 79), and similar absurdities are all "conceits," and may all be advantageously avoided. That there are occasions when the employment of one or other of them is justifiable, does not detract from the value of the rule. For example, an exceptional case would be in connection with an art school, where there would be a certain appropriateness in portraying externally by means of sculptured masks the series of "passions" (as a distinguished physiognomist has called the various psychical emotions). Similarly, many of these might appropriately be used on the façade of a theatre. But when all is said, these are exceptional buildings.

It is on a par with the "knocker" designs so frequently met with. To employ a dolphin, a serpent, a human head and other images in places where their use will be to hammer a door for the purpose of attracting attention is the height of absurdity. But if a closed fist is represented, the appropriateness is at once apparent.

Any *conceits* partaking of the character of pretentiousness should be condemned. For instance, the use of eagles, couchant lions, &c., in statuary is absurd except on menagerie buildings or for heraldic purposes; when employed as "supporters" to the entrance of small suburban property, their inappropriateness is apparent.

Another feature calling for notice is the "Persian" figure. These carvings are often known by the generic name of "Atlantides," and the female basket-bearers are known as Caryatidæ; of the latter, further mention is unnecessary, except to commend their use, if they are merely employed for the purpose of carrying vases or baskets on the head. But to load—to overload—to an impossible extent, a "Persian" or "Atlas" is quite unjustifiable.

It is (though, perhaps, unwittingly) an attempt at *deception*, an inadmissible quality in art. Of course, the effigy of "ATLAS bearing the Globe," used symbolically by the proprietor of *The World* newspaper, is highly appropriate. This is illustrated in the sheet of symbols (fig. at *e*). Whilst on the subject of deception, a few remarks may be penned on the debated point whether construction should or whether it need not be expressed in the design; it must be premised that by the term "construction" is understood here the *materials used constructively*. The practice of deception has the sanction of very remote antiquity, and possesses the vigour of an old age, periodically rejuvenated with the elixir of expediency; but it might all the same be asked and seriously debated, whether it is not possible to allow the veteran to "cease to live" (as it has been euphemistically termed). Is it not worth an effort to try and avoid shams? always, however, bearing in mind that in art, as in religion, devotees should not be "righteous overmuch." The late EDMUND VIOLLET LUDUC was an ardent advocate of developing design on the basis of iron construction, to meet the extended use of that commercial product; this eminent architect's idea was that the employment of iron should be frankly recognised, and that utility and decoration should go hand-in-hand. What has always, since its erection, seemed to the writer, to be a very heinous example, is the Tower Bridge, London; it possesses a certain air of picturesqueness, it is true, but it possesses two faults at least which are sufficient to destroy any pleasure that might otherwise be experienced on beholding it: (1) the style of architecture is hopelessly antiquated, and (2) the method of construction is totally different to the semblance. An excuse or an explanation that might be offered respecting No. 1 is that the style of architecture is in keeping with the adjoining Norman fortress, but if good work and substantial progress can never be made by slavish copyism of *contemporary* work, how much more must it be retarded by reproductions of *antiquity*? Moreover, the juxtaposition of typical old work and typical modern work is both pleasing and instructive. As regards objection No. 2, the *method* of construction being steel framework, the *appearance* of stone construction is inartistic; it is not necessary that the steel framing should be shown in all its nakedness, if this be thought undesirable, for stone might have been freely



Absurd Carving

FIG. 79.

and justifiably used, as long as the truthful construction was made manifest.

This is altogether different in principle to the case of the new bridge in course of construction a few miles higher up the Thames at Vauxhall. Here the constructive material is Portland cement concrete* of varying strengths, and the facing in granite is quite justifiable; nevertheless, to mention two more London examples, the stone construction exhibited in Waterloo Bridge, and the iron construction exhibited in Westminster Bridge are preferable, and each in its way a work of art.

There is at times a good deal of affected declamation against the use of Classic ornament in ironwork, more particularly in cast-iron. As long as the moulds are prepared with due care, and allowance made for any idiosyncrasies of the ore in casting, there is not any æsthetic objection to the reproduction of any kind of ornament or decoration whatsoever, except where attempts are made to imbue one material with the appearance of another.

Remarks have been made elsewhere as to expression in buildings, and it will suffice here to inveigh against a too common practice of making a building look as though its purport was totally different to the reality; not long since this led to a curious error on the part of some members of the house-breaking fraternity, who broke into a gaol under the impression that it was a banking establishment; were this to be a matter of frequent occurrence the deception might be condoned, but otherwise it is advisable that buildings should bear their character on their façade, as far as may be possible. Architects are urged to "design in beauty," and it might be thought that this is a quality, a principle, as distinctive as any other; but in reality it bears the same relation to all the other principles *in combination*, as does the divine masterpiece—a human being—to all the factors that combine to form its entity. "Beauty is but skin deep" is a saying, the truth of which is seldom questioned, as the phrase possesses such quiet plausibility; as a matter of fact, human beauty is not dependent merely on the outer lineaments, but has as factors proportion, balance, intelligence, expression and other component qualities. To revert, therefore, to beauty in architectural design: what architects have to consider is how to invest their creations with the various qualities mentioned in the pages of this work, how to give to these qualities their relative value, which, if successfully accomplished, will produce a beauty of their own. To strive for beauty *quâ* beauty is an error, but on a framework of truth, and cemented with experience, the materials employed with discrimination will insure a *tout-ensemble* that will shed lustre on the designer.

(To be continued.)

THE ASSOCIATION SKETCH BOOK.†

THE Association Sketch Book resembles those poetic works which are supposed to contain an elixir which will make us young whenever we peruse them. A third series and a sixth volume of it renew the effect which the earlier examples made upon us. It is always interesting to know whether the latest representatives are better draughtsmen than their predecessors, and, what is no less important, whether they have sharper eyes and have been able to discover subjects which were either passed over or were postponed and neglected at an earlier time. There are advantages possessed by the present contributors which could not be used by those who made the first attempts. It is much easier for a novice to make a drawing on a piece of "Whatman" than on transfer paper, which often was too absorbent, and coloured drawings need not be translated into black and white. We say this because it must not be supposed that the latest collection of sketches is, when all things are considered, superior to those forming the earlier ones. To sustain the standard already achieved is creditable. In the comparison between old and new there is no doubt the old members were handicapped. It is only right that all the improvement which time has brought

should be utilised. But we think the editors should have insisted on keeping the pages free from photography, even on a small scale. The plates ought to be in keeping with the title and thus form a veritable sketch book. They are tests of drawing, measuring and sketching, and there should be no necessity to call on the sun to play the draughtsman. The production of a plate is generally laborious, and it would be far easier to take a snapshot and have it enlarged and manipulated to the desired size. But the useful exercise heretofore obtainable would be at an end.

The third series has an admirable title-page by Mr. T. FRANK GREEN. It is no easy task to group buildings in different styles with pictorial effect. In this instance they are supposed to be viewed through a columned opening. The cathedrals, palaces, mosques, campaniles, town halls, &c., occupy a plane which gradually rises, and the summits are crowned by the Parthenon and the temple at Tivoli, while in the remote distance Egypt is suggested.

There are seventy-two drawings derived from subjects in England, France and Italy, contributed by thirty members. That may seem an average of over two plates for each, but Mr. GREGORY has nine plates of Bolsover Castle, Mr. REYNOLDS five of Aston Hall, Messrs. NEVINSON & NEWTON five of Albyns, Mr. TOWSE five of Houghton Hall, Mr. DE GRUCHY six of St. Buryan Church, Mr. DETMAR three of Wolvesey House, Mr. E. H. BENNETT six of Chartres Cathedral.

Bolsover Castle could be accepted as a model set if the dimensions on the ground plan were legible. It is an error to draw continuous lines through measurements; no doubt it is suggestive of expedition, but the lines and figures get intermingled, and it becomes difficult to distinguish a three from a five or a one from a four. Mr. GREGORY's explanatory notes in a uniform block lettering are as ample as one can desire. The details are boldly drawn, and the outlines of the sculpture and ornamentation are vigorous. The building is one of those which have won admiration from Americans, and this has caused more damage in parts than decay during three centuries. Mr. GUNN shows the porch of the church of St. John the Baptist, Barnack, on two drawings which are very careful. Albyns, Essex, gives to Messrs. NEVINSON & NEWTON abundant details from the mansion, of which parts date from about 1620. The carvers evidently had not a large supply of patterns.

Everyone knows there are three porches to Chartres—the west and north, which Mr. E. H. BENNETT has represented, and it is to be hoped the south will appear in the next volume. There is no more severe test of power in drawing than these examples of architectural sculpture, which DIDRON compared to leaves, or, we may say, articles out of one of those colossal thirteenth-century encyclopædias or *Speculum Universale* of which architects were the authors. Mr. BENNETT appears to revel in the difficulties; he not only shows the figures in the round but also in outline, and we can give no higher praise to his plates than to say they would assert themselves in any former edition of the Sketch Book. Gothic art will never vanish while there are Englishmen capable of rendering its detail in the way we see in these plates.

Aston Hall should be considered as having historical interest in a double sense, for it was the first of the stately homes of England to be acquired for public use. It is well represented by Mr. REYNOLDS, and the dimensions come out clearly, but it is not always possible to indicate the exact points to which they relate. A fireplace in one of the rooms is drawn by Mr. J. A. SWAN. Porches seem to be in favour. Mr. JOHN STEWART gives a drawing of one at Worstead Church, Norfolk, in which flint filling to the ashlar is employed. The Black Swan inn, York, is drawn by Mr. W. S. A. GORDON; it is a good type of that class of building. St. Bartholomew's Hospital receives so much public attention, the view by Mr. THEAKSTON of King Henry's Gate is likely to have unusual interest. It was rebuilt by WREN in 1702, and is now used by the beadles. The masonry is arranged in the upper part as a pilaster order running through three floors. Another work is one of the archways in Somerset House, by Mr. MACLAREN ROSS, in which there is a good deal of variety obtained in a limited area, the vermiculated courses being well balanced by those which are plain. Mr. J. G. WILES has selected the porch

* Since writing the above, it has been decided to substitute steel construction for concrete and granite.

† The Architectural Association Sketch Book, 3rd series, vol. vi. Edited by W. G. B. Lewis and W. A. Pite. (London: 56 Great Marlborough Street, W.)

of St. Mary-le-Strand, and Mr. CLAPHAM LANDER some details from the palace of Bromley-by-Bow. One of the candelabra from St. Antonio, Padua, is drawn by Mr. A. HART; it is, however, too elaborate a work to be fully represented, but the general effect is at least suggested. An Italian wine-cooler from the South Kensington Museum has been drawn by Mr. R. C. AUSTIN. The upper part is heavy and the base might appear to be too light, but owing to skilful treatment that defect is avoided, and the load appears as light as a flower. Some sixteenth-century carving in the Cornish church of Altarnun is drawn with delicacy by Mr. DE GRUCHY. The subjects are curious, and indicate an effort towards forms more diffuse than were sanctioned by Gothic precedents. Houghton Hall was designed by COLIN CAMPBELL for Sir ROBERT WALPOLE, but was operated on by "RIPLEY with his rule" and KENT. The four domes have an unusual effect, but they are not ungraceful. The picture gallery, that is so often referred to by HORACE WALPOLE, formed a separate building of one storey, and there was also a kitchen wing. The five drawings by Mr. TOWSE form another excellent set. Mr. HAROLD GIBBONS has drawn the door to the north porch of the church of St. Peter's, Walpole, which is fifteenth-century work, as well as the elaborate font cover belonging to the fifteenth century. The patterns are very skilfully arranged, but it is remarkable that amidst the mass of ornament there is nothing that has any relation with baptism or religion. The south porch and a bay in the nave of the same building is by Mr. MYRTLE SMITH. The detail of a part of one of the pulpits in St. Mark's, Venice, is drawn with vigour by Mr. D. T. FYFE. Mr. VARDELL presents one of the capitals in St. Eustache, Paris, a building that deserves more attention than it generally receives. The Renaissance type adopted was remarkable for the freedom allowed to fancy, although logically there may be a want of fitness. Mr. HORSLEY has a drawing of the Broletto at Brescia, which was much altered at the end of the eighteenth century; the part shown suggests a model which might well be adapted for houses with narrow frontages. A doorway in the Palazzo Municipale is contributed by Mr. FYFE, who also shows a part of the great hospital at Milan. The gates to the Back at Trinity College, Cambridge, appear to have been carefully drawn by Mr. MYRTLE SMITH, but the reproduction is not satisfactory, for it does not express the rigidity of the iron. A drawing of the north door of the Florentine Baptistery is by Mr. P. E. NOBBS. The famous bronze panels by Ghiberti could only be indicated by the brush, but their relation to the other parts is well rendered. The figures above the doorway by RUSTICI are lasting records of the meanness of the Florentine Council, who refused to give more than 400 crowns for sculpture of which the price was 2,000 crowns. The cloisters of Sta Maria della Pace, Rome, are by BRAMANTE. From their simplicity of treatment they formed an easy subject for Mr. F. G. NEWTON. Wolvesey House, the bishop's palace at Winchester, is the most important mansion in the volume. It was rebuilt by GEORGE MORLEY in 1684, and although plain to excess in the exterior, has excellent detail within.

Eltham Palace is displayed in some admirable drawings by Mr. W. E. A. BROWN. Two delicate views are given by Mr. G. S. NICHOL of a church at Norraine, near Caen. It is remarked that "the architect of this church was an apprentice at Rouen during the building of the cathedral there." The details of the church are therefore similar to those at Rouen. The church of St. Buryan is shown in six drawings by Mr. DE GRUCHY. They show great mastery by their decisive lines and avoidance of any stroke that was unessential. There is only one plate by Mr. C. C. BREWER, a rood-screen at La Martyr and a tower at Lamballe. Both are skilful examples of freehand work, and the subjects have the advantage of not being hackneyed, and are adapted for use in buildings on a small scale.

The editors are to be congratulated on their success in securing a collection which will be valuable as records. It will be seen from what we have said there is a desirable variety in the examples, and all reveal earnestness as well as ability in the different authors.

Mr. Frémlet has prepared an equestrian statuette of Francis I.

THE BURIED CITY OF BRAHMANABAD.

IN the course of a paper on the province of Sind, read at a meeting of the Indian Section of the Society of Arts, Mr. H. M. Birdwood said:—The first of the incidents of special interest of which I wish to speak before closing this paper is the sudden destruction of the vast and ancient city of Brahmanabad probably by a sand storm about A.D. 1020. My object is to invite public attention to certain discoveries made by Mr. Bellasis and Mr. Richardson many years ago, because their researches were of the highest interest, and so far as I know, no further effort has been made up to the present time to investigate the ruins. With this same object I read a paper on "The Buried City of Brahmanabad" before the Sassoon Institute in Bombay in 1885, after inspecting the ruins myself in the preceding year. Again, I can enter into no details. It will be enough perhaps to say that Brahmanabad was the seat, or one of the seats, of more than one dynasty of Hindu kings. The first of whom we have any authentic account was the good King Sahiras, in whose time there was no disaffected person in the kingdom. But the best known was Chach, the Brahman usurper. It was a city of merchants and traders, large and populous, surrounded by battlements four miles in circumference, with 1,400 bastions. The streets of the city can still be seen as open spaces, but the buildings, except one tower—left standing, as the historian tells us, "as an example"—are shapeless mounds of sand and brick. There can be no doubt, from what has already been discovered, that these mounds cover not only the skeletons of men and animals who were suddenly overwhelmed by the sand, but quantities of old coins, ornaments of stained glass and ivory, tortoise-shell and precious metals, cornelians, onyx, agates and other precious stones, glazed pottery, earthenware and china, cutlery and vessels for household use, and old baked clay balls, evidently meant as ammunition for catapults, which, if not known before the time of Muhammad bin Kasim, were at all events a part of his equipment. He landed five catapults at Debal, each of which took 500 men to work it. Near Brahmanabad I saw a large number of these clay balls piled in heaps, just as round shot are now piled, in a field called the arsenal, which is said to have been an old battle-field. Mr. Bellasis has minutely described everything that he found, including a set of chessmen in black and white ivory, probably the oldest known set. At the time when I visited Brahmanabad, no excavations were permitted, evidently for good cause. But there seems to be no good reason why these ruins should not now be thoroughly explored under competent superintendence.

The popular belief is that the city was destroyed for the sins of the wicked king Dalurai, who was buried beneath its ruins. In a popular proverb and legend about Bibi Dali, the Cassandra of her time, who foretold the doom of Brahmanabad, we are told how she was asked to save the innocent when the city was destroyed, and adopted a remarkable expedient for testing the righteousness of the people. She placed a live fowl in the hands of her maidservant and told her to go through the streets of the city and to pluck the feathers off the bird with violence as she went, and to bring back word if any man or woman tried to stop the cruelty. But not a voice was raised, not a hand put forth, and so the city fell.

Mr. Andrew Carnegie has given 12,000 dollars of Steel Trust Bonds to the Royal Scottish Academy, the interest from which is to be voted to meritorious students as travelling scholarships. The Council has accepted the gift.

A New Church erected in connection with the United Free congregation at Patna, by Ayr, was opened on the 30th ult. It is situated on an elevated site facing the main road, and is designed in Gothic style of the Early Decorated period. Facing the road is a lofty gable, with entrance porch at one side, behind which an octagonal staircase turret rises to a height of 70 feet. A projecting buttress runs up the centre of the gable, and on each side of this buttress are triplet windows with richly traceried heads in the upper part. The buttress terminates with a canopied niche under the apex of the gable. The entrance porch has a deeply moulded archway opening into the stone-lined porch, within which double arches lead to the area and the gallery staircase. The stair turret is carried up quite plainly in the lower stages, but the upper part is pierced with four tall belfry openings, divided by mullions, and with tracery in the heads. Above this the spire is carried, and finished with red roofing tiles. Internally the church is cruciform in plan, with shallow transepts, one of which forms the chamber for a handsome pipe organ. The church will accommodate 422 sitters, of whom 86 will be in the end gallery. A roomy vestry is provided behind the church, and the likelihood of future extension is prepared for. The buildings were designed by Mr. John B. Wilson, A.R.I.B.A., Glasgow, and were carried out under his charge.

NOTES AND COMMENTS.

THERE are so many men of high distinction in the world who have promoted art, manufactures and commerce in some way, and are therefore worthy of obtaining the Albert medal of the Society of Arts, it is no slight to civil engineering to find so few representatives of it in the list of recipients. This year Sir CHARLES AUGUSTUS HARTLEY has been awarded the much-prized honour. Commerce especially is indebted to him, for in 1856 he was appointed engineer-in-chief for the improvement works to be carried out on the Danube by a European commission, and since 1872 he has acted as consulting engineer. The river is now one of the most important waterways in all Europe. In 1875 he was invited by the United States Congress to report on the improvement of the Mississippi, and since 1884 he has served as British representative on the International Technical Commission of the Suez Canal. Various other Governments have availed themselves of Sir CHARLES HARTLEY'S services, and the choice of the Society of Arts will therefore be generally approved. He was born in 1825, and in early years he was associated with railway works.

THE presentation to the POPE of OVERBECK'S large cartoons of the *Seven Sacraments* recalls the efforts which were made by that artist in combination with CORNELIUS and SCHADOW to reform modern painting. They went to Rome as students of art, and, like the pre-Raphaelites afterwards, came to the conclusion that the works produced in the Golden Age—i.e. later Renaissance period—were unworthy of attention. Lord LEIGHTON, in describing the reformers, said:—"Some men, carried away by an unrelenting logic working on an ascetic temperament, have been impelled to assert that the application of art to any save a definite religious life is little less than an act of moral depravity, and a great and nobly gifted artist, FRIEDRICH VON OVERBECK, has not hesitated to declare his opinion that when RAPHAEL painted his famous *Galatea* in the Farnesina the LORD had abandoned him." The late President of the Academy studied with STEINLE, who belonged to the school, and there is no doubt he was affected by the belief which was common among them, that the excessive love of colour was an almost culpable indulgence of the senses. Some of the members, including CORNELIUS, grew out of their restricted doctrine, but OVERBECK remained faithful to the belief in asceticism in art. The cartoons of the *Sacraments* were designed in 1860, and form a complete decorative composition.

THERE is no longer any doubt that the "Tiara of Saitapharnes," which was added to the Louvre collection at a cost of some thousands of pounds, is not what it was supposed to be, a veritable antique work. M. ROUKHOMOVSKI, who was discovered to have made the pseudo-Scythian ornament, came so willingly to Paris to demonstrate his dexterity, he gained a victory almost before he attempted to perform the trial tasks assigned as a proof of his ability. He arrived in Paris, saw his work, and conquered by producing figures of a similar character. What is more, he gained a medal from the Salon. It is not to be expected of an archæologist ever to acknowledge he was in error, and the recondite spirits who advocated the purchase of the tiara are now endeavouring to prove the accuracy of their statement. Possibly they have fear of a prosecution, for the French are always in want of a victim. According to M. THEODORE REINACH, a part of the tiara is ancient work. Enough of the topmost portion as well as the lowest border remain to make it possible for a metalworker to imitate the remainder of those parts in the same spirit. As there were no materials for the intermediary parts, it was necessary either to create them or to borrow them. He supposes that some of the figures were found in an old collection of plates by WIESELER. The book has, however, so fallen out of repute that no archæologist could be blamed for being ignorant of its existence. It appears that M. ROUKHOMOVSKI made no secret of his inspiration. Otherwise it would have been easy for him to make people

believe the classical figures were his own invention. For the forms derived from plants a work on the antiquities of Southern Russia was employed. M. REINACH consequently says that Herr FURTWÄGLER and his friends, who maintain that the tiara deserves to be melted down, have gone too far, for they have condemned authentic work as well as a modern imitation of it. The work should be preserved, and ought to be made an object-lesson for officials in all countries who may have charge of archæological objects in a museum. By means of it they might in course of time learn to mistrust that belief in their infallibility which is an official characteristic.

It was lately reported that the Naval Department in Gibraltar had to pay an extravagant price for magazines, depôts, &c., which were constructed by builders belonging to the Army. Evidently it has been resolved that the Admiralty Works Department should assert itself. An official paper just issued gives the pay and appointments of the establishment. There are two assistant directors of works with salaries of from 1,000*l.* to 1,200*l.* a year. The engineering staff consists of four superintending civil engineers, from 700*l.* to 850*l.* a year; seven superintending civil engineers, from 600*l.* to 700*l.*; thirty-four civil engineers, from 300*l.* to 550*l.*; twenty-one assistant civil engineers, from 200*l.* to 300*l.* On the surveying staff are one chief surveyor, from 800*l.* to 1,000*l.* a year; six surveyors, from 400*l.* to 600*l.*; nineteen assistant surveyors, 150*l.* to 400*l.* The appointments of superintending civil engineers and civil engineers carry in addition a house (or allowance in lieu) whilst employed at home stations, and all appointments carry in addition a house (or allowance in lieu), and a colonial allowance when employed at stations abroad. Entries to the staff are made in the lowest grades, viz. assistant civil engineer or assistant surveyor, by open competitive examination, held by the Civil Service Commissioners. The limits of age at entry are at present twenty-three to twenty-eight for the assistant civil engineers, and twenty-one to thirty for the assistant surveyors. As the works which exceeded anticipated cost were more architectural than engineering, the conclusion to be drawn is that there is need of officials who understand building. A more definite recognition of architects would therefore be advantageous to the Service.

ILLUSTRATIONS.

LINDFIELD GARDENS, HAMPSTEAD, N.W.: THE ENTRANCE HALL.

ST. JOHN'S MISSION CHURCH, COBHAM: INTERIOR, EAST END.

THE subject of mission buildings, including churches, has recently received attention from the Archbishop of CANTERBURY, who at the last meeting of the Incorporated Church Building Society advocated their adoption. There is a special fund of the Society for the work. In the last report it is said:—"The committee appeal for increased support to the Mission Buildings Fund: it is a most important part of the Society's work and encourages the clergy to erect temporary mission churches which are often the forerunners of the consecrated building. At a time when new populations are springing up on the fringe of the Metropolis and other great towns, it is eminently desirable that the people should not have to wait many years for a church, but that one, however simple, should be ready for their worship as soon as the houses are ready for their occupation. In country parishes this special fund is the means of encouraging the erection of mission churches in small outlying hamlets, where services are held regularly for the inhabitants, who are often living at great distances from any place of worship."

MANCHESTER CATHEDRAL.

BEVERLEY MINSTER, YORKSHIRE.

THE EXCAVATIONS AT NIPPUR.

A CORRESPONDENT of the *Times* writes:—Already sufficient work has been done upon the great Temple of Bel to show that previous conceptions of a Babylonian temple will have to be modified considerably; and important light has been thrown upon the different periods of building—from pre-Sargonic times to early Arabic days—represented in the Nippur mounds.

One of the most interesting structures, and one which has been most thoroughly excavated, is a small Parthian palace, which lay on the south-west side of the Shatt en-Nil, the old canal which divided the ancient city into two nearly equal portions. Dr. Peters, the director of the first two excavations, partly cleared this building; and Mr. Haynes, his successor, made a more thorough examination of it; but it remained for Hilprecht to complete the work and determine the age and other particulars of the structure. Peters believed that the building was "erected somewhere between 1450 and 1250 B.C." Hilprecht has shown conclusively that it was built a thousand years later.

Roughly speaking, the palace is square on plan, each side being about 170 feet long. In its construction large (12 inches by 12 inches by $7\frac{1}{2}$ inches) unbaked bricks were mostly used, but in some portions baked bricks had a place. The walls varied in thickness from 3 feet in the partition walls to 8 feet 6 inches in the exterior ones. Externally the building was remarkably plain; the surfaces of three of the walls were broken by shallow buttresses, but the fourth, which faced the canal, was quite bare. There was but one entrance, which was placed nearly in the centre of the north-west façade. This doorway showed evidence of considerable skill and some taste on the part of its builders. It was constructed in baked brick and stuccoed with white plaster. On either side stood a pedestal, rising from an ornamental base and decorated with small pediments. The junction of the crude brick with the baked was concealed by plaster mouldings, and faint traces of fluting were visible on the pedestals.

Internally, the building was divided into two parts, one of which served for the men's quarters and public apartments, the other for the servants' quarters and the domestic portion of the household—corresponding to the harem buildings of the present day. By an ingenious arrangement of lobbies and narrow passages, the "harem" apartments and servants' rooms were completely cut off from the rest of the building. They comprised a kitchen, several store chambers, a bath-room—which was provided with a bitumen-covered pavement sloping towards a drain in its centre—and sleeping apartments, in which were raised platforms (or beds) of brickwork.

The most ambitious feature of the plan was an open court with a colonnade, which was reached from the entrance through a couple of ante-rooms. From this court a number of small rooms open off, and opposite the portico are the two largest apartments in the palace. A smaller court stood between the servants' quarters and the superior rooms of the "harem." In both these courts were columns of burned brick, stuccoed with fine plaster. In the principal one were four circular columns on each side, with a square one at each angle, all built up on foundations of burned brick, while the court itself was paved with crude brick. The columns were plainly "Babylonian imitations of Doric columns," and, in fact, the characteristics of the building throughout are, as Professor Hilprecht points out, entirely un-Babylonian and much more like the features "of the ancient Greek houses on Delos." The balanced plan, the treatment of the entrance, the columns themselves are all plain evidence of the correctness of Hilprecht's dating of the building.

In view of their very limited choice of material the builders may be pardoned for using stucco; and the ingenuity they displayed in constructing the tapering columns with specially moulded bricks and in building up the capitals with two distinct patterns of mouldings is far ahead of the work of the earlier builders at Nippur.

At many widely separated points of the site interesting buildings were discovered, including the now famous "Library," but it is impossible to give any description of all of them, owing to lack of space. All that can be attempted is to deal with the mound under which lay the remains of the great temple and ziggurat of Bel.

To the presence of this edifice ancient Nippur owed its sanctity and fame, if not its very existence; and to the unearthing of the temple and the attempt to restore its plan much of the energy of each of the American expeditions has been devoted. Owing to the unscientific methods of excavating followed by the early diggers, the task has been much complicated; and before an entirely trustworthy plan of the earliest buildings can be secured many of the dump-heaps deposited on and close to the mounds which cover the ziggurat and its enclosures will have to be removed. The particular mound which marks the position of the ziggurat is the highest point at Nippur, and it forms an important landmark for many miles in the flats of lower Mesopotamia. About a third of its

extent has been explored so far, and as a result of his personal study of the remains and the reports of the architects attached to the last expedition, Hilprecht is able to put forward a clear picture of the place at different stages of its history.

The upper strata of the mound contained the remains of a huge fortified building, grouped round a citadel which covered the ziggurat of the early temple. Hilprecht proves that this building belonged to the Parthian period (thus disposing of Peters's theories as to its very much earlier construction), and he regards it as the palace of a prince or governor. Originally he believes this fortress "consisted of two courts . . . which did not communicate with one another, except perhaps by means of a large staircase." The outer court has not yet been fully uncovered, but the other contained domestic quarters, barracks, store-rooms and offices in one quarter, in another part finely built rooms, which were in some cases constructed with double walls for the sake of coolness, and would therefore appear to be the apartments of the prince and his chief officers, and in a third section, which is only partially excavated, stood the "harem" buildings. The citadel was an immense platform, cruciform on plan, which rose about 30 feet above the surrounding buildings of the fortress, and had yet a second stage, not lower than 20 feet, rising from its centre. A well—the only one in connection with this structure discovered in the whole enclosure—was carried down from the citadel through the core of the ziggurat to water level, thus assuring a supply of water in case of the most stubborn siege. Indeed, this fortified palace must have been well-nigh impregnable, for all the buildings mentioned were enclosed by yet another strong wall, which, "when excavated, still rose to a height of over 60 feet . . . was more than 30 feet thick at the top . . . almost 40 feet at its base . . . and was strengthened by huge buttresses at its corners, and . . . smaller ones erected at equal distances between them."

Below this building were the remains of an earlier one, of a very similar character, of the Seleucid period, of which, however, the excavators discovered only the most fragmentary traces, so that it appears the later builders demolished the earlier work. Lower still were the remains of the old temple.

When it is remembered that the temple site was occupied over 4,000 years and that the building underwent many alterations, enlargements and patchings at the hands of successive kings and governors, who frequently paid scant attention to the work of their predecessors, tearing down walls and levelling buildings just as best suited their own schemes, it will be readily understood that the task of attempting a restoration of any particular period is no easy one. At present nothing in the nature of a final decision upon many points can be attempted. All that can be done is to present some general idea of the place. Fortunately in its main features the temple remained much the same through a period of some 3,000 years, as the excavations suffice to show.

By the discovery of a plan of the old city on a tablet which was discovered during the excavations in the "Library," the task of restoration was greatly facilitated; and Hilprecht's theories are supported not only by the evidence of the trenches and actual remains; but by a number of references contained in the cuneiform documents of the place which he has studied. He is therefore able to give an interesting sketch of the Temple of Bel.

The building, then, with its annexes, formed quite a town, which was enclosed by a strong wall and a moat on the north-east and north-west, while on the south-west the Shatt en-Nil probably formed sufficient protection. On the south-east there lay a branch of the canal, but it seems certain that there was also a wall upon this side of the sacred area. In the north-west half of this area there was a large open court, where stood shops and booths, outhouses, magazines, servants' quarters, and possibly (Hilprecht is led to believe) the palace of the *patesis* of Nippur. In the south-west half stood the temple buildings proper. From traces of a building uncovered by Dr. Peters (but now buried beneath a dump-heap) it seems that on the banks of the branch canal there was a quay or landing-stage, opposite which rose the great gate of the outer court of the temple. Each side of this outer court was about 260 feet long. Within its area Peters had discovered a small chapel dedicated to Bel, and Hilprecht believes that the "houses" of the other gods—at least twenty-four in number—who were worshipped at Nippur also stood there. But this portion of the ground has still to be cleared.

Opposite the gate of the outer enclosure stood a second one leading to the inner court. The exact dimensions of this court cannot be given until the upper strata of the mound are removed; but on plan the two enclosures formed a T, of which the outer one may be called the foot and the inner one the head. The enclosing wall was built of unbaked bricks, and its face was broken up by shallow buttresses placed at regular intervals along it. The gateway projected considerably on both sides of the wall; its faces were decorated with narrow panels, and it had the stepped recesses characteristic of Babylonian buildings. A similar gate was discovered

behind the ziggurat opposite the one between the two courts.

Within the second enclosure stood the famous ziggurat itself. From evidence which need not be set out in detail Hilprecht is led to the conclusion that it consisted of a tower of five stages, on the uppermost of which rested the shrine of Bel. It did not stand in the centre of the enclosure, but on the south-west side, and the ascent to the tower was not opposite the gateway, but somewhat to the left (west). It was largest in the time of Ashurbanapal, when it "covered an area forming a rectangular parallelogram, the two sides of which measured 190 and 128 feet respectively." At that time it was encased with burnt bricks, and on three sides at least its faces were decorated with panels, or shallow buttresses. Then also the courtyard was paved with baked bricks throughout, and the whole of the temple buildings seem to have been in excellent order. In pre-Sargonic days the ziggurat was much smaller, but successive builders, notably Naram-Sin and Ur Gur, enlarged and improved it, gradually substituting baked brick for unbaked, and the whole temple naturally kept on being improved in a like manner.

On the north-east side of the court stood a small building which was used as a storehouse for offerings, "the house for honey, cream and wine." Behind that, in the north angle of the court, was the "House of Bel," where "the household of the god and his consort was established . . . sacrifices were offered and the most valuable votive offerings of the greatest Babylonian monarchs deposited. In other words, it was the famous Temple of Bel, which, together with the stage-tower, formed an organic whole enclosed by a common wall, and was generally known under the name of *Ekur*, House of the Mountain." A complete investigation of this building has not yet been made. In fact, beyond ascertaining that it was enclosed by a finely-built wall of baked brick, with a panelled face, which enclosed an area of about 150 feet by 115 feet, and was pierced by a couple of doorways (one over 10 feet wide, the other about 5 feet), and that its interior was occupied by chambers of various sizes partitioned off with unbaked bricks, practically nothing of its plan is known. As Professor Hilprecht says, he "decided not to ruin this important section of the temple area" by adopting the hasty and unscientific methods of his predecessors, but to "leave its interior as far as possible untouched" in order that the next expedition may make careful clearance of the superincumbent rubbish, and so be in a position to study carefully the remains.

EDINBURGH ARCHITECTURAL ASSOCIATION.

A LARGE party of members of the Edinburgh Architectural Association journeyed to Perth and visited St. John's Church and St. Ninian's Cathedral on the 30th ult. At St. John's the members were received by the Rev. Walter E. Lee and the Rev. P. R. Landreth, ministers of the east and west churches respectively; the Rev. J. McGlashan Scott, minister of the middle church, being unable to be present. Mr. A. G. Heiton, architect, Perth, conducted the party over the church, and gave a descriptive account of it. The date of the original foundation is unknown, but there was a building erected by David I. about the year 1126. The church was consecrated A.D. 1242 by David de Burnham, Bishop of St. Andrews, and the choir and tower rebuilt by Robert Bruce in 1328. After the Reformation the settlement of a second minister to the charge was effected, and the partition wall erected separating the little church, now known as the west church. The nave arcade was probably erected at this time, A.D. 1598. The partition separating choir from transepts was built in 1773, and a third charge was created. The church formerly contained forty altars, richly decorated and endowed. The bells are interesting, and mention of them is made in 1403, 1506, &c, and there was an organ erected, probably on the rood-screen, in 1510. Seats were erected in the great church in 1582; galleries were erected in 1603, and various alterations took place in 1720, 1760, 1773. In 1892 a great improvement was brought about in the east church by removing the galleries and the paint and whitewash from the internal stonework. Similar improvements were effected in the west and middle churches in 1894 and 1896, the galleries, however, being left in these cases. At the close Mr. A. Hunter Crawford proposed a cordial vote of thanks to the ministers and to Mr. Heiton, and hope was expressed that the day was not far distant when the obstructing dividing walls would be removed, restoring the building to its original state and forming a really noble church. At St. Ninian's Cathedral the party were received by the Very Rev. Provost Campbell and Canon Farquhar, while Mr. Heiton again acted as leader. At the conclusion Mr. Hippolyte J. Blanc proposed votes of thanks to Provost Campbell, Canon Farquhar and Mr. Heiton. The members afterwards drove to Scone Palace, where they were received by Lord Mansfield and conducted through the

palace and policies. Before leaving Mr. Hunter Crawford, on behalf of the members of the Association, thanked his Lordship for his kindness in throwing open the palace that afternoon and showing them its interesting contents.

DISCOVERIES AT BENI HASAN.

IN a letter to the *Times* Professor Garstang says:—Excavations have been made during the past season in the hillside at Beni Hasan, a site already famous for its painted tombs and early architectural features. Below the gallery along which these lie there has now been found an extensive necropolis, remarkable both for the preservation of the furniture in its tombs and for the wealth of material which these supplied for illustrating the burial customs of the Middle Empire at a time when pure Egyptian culture was nearing its culmination.

Though the rock-hewn tombs for which the site has become known are themselves of the eleventh and twelfth dynasties, it had been supposed, from the composition of place-names mentioned on the walls and from other reasons, that the district was already of importance at an earlier period, dating back possibly as far back as the Old Empire. It is now seen that a gallery of smaller rock tombs at a lower level was hewn probably in the sixth dynasty. These tombs are eight or ten in number, two of them being inscribed in the style and with the names characteristic of the period. One of them, the tomb of a courtier named Apa (Her-ab-a), a chief man of his town, is also decorated in bas-relief and with paintings illustrating agricultural and other conventional scenes. The tomb had been reused later in the Middle Empire for burial of other persons, and had been subsequently broken into and plundered. But the thieves had failed in three instances to observe the original burials at a lower depth, leaving them entire, with their original deposits of alabaster vases and other tomb furniture undisturbed. This tomb (temporarily numbered 481) will eventually be made accessible to visitors, being the earliest yet found in the vicinity.

The other tombs were all of the early Middle Empire—the eleventh and early twelfth dynasties. Four hundred and ninety-two of them were opened and examined. These too were hewn in the rock, but were of the more familiar character known as pit-tombs, in which a vertical shaft gives access to a small burial chamber (or chambers) at the bottom. More than 100 of them had never been previously entered, and their doors were now opened for the first time since they had been closed 4,000 years ago at the time of the interment. In some cases the whole contents, being as it proved largely of wood, had been destroyed by worms, but a sufficient number of cases remained to render an unique series of observations possible.

In the tomb of one Nefer-y, a chief physician, it was seen upon opening the door which closed the burial chamber that upon the painted coffin and at its side were a number of wooden models of objects and scenes familiar from the wall-paintings of the larger tombs. Nearest to the door upon the coffin was a great rowing-boat, the twenty oarsmen standing and swinging back in time to the beat of two figures seated on a raised platform in the centre. Beyond this was the model of a granary with six compartments in rows of three on either side of the courtyard between them. Men are standing knee-deep in real grain filling baskets, while a scribe seated on the roof, pen in hand, keeps the count. A flight of steps leads up to the roof, which is pierced with holes through which the grain is poured into the chambers below, the doors being closed and sealed. The principle is natural, as it would be impossible to fill the chamber through the open door. The method is still employed by the richer cultivators of the country, even by the head man of the village nearest to this site (El Kram). Behind the granary in the tomb were representations of various occupations, also in models of wood. A man carries a large offering-jar; a girl supports with one hand a basket poised on her head, and in the other holds the wings of two geese. In a group, women are engaged in making and baking bread: one grinds, another kneads, a third is raking the fire in which are small charred embers of wood. Another well-executed group represents the making of beer from fermentation of bread, by a process similar to that employed in the native industry to-day. One man is seen inside a tub, pressing with his feet. Two others are bearing water in pitchers suspended from yokes upon their shoulders. Others are working at strainers placed loose upon the casks, while in front a number of casks lie naturally in a row. By the side of the coffin was a sailing boat, the numerous sailors assuming the attitudes necessary for hoisting the large square sail, of which the yards and rigging were preserved. Two men in characteristic postures are using poles vigorously over the sides. The steering is done, in all cases, by a large oar attached at the end of the shaft to a post fixed in the boat. A short stick then fixed into the shaft served the helmsman for a tiller by which to turn the blade as required. Finally, the

coffins themselves were found to be inscribed on the insides with new "Pyramid texts" of the time of Unas.

The furniture of this tomb is characteristic, and explains some of those in which the objects were found disturbed or less preserved. Occasionally rarer features are illustrated. In the tomb of one Mehti-em-hat were a number of warships. In the bow of one, by the side of the look-out, stands a negro soldier, bow and arrows in hand. Six sailors are rowing, others are hoisting the sail, which is preserved. Nearer the stern, and partly under the shade of a canopy which is protected seemingly by studded leather and by shields placed upon it, are seated two men playing a game of chess upon a table between them. A sheaf of spears is at hand, suspended from below the canopy.

In the tomb of Antef, a courtier, the boats had double steering oars. There was also the model of a white spotted ox led by a man, and in the tomb of one Khety there was further shown the actual sacrifice of an ox of this kind.

Objects of other significance were also found in the tombs. Musical instruments—a lyre, two flutes and a drum with barrel body of wood and parchment ends bound in the usual network fashion with thongs of leather. Basket and wickerwork was plentiful, much of it well preserved, and some examples curiously analogous to the work done in the oases and in higher Egypt of to-day. An object of special interest architecturally is a wooden capital in the form of a lily. Vases of stone of ornamental forms, beads of amethyst, carnelian and other stones, as well as glazed scarabs of the early kind and some quantity of jewellery were also found.

It seems clear from the titles recorded on the inscriptions and from the tomb furniture itself that this necropolis represents the middle classes, the minor officials and distinguished women of the locality, during the early Middle Empire. Many of the new tombs are those of personages whose names and portraits appear in the tombs of the princes and notables forming the gallery above.

The opening of each tomb was recorded by photography as the excavation proceeded step by step. As a result some 450 negatives, illustrating these observations and the funereal deposits, have been secured for the expedition, and will be published, it may be hoped, as soon as possible.

The objects themselves, it is pleasing to know, will enrich the museums of our Universities—Oxford, Cambridge and Liverpool being represented among the patrons—as well as some of the best known private collections of Egyptian antiquities in England. Previous to distribution, by arrangement of the Director of the Society of Antiquaries (hon. treasurer of the excavations committee), it is hoped to hold an exhibition of these antiquities at Burlington House during part of July in the present year.

A TALK ABOUT DESIGN.*

By WILLIAM L. PRICE, Philadelphia.

MR. PRESIDENT, brother architects, and friends of architecture.—I have not any paper to offer you, just a few remarks that I am afraid will be rather rambling because I want to touch on a great many subjects. I want first to speak on the question of making the talk a practical talk. We have heard a great deal of discussion to-day at dinner and at other times about being practical, but every time we try to be practical we turn to the ideal, because when we come to analyse what is ordinarily called the practical it is the transitory; it is the bread and butter that we eat, not for its own sake, but to make the man; the practical part of our work is only the mother of the ideal. Architecture could not exist, architects would be an absurdity if it were not that the ideal is after all the main object of mankind's search and endeavour. Now it so happens that architects are not only clothiers of mankind, but teachers of mankind; teachers for good or ill; teachers whether they want to be or no. Now I do not know of any royal road to the ideal; if I did I would not tell anybody about it, because the only thing that any man can get to help him towards the ideal comes from within and not from without. We spin our own cocoons (especially as architects), and it lies with us whether our cocoon shall be a monument or merely a sepulchre. And we must not compare those cocoons one with the other and say of this man that his cocoon is not as fine a monument as the other man's. Compare it with the man himself and ask, Did he build as well as he knew, or didn't he? That is the only question. If he built as well as he knew he couldn't help building to himself a monument and for the crowd a betterment. The architect's profession, or art, or whatever you choose to call it, is perhaps the most involved that there is. We have just been discussing a question of colour decoration; the architect that does not consider the question of colour in his buildings when he is designing his mouldings and ornaments is not designing

at all. It is just as much an essential part of the design, the colour of the walls or an approximate idea of the colour of the walls, as the moulding; they are there for the same reason—to give colour effects, light and shade. One of our architects some years ago denounced American architecture as "an attempt to make something look like something else that would not be desirable if genuine." That is a pretty savage arraignment, and it is perhaps not quite so true as it was; but still it is in a large measure the truth. When we build the big structures that we call buildings, office buildings or similar buildings (they are not buildings at all in the real sense, but are structures or erections), we clothe them carefully with building material nine times out of ten, stick it on, bolt it on. There is a building in Philadelphia in which the granite corner piers, a perfect absurdity in itself, are apparently of solid blocks, carefully and painfully cut out in the form of an "L" allowing the column to stand within it. If that is not an attempt to make something look like something else that would not be desirable if it was genuine, I do not know what it is. It is a lie that works both ways; it hurts the community and it hurts the man who did it, and hurts him worst.

Much of what I am going to say may appear reactionary, but I want you to notice one thing, that the man lost in the wilderness (and we are just a little lost in the wilderness in art matters), if he has not some guiding point, will go around in a circle—at least, I am so told. So while the line of progress may be something like an upward slope, we may be travelling on a horizontal line, believing all the while that we are on an upward course.

And we must not measure the line by what we can see of it; we do not see enough to make one part of it look different from another part at any time. We have to consider a great many outside things; to look at history and experience—to the architect especially that is essential. There is only one thing worse, in my judgment, than ignoring precedent, and that is following it.

Now I want to take you with me in a little practical talk—we are up against a serious proposition. Having secured our client, the first question for us is, What next? Shall we build around that client our shell or his fitting shell? Now, when we stop to think of it, how often are we trying to build the best possible monument to ourselves and not the best possible house or building for that man?

During a first interview with a client a year or more ago, after talking to him about an hour, he said, "I would like to see the house you would design for me, Mr. Price," and I said, "I would too." Being agreed on that, he then said, "Now I have told you the things that I want, the size of the rooms and the number of them; you know the site, make me a sketch of the house you think will fit these requirements." I said, "Mr. —, I will gladly do that; I can do that, I think, but if you take that design and build it you will be a fool." And then I went on to say, "For I do not know you well enough to draw a house for you." I hadn't the slightest expectation that I would get that job, but right there I got it, because that man began to see something different in architecture from what he had ever seen before; he began to realise that this was to be his house, not an architect's house merely. Afterwards, sure enough, to show you how the good work took effect, one of the leading finishers of the city went to him and said, "Mr. —, you are a busy man, you don't want to bother with the designs for the inside of your house; I will refer you to So and So—we did the work for him—47,000 dollars' worth of interior work, and we did not take up two hours of his time."

This gentleman said, "Well, that settles it; you could not decorate my house or do my interior woodwork because I can see that that is your interior woodwork and not mine, it does not fit me." I simply tell you that to point out that what we have to do if we are going to have real architecture is to make our product more than beautiful, more than fitting to the situation, primarily fitting the man that is to live in it or the purpose for which it is to be used. That means a pretty savage thing sometimes; it means that if we are going to build a house for a vulgar man that we must build a vulgar house. It wouldn't be architecture if we did not. It must be better than that man; it must be what that man might be, it must represent that, but unless it has in it some element of that thing which makes him the vulgar man, in my judgment it is not architecture at all. We are up against difficulties and limitations of that kind, and it does not seem to me to be such a bad thing after all. Fortunately the vulgar man usually goes to a vulgar architect, so that we need not often be seriously troubled that way. But the fact remains that it must fit the man in some way or other, and I think the most of us (even if we do not analyse these questions of design) naturally tend to draw a vulgar house for a vulgar man. But we must be mighty careful of what we mean when we call a man vulgar. A difference in taste does not constitute vulgarity, or the reverse. People have come to me and said, "I like that house out on Forty-ninth Street, in West Philadelphia, and that is the limit. I have been around

* A speech at the annual convention of the Ontario Association of Architects held in Toronto, and published in the *Canadian Architect*.

your town a little, but there is nothing that I have seen here that approached Forty-ninth Street; it is absolutely the limit." Most of the arches on the porches are wrong side up. Nearly all of them. My client will say, "I like this or that house at Forty-ninth Street." And instead of falling dead I go out and try to find what it is he likes about that house; very often it is a bay window on the side of it, or it faces this way or that way, or it has some other feature absolutely irrespective of design or drawing that fits the man. If, for instance, you take a man who likes brilliant colours and set him down as being ignorant and vulgar, because you have put two things before him—one good, in low tones that you care for, and one bad in high colours that you loath and that attracts him because he loves colour—you make a great mistake, for that is not a fair test; you ought to put before him things good and bad in both bright and quiet colours, and you will find ninety-nine times out of a hundred he will choose the good thing. Find out what it is he likes about the bad thing, give him a chance and he will choose the good thing rather than the bad. If that were not true there would be no civilisation; we would have devoluted back into oysters by this time, because we have done so many foolish things and so neglected the laws of nature that it must be some principle in us that seeks the right rather than the wrong to keep us going at all. As Professor Shortt said to us yesterday, we have gotten away entirely from the mainsprings of the art and architecture of the past, we have come to a time when neither the civic nor the religious is the ideal around which we build our civilisation, but the individual, the domestic. Take all these high buildings with which you gentlemen are wrestling in pain and trouble (and it is a serious trouble); what are they for? After all, are they not merely the places that we go to (to get away from as soon as we can), that we may have enjoyable surroundings in our home life? That is the sole object, and while we should make them as little obnoxious as possible and keep them as quiet as possible because they tend to ramp and rave—while we should do that it seems to me that our greatest effort should be put upon the making of the object of all this beautiful, and that is, after all, our homes. Therefore I am talking mainly about house design. I want to say though that your President yesterday pointed out what seems to me the only logical materials in which to design the office building, and that is a skeleton of steel clothed with a plastic material of some kind. I cannot conceive, though I admit I have done it myself, that it is proper to clothe a steel frame by putting brick or stone around it or any real building material; it is a lie on the face of it, for it would not stick there and stand unsupported. If we must have that kind of building let us encase it with some plastic material like cement. The engineers are looking after the bones and we are after all only the planners and decorators of it.

The most serious question, as I see it, in designing a house that we have to meet with is, What shall the concrete thing be made of, and how shall it be made? Or, perhaps, How shall it be made, and what shall it be made of? We will treat what shall it be made of first. The material must be moderately cheap. We do not often have palaces to build; we are not working for Gould or J. Pierpont Morgan, but for each other, the average community which we find around us, therefore the buildings which we build must be cheap. They must not, or should not, require any great amount of ornament, and I want to point out that the bulk of the ornament that we use is used purely to get surface, and not for the value of the ornament itself. The pressed brick of good old Philadelphia was so horrible that after we once walked up and got past the marble steps and marble lintels we flew to the other extreme and brought in the tortured mud (the terra-cotta man), with his substitutes for surface, and we put wriggles all over it to make up this surface; that is what it amounts to, most of the ornament is just that—wriggles; and we smear that over it for no other reason than that we want surface; I do not think that the lack of ornament enters our mind one time in twenty when we put that kind of stuff on—I do not refer especially to terra-cotta, but to all senseless ornament. It is because we are afraid the surface will look flat without the ornament, and that is a mighty poor excuse for putting it on. As I say, texture should be the first consideration, because the bulk of our building will depend for its beauty on texture and on the disposal of its masses and not on ornament. In the first place real ornament that really beautifies the building is too expensive to spread all over it; and, in the second place, you cannot see it if you do so, it becomes merely surface, and here is where fortune favours us, as it so happens that the cheaper and rougher materials naturally have the better textures. I remember when building a house some years ago I arrived on the scaffold just as the bricklayer was starting to build a high kitchen chimney—it was my own house, and I could do as I pleased—and he had there two piles of bricks, very nice bricks; one pile was of quite smooth, beautiful bricks, the other pile was of the roughest bricks that he could get. I said, "What are you going to do with those bricks?" He

said, "I am going to use these rough bricks for the lining and the others for the outside." I said, "Reverse it." He nearly fell off the scaffold. I said, "Won't those smooth bricks make a good lining for the flue?" He said, "Yes, very good, excellent lining." I said, "I am quite sure the other bricks will make a much better-looking outside, and that is the part I am interested in, apart from its drawing qualities." So he put the chimney up wrong side out; and when he had his scaffold down he said to me, "That is the best looking chimney in this town." The bricks on the inside cost probably 11 dols a thousand and those on the outside 6.50 dols.; and those rough, hard bricks are the only kind, in my judgment, of which to build a country house—the roughest ordinary hard brick that you can get. I will stand fight with a client on that before I will utilise anything else, because it is the brick with texture and colour, the brick that has the burnt head on it, not to be picked into a pattern necessarily, but put there to have its influence on the texture and colour of the building. What is true of brickwork is true also of stonework with us. When we really want to get expensive stone, then we get Avondale stone, which is as white as the driven snow and as uninteresting as anything in creation; or we use rubbed or sawed limestone, and if not satisfied with the surface being perfectly smooth, we specify that it shall be drove-tooled, when it is generally planed on a machine. Whenever they get the chance to put the machine on and make grooves, they do it, and all the texture and sense of stone is gone out of it. For house building, the rough stone, the common flat stone that we use down there, makes, in my judgment, the finest wall surface in colour and texture and interesting light and shade that we can get. Next comes another material, and, in spite of what our friends who like dark exteriors say, I am extremely fond of it, and that is rough plaster, the roughest sort of dashed work or pebble dash. I think that when we are considering the colour of the exterior we must remember, as your President said, shadow, the shadow of the eave—make it big if you want to; the shadow of the trees that overhang it, the shadows of the vines that grow on it. What is there more charming, more beautiful than the white cottages and thatched or tiled roofs of England, with their beautiful vegetation around them? We may, perhaps, consign white to a greyer climate than ours, but much of the time we could stand white or nearly white here. And this material, it seems to me, is a very valuable one that is much neglected. It gives us mass, it does not chop the surface up, and it gives us a fine contrast with either stone or brick, whether it be white or coloured.

Of course we use a great deal of timberwork down with us, and I am sorry to say we very seldom use it honestly, most of our timberwork being stuck on the outside of the house and not part of the structure. That of course is inexcusable, there is no possible excuse for it, as far as I can see—I do it myself, but I am ashamed of it, and I am trying to stop. It is almost impossible in this country to use it honestly; I doubt if the timbers will stand in our climate long enough when really built in the wall to make it a practical mode of building.

These are, to my mind, the kinds of material that it is worth while to deal with in house-building. Of course, we build wooden houses too. We build shingle-houses, and they rot out in from a year and a half to ten years—it is not a permanent building material. We have not used tile roofs nearly so much as we might; that is one of the things that I think the architects here and with us should steadily work for, to get some kind of roof that is not flat, stale and unprofitable like slate, or merely momentary like the shingles of to-day. Tiles are just about as hard to get, but as interesting as bricks or anything else in this machine-made age. I will give my secret away—it may be your secret too—the only tiles I ever put on a building are the seconds, the culls; they are the tiles that are uneven, rough and crooked, and of a good colour. The average American selected tile is about as good as red slate, but that is all; as far as texture goes it is about the same. It is worth while, it seems to me, to make a fight on some of these materials that we have to use.

Perhaps the most serious problem we are up against is, how to get this material put together so that it may properly be called architecture after it is done. How much of the building that we are doing in this country would we walk out of our way to see in the old country, or would we collect pieces of as we do pieces of the old buildings? That comes back to the proposition of my friend that the architect is not a designer of buildings but a designer of opportunities, and if we cannot find the people about us who will seize those opportunities and together with us make architecture, the net result will not be architecture; we will have design, but not architecture. Here is where I am going to get "reactionary" in trying to go on straight. People say that we are in a condition, and always have been, of evolution, and that we cannot fight against tendencies. But we know how mankind has evolved in the past; it has been in spirals. When they were rebuilding a brick Rome in marble they little thought that Rome was in its decline. Their literature they thought better than the more

aged and rough literature of former days; their architecture they thought better, more refined and elegant; but, just the same, Rome was in a decline and not on an ascent. It seems to me that it is worth while for architects especially to see what can be done in stemming the tide, at least in diverting the tide from methods that are suicidal as far as art goes. You must remember that though the body of architects is a very small one compared with the community, it has been a very efficient mover of the community. The difference between the Philadelphia—I speak of Philadelphia because it is my own place—of thirty years ago and of to-day is almost entirely due to the few architects who have worked for better things there. They insisted and insisted again and again in spite of the conservatism of client and builder that material and design should be better, and they have bettered them. Now it is in our hands very largely to influence the men who do our work by continually insisting on honest work, just as our friend who spoke here on decorative work, assured us of their willingness to co-operate with us. You will find that these men, who work with you in making buildings, will do exactly the same thing. They may be more stubborn about it, and they have a harder row to hoe than the decorators, for the decorators are more closely in touch with their own work than the builders are. They have the work more nearly in their hands than we have. The men who erect our buildings are divided into two classes, the contractors, with whom we come in touch, and the men who actually do the work. The contractor has in a large measure ceased to be a builder, he is simply a contractor; he gets a number of sub-bids, adds them together, and puts on his commission for profit and superintendence and finances the job, and to a certain extent sees that it is carried out, that the people working under him carry it out. But he has comparatively little touch and little sympathy with the actual workmen who carry out the work, and they are the men that we must go after. It is not the contractors who have much to do with the actual building, it is the craftsmen, if you can call them that, who do the work.

Now, it seems a reactionary proposition, and possibly a hopeless one, to fight against the machine. Here we are after the end of the nineteenth century, the century that brags more of its methods of production than any other one thing, and I say that those methods of production are themselves absolutely immoral and reactionary. And I mean it. I mean that the method of production that considers only the amount of the product and the profit that can be made upon it is absolutely immoral, and that the products of these methods are essentially artistic, especially in our decorative friends' materials. I know, for instance, what it is to try to select papers for other people; I know that always, or nearly always, when the people get the paper on the wall they think you have buncoed them; they will come into the room and say, "That is not the paper selected, it was not that colour, it was not that design." There is a difference between the design, which may be very beautiful, and the thing you get upon your walls wherever it is mechanically made. And that is an essential difference. It is a difference that is bound to exist. I do not care how far you may perfect your methods of production; if they are mechanical the result cannot be artistic, because art is, after all, as far as we can see it, only the expression of one's own individuality. Hubbard has said that art is the visible evidence of man's joy in his work. And that is almost a definition, but it is not the real definition, because the art is in the doing of the thing, and not in the product of the doing. You cannot, if that be true, get art material or art results without artists. The proof that it is true is that the artist never hoards the things that he makes; his real joy is in the making. The rich people do not possess the art of the country, they have the crumbs that fall from the artist's table, and that is all that they can get of it. The artists are the fellows that get the fun out of it. Art truly is to the artist. Now we architects are only half artists, because while we guide the hand we are not the hand. It is a pity, but it is true. And yet we have the biggest opportunity in the world, and that is the making of ourselves and the crowd better men at the same time, and it is in our hands to do it. We may be really leaders, but the evidence of leadership is a following. If we have not a following among the people that create the things that we are supposed to create then we are in no wise leaders, but we have the privilege of being leaders and educators of the people, and especially educators of our co-workers in making architecture. And how shall we go about it? Of course I do not want to be too savage against machinery and I do not want to repeat what I said last night, but I will repeat just one thing that came up in conversation with Mr. Langton and some others.

Mr. Langton: I think it was too good to be lost by not giving it to others.

Mr. Price: This machinery question is a vital one, and one we cannot ignore—as to where we can draw the line on the machine. I was trying to make a distinction, and I think I

can make one; I think you will agree that the place where we can draw the line is this—just so long as a machine is a tool with which a man works it is a benefit no matter how highly it may be developed, but the moment it ceases to be a tool and becomes a mere automatic machine into which material is fed, and out of which the product comes without any volition of the man who is working it, then that machine becomes an immoral affair, and the product of it becomes absolutely worthless as far as the art world is concerned. That seems to me to be the place to draw the line. That does not cut out band saws or turning lathes, or other power tools, but it does cut out much of the work we have to put up with; for instance, it cuts out machine carving in all its forms. It is an easy way to make a yard or a yard and a half or a whole piece of so-called ornament, but of what value is such ornament? Now, can we get the people we build for and the people we build with to go with us, and return—if it be a return—towards a more simple method of construction? I think we can. I think that there is one way we can do it if no other, but it would be a drastic method. That would be to cut off all the ornaments, make the thing absolutely simple and plain with only the essential features in it. Then at least there would be no bad ornaments in it. I think we can go a step further, and instead of cluttering up the inside or the outside of our houses with numberless mouldings and brackets and "the Lord knows what, of round and square, stuck here, there and everywhere," without any special meaning except that our ancestors or forefathers did it in marble or some other material—for I am afraid that is the reason we put most of those things in—we can eliminate most of these things and substitute for them extreme honest simplicity in construction and a little bit of good carving, for we still have the carvers left to us, and some of the carvers and decorators are really artists and artisans. I would rather have on my wall a patch a foot square of real decoration interesting enough to go and look at twice than to have the room covered with decoration that has no interest except as to design. That seems to me a most practical line of elimination; cut the quantity of it down to the quick if need be, to get the quality a little where we want it. We can do that, and the people will go with us, for they are just as sick of the uninteresting wall-papers and truck that their houses are cluttered up with as we are. I have had no difficulty in getting people to allow me to simplify their houses for them. The tendency to ornament comes from the architect rather than from the client almost every time. Of course there are exceptions, and people want a lot of gaudy ornamentation and display; and I think, in these cases, we had better give it to them. I think that is possibly the best way to cure them. It is a little rough on us, but I think we had better suffer if we can make architecture possible in the doing of it.

I have not talked to you about methods of design. I have not talked to you about what mouldings you should put here, there or the other place. I think that would be rather inconsistent since I have been advising you to cut them nearly all out. But what I have been trying to do is to point out certain lines along which we shall design, that we shall in the first place surround the client with a shell that shall be appropriate to its site and its use, that we shall simplify it so that we shall get in the main honest construction and honest ornament so far as we use ornament at all. I think you will readily agree with me as to that question of ornament, when you consider, for instance, the main building of your Toronto University and look at the carving on the inside of it (as I did yesterday with great pleasure), where you can walk along from step to step and find the ornament interesting and worth looking at. That was not the architect's fault altogether. When your President asked me to see it he explained to me very carefully that the architect brought out a real craftsman from Germany or some other place and put him to work there, and he put in those interesting spots. The architect can't do that himself.

The President: I told Mr. Price that the architect was entitled to the credit of bringing him out.

Mr. Price: Yes, you did, but the fact remains that it was the craftsman that did the work. The architect gave him, no doubt, an idea of what he wanted, but, like all these things that are worth doing or having, they must be designed in the doing, and not in the lay-out of the doing. You cannot design carving on paper, you can only design carving with a gouge and a mallet. You cannot design wrought-iron in any place in the world except on the anvil with a hammer. You can make a suggestion for wrought-iron or for carving. You can show the general design or character of it, but you cannot draw it until after it is cut or hammered, because otherwise it is not carving or wrought-iron at all. We must recollect that our position is the one that I have pointed out, a designer of opportunities; and what we must do to make architecture a possibility is to go to these craftsmen and ask them, if it be turning back, to turn back, and I think we will get something.

Possibly you are not up against the same difficulties that we are, but this is characteristic of what we have to contend

with. Take your carpenter, who is your highest class of craftsman because he does the most varied work, and he will plane and scrape and sand-paper the sill of a window and will then proceed to get up on it and stand on his heels to pull nails out above. I do not know whether that happens here or not, but it happens with us. And if the carpenter does not do it the decorator will do it for him.

The President: It is usually the plumber who does things in our buildings.

Mr. Price: The plumber generally does not get as good a chance at it as the decorator; and if he does not do it the man that puts up the curtains and window shades will do it. They are bound to have it in some way. Is it not a distressing situation that our highest class of craftsmen either do not know or do not care about much except Saturday night's part of their work? It is a pitiable commentary on our civilisation that the bulk of our people care for the wage and not the work, because the only thing that is worth doing, in my mind, in the world is work. I am quite sure that the same man, when he gets through working at the job he has to do, if he does not work too long and is not so tired as to kill his ambition, turns to other work. I am quite sure that what Professor Shortt said about himself is true of most of us, that he gets his recreation by turning from the work he is engaged in most of the time and making furniture, carving and doing such work, and he thinks his best thoughts when he is doing so. That our craftsmen should have abandoned that position and accepted the nineteenth-century ideal, that the way to get development is to make the greatest number of things with the least possible effort, or in the least possible time, so that he may have time to devote to something else, seems to me suicidal. There is something in work besides wages, and a good deal better than wages, and I think we can prove it by simplifying the work, by teaching him that he must do this thing in this way, because it is the right way to do it and because it is handsomer when done the right way, as well as more moral, and that it will be reflected in his character. But when our work is nearly all sham, as it is in one way or another, how can we expect a man working at that sham work to develop into an honest, straight thinker? He can't do it, and the consequence is he walks on our window sill. I do not want to talk longer about this matter; I would very much rather have a good lively scrap in which we all could join, so with your permission I will stop.

THE ROYAL INFIRMARY, GLASGOW.

THE following statement and correspondence have been issued by the Glasgow Institute of Architects:—

The managers of the Royal Infirmary having finally rejected the criticisms of the Glasgow Institute of Architects regarding their rebuilding scheme, and refused the advice and assistance offered by that body, the Institute feels it to be its duty to set the whole facts before the general public, those on whose behalf it has acted, and for whose benefit the Infirmary exists.

From 1897, when the scheme was first mooted, till the end of 1899 the managers were engaged in endeavouring to obtain under their direction satisfactory plans from an architect selected (despite outside and inside criticism) by themselves, but those were finally set aside, and a competition instituted. This was undertaken in January 1900, when ten selected architects were invited to send in designs, Dr. (now Sir) Rowand Anderson being appointed assessor. Undeterred by previous failure, however, the managers (together with the executive committee now acting with them) first proceeded to have a species of preliminary competition among themselves, and as the result produced and issued to the competitors two "suggestive and illustrative" sketch plans. Of both of these the "Jubilee block" fronting Cathedral Square was an essential feature. The general lines of the sketch plans thus produced, and especially the situation of the Jubilee block, were found so radically faulty by most of the competing architects that all of them who had a previous reputation as hospital experts found it necessary to depart more or less entirely from them in the designs they submitted. Of the ten designs the assessor made a short list of four, and a final selection of one, which he recommended for adoption. The committee, influenced apparently by their own sketch plans and their "own opinion as to style of architecture," set aside the award, and chose a design outside even of the short list, which was simply a more fully detailed copy of their "suggestive" draft.

The Institute of Architects, in May 1901, addressed to the managers its first protest and appeal, criticising both the way in which the competition had been decided and the result arrived at, objecting to the whole arrangement of the selected plan as inadequate and out of date, and to the Jubilee block as shutting out the sun and air from the south, as well as at the same time vitally injuring the appearance of the cathedral, and finally requesting that the whole of the plans should be submitted to one or more hospital experts before anything further should be done.

To this no reply was received beyond a formal acknowledgment and reference to an official statement to the public which appeared in the Press on May 18, 1901. In this the criticisms of the Institute were in no way answered, and its suggestion of expert assistance was ignored, but it included (with reference to points raised elsewhere) the important statement that the managers now recognised "that the new hospital and not section of it (*i.e.* the Jubilee block) should be regarded . . . as a fitting memorial to the sixty-three years illustrious reign of the Queen."

In June of the same year the Institute again addressed the managers, reaffirming its criticism, and offering to bear the expense of the course suggested should its opinions not be borne out.

To this no reply was received.

On several occasions during the past winter, and especially at the annual general meeting of the Infirmary, it was stated that the original scheme was to be retained *in toto*, and the work pushed on with vigour. Accordingly the Institute thought it necessary once more to draw the managers' attention to the fact that no adequate replies had been received to its previous communications, and to press for an answer, with the result only that it was assured by the managers that it was their intention after the plans had been more fully developed to submit them to "experts—surgical, medical and mechanical."

This the Institute, in reply, pointed out would in no way meet the difficulties raised, that expert guidance would then come too late and might well be set aside as at the first stage of the proceedings. To this last appeal the secretary has replied closing the correspondence.

It is only under a sense of duty to the public and after repeated and careful consideration, that the Institute has felt itself warranted in criticising and so far joining issue with the managers in their onerous and disinterested labours on behalf of a great public institution. In this instance the Institute believes the managers' labours to have been misdirected in matters of procedure, and yet of the utmost importance, and the managers declining, as they do so far, to meet in any way the advice offered, it remains only to communicate to the public this belief.

The following are the letters on the subject that have passed this year between Mr. MacLean, secretary, and Mr. Henry Lamond:—

115 St. Vincent Street, Glasgow:

February 10, 1903.

To the Chairman and Managers of the Royal Infirmary.

Gentlemen,—In the matter of the proposed rebuilding of the Infirmary, I am instructed by my Council to remind you that in January 1901, and again in June of the same year, a protest and appeal were put forth by this Institute, addressed in the first instance to yourselves, and in the second to the then "executive committee." To neither was a direct or adequate reply received at the time, and it has been recently stated in the public Press that it is proposed to proceed shortly with the work on the original lines. In these circumstances the Council of the Institute has again had the matter under consideration. It remains of the same opinions previously expressed (and unanimously confirmed by the general body of the Institute), as set forth in the memorials then submitted, and of which copies are enclosed. My Council would therefore again beg you, in the interests alike of the Infirmary and the city of Glasgow, to give the proposals therein contained your earnest and favourable consideration.—Yours truly,

C. J. MACLEAN, Secretary

93 West Regent Street, Glasgow:

February 26, 1903.

C. J. MacLean, Esq., secretary,

Glasgow Institute of Architects.

Dear Sir,—I am instructed by the managers of the Royal Infirmary to acknowledge receipt of your letter, dated 10th inst., and to say that they having accepted the plan adopted by the executive committee, believing it to be the best obtainable after a perfectly fair adjudication among ten architects of acknowledged standing, the Glasgow Institute of Architects may rest assured that the managers will spare no pains to make the new Infirmary conform to the most recent advances in hospital construction. I am to add that it is their intention, as it always has been, to submit the internal arrangements when further adjusted to experts—surgical, medical and mechanical—on whose knowledge and experience they can rely.—I am, yours truly,

HENRY LAMOND, secretary.

115 St. Vincent Street, Glasgow:

March 27, 1903.

Henry Lamond, Esq., secretary,

Glasgow Royal Infirmary.

Dear Sir,—I duly received your letter of 26th ult., which has been carefully considered by my Council, with the result that they cannot but hold it an unsatisfactory and inadequate

ply to this Institute's previous memorials and letters to you on the subject.

The Institute's objections to the proposed scheme as previously expressed may, in the main, be summed up under three heads:—(1) The setting aside of the assessor's award and other unsatisfactory features of the adjudication on the competition designs, with the resultant injustice to the competitors. (2) The nature of the design thus selected, as regards its faulty distribution of the buildings on the site, and especially the seven-storey "Jubilee block," placed so as to shut out the sun and air from the surrounding area. (3) The irretrievable injury to the cathedral from the contiguity of this abnormally lofty building.

Your intimation that "the internal arrangements will be submitted to experts—surgical, medical and mechanical"—after the further development of the plans, is therefore not to the point, as not one of the Institute's objections above stated will be met or satisfied by the course thus indicated. Further, there is no indication that other points in connection with the internal and external treatment of the buildings which the Institute objects to but has hitherto refrained from specifying in detail, will be satisfactorily dealt with by such experts, or, if they are, that they will be given effect to after the plans have been developed, especially as the expert opinion previously engaged by the Board in the person of the assessor was disregarded, and that which the Institute now proposes is apparently refused.

The submission of the whole scheme in its present state to one or more experts of acknowledged position from a distance which the Institute in 1901 offered to arrange for, and, if need were, to itself pay for, still seems the only way in which the Board can meet the criticism of the Institute and set itself right with the public. My Council is therefore at a loss to understand why the managers have not seen their way to adopt this course in the past, and, while giving no reasons to the contrary, from the tenor of your letter apparently still refuse to do so.

May I ask before making this further correspondence public if found necessary for a definite statement from you regarding the above policy?—In name and on behalf of the Glasgow Institute of Architects, yours truly,

C. J. MACLEAN, Secretary.

93 West Regent Street, Glasgow: April 9, 1903.

C. J. MacLean, Esq., 115 St. Vincent Street.

Dear Sir,—I am instructed by the managers of the Royal Academy to acknowledge receipt of your letter to me of the 17th ult., and to say in reply that, while they do not accept the criticisms of your Institute as accurate, they have given them further careful consideration, and are unable to see what good purpose can be served by a continuation of this correspondence.—I am, yours truly,

HENRY LAMOND, Secretary.

TESSERÆ.

The Roman Foot in Measuring.

THE Greeks and Romans adopted the human foot as the basis of their system of measures of length. There are five ways of determining the length of the Roman foot, viz. by ancient measures still in existence, by measuring known distances along roads, by measuring buildings, by derivation from measures of capacity, by measuring a degree on the earth's surface. The measurement of buildings is rather a verification of the value of the foot as obtained from other sources than an independent evidence. It very seldom happens that we know the number of ancient feet contained in the building measured. We have one such example in the Parthenon which was called "hecatompedon" (hundred-footed), from the width of its front, but even in this case we cannot tell exactly, till we know something of the length of the Greek foot, to what precise part of the front this measurement applies. Again, there is the obelisk in the Piazza del Popolo at Rome and the Flaminian obelisk, the heights of which are given by Pliny. But the actual heights of these obelisks, as compared with Pliny, would give a value for the foot altogether different from that obtained from other sources. Indeed, the numbers in Pliny are undoubtedly corrupt. An ingenious emendation by Stuart would remove the difficulty, but it is obvious that a passage which requires a conjectural emendation cannot be taken as an independent authority. There is another mode of deducing the value of the foot from buildings, of the dimensions of which we have no information. The building is measured, and the length thus obtained is divided by the supposed value of the ancient foot (as derived from other evidence), and if a remainder be left this value of the foot is corrected so that there may be no remainder. It is assumed in this process that no fractions of feet were allowed in the dimensions of the building, and also that the plans were worked out with the

most minute exactness, both of which assumptions are not very probable. In fact, these measurements have given different values for the foot. "Modern architects," says Mr. Hussey, "do not allow that such calculations could be depended on in modern buildings for determining the true length of the measures by which they were planned. Nor are the dimensions of the parts of buildings of the Middle Ages in our own country, as Gothic churches and cathedrals, found to agree exactly so as to give whole numbers of the standard measure." On the other hand, these measurements, like those on roads, have the advantage of involving in all probability very small errors, and of the diminution of the error by division. The average values of the Roman foot obtained from these various sources, in terms of the English foot, are the following:—From ancient measures, '9718; from itinerary measurements, '97082; from measurements of buildings, '96994; from the congius (a liquid measure), '9832; from the length of a degree, '9724; of which the first three are the most to be depended on, and of those three the average is '9708, or 11'6496 inches, or 11½ inches, which we may take as the probable value of the Roman foot. Cagnazzi, whose researches are said by Niebuhr to have placed the true value of the Roman foot beyond a doubt, gives it a greater length than the above, namely, '29624 of a metre = '9722 of a foot, but this calculation is objected to by Böckh as being derived by a process not perfectly true from the value of the pound, and as being confirmed only by one existing measure, and also as being at variance with the value of the Greek foot obtained from independent sources. Böckh's own calculation, which agrees with that of Wurm, gives a value very little less than the above, namely, 131'15 Paris lines = 9704649 of the English foot = 11'6456 inches.

Proportions in Architecture.

Many things dictated by instinct alone may produce beauties in architecture and yet not have proportions in the sense which ought to be attached to the word. Ask the Gothic architect if his pillars bear a fixed relation to their different parts. The answer will be that the pillar may have three, six, or even more times the height of its thickness, and that nothing of the sort is fixed in a determinate manner in any Gothic buildings, not even in a solitary edifice whatever may be its dimensions. Ask if the Gothic capital corresponds in size, form and ornament with its pillar; facts themselves will tell you that caprice or chance alone decides its shape. Inquire if the different members and details agree with such and such a part of the arrangement, and you will be informed that no trouble has ever been taken about relative affinities which do not belong to the executive department. You will be shown the clumsiest supports by the side of the slenderest shafts; groups of little columns supporting nothing, and masses quite out of the perpendicular without any support at all. If you wish for an account of the exteriors of the churches, none can be rendered of confused parts and incoherent details carved out by the most ignorant caprice. The elevations of this style are never proportioned to their groundwork, and great boasting is made of their height, which only aspires to appear as an effort of mechanical skill. Gothic architecture has, therefore, no system of proportions, and it contains no principle of order which will enable us to discover from each part, detail and ornament the reason which unites it to the whole and to the other parts, details and ornaments of which that whole is composed. It must be remembered that Grecian architecture as exhibited in its remains, with those developments and modifications which have rendered it applicable to all nations, had not for its origin only that instinct which everywhere teaches the hewing and collecting of stones. It also possessed a kind of model consisting in itself of a combination of parts, arranged and connected by reason and necessity. It therefore sprang from a pre-existing combination, of which it adopted the leading features, and hence arose its principle of order. In Greece the first edifices were formed of wood, which produced a combination of parts governed by a natural and uniform connection. This principle transferred to stone constructions a regularity of disposition which has been always subsequently followed too exactly to admit of anything merely dictated by necessity. The only model was the spirit of order and proportion, and this adhered to, the natural love of variety which exists in every human breast was sufficient to bring all the resources of the art in play to vary the expression; but, while following a system of proportions dictated by observing the construction of the wooden hut, architects found it necessary in order to arrive at perfection in their art to study the spirit that dictated the proportions observed in this construction from a still grander model—that of nature. This in Greece produced a result which did not occur elsewhere, and, in proportion to the progress made by Grecian artists in imitating nature in their images of the human body, did this spirit of imitation display its influence in architecture. In thus reflecting upon the common bond of union which exists between all the arts, we perceive at once how and why an ignorance of the proportions of the human frame must have had its reaction upon the

Egyptian, Gothic, Indian and other styles of building; also the reason why the architecture most distinguished for order and fixed proportions was that of a people who in painting, drawing and sculpture had carried the study of scientific proportions to a higher pitch than any other nation.

Greek Painting in the Alexandrian Period.

According to Quintilian there were several famous painters in Greece about the time of Alexander the Great. He mentions Protogenes was distinguished for high finish, Pamphilus and Melanthius for composition, Antiphilus for facility, Theon of Samos for his prolific fancy, and for grace Apelles was unrivalled; Euphranor was in all things excellent, Pausias and Nicias were remarkable for chiaroscuro of various kinds, Nicomachus was celebrated for a bold and rapid pencil, and his brother Aristides surpassed all in the depth of expression. There were also other painters of great celebrity during this period:—Philoxemus of Eretria, Asclepiodorus of Athens, Athenion of Maronea, Echion, Cydias, Philochares, Theonnestus, Pyreicus, &c. This general revolution in the theories and practice of painting appears to have been greatly owing to the principles taught by Eupompus at Sicyon, who advised that nature should be preferred to any artist. Pamphilus of Amphipolis succeeded Eupompus in the school of Sicyon, which from that time became the most celebrated school of art in Greece. Pamphilus had the reputation of being the most scientific artist of his time; and such was his authority, says Pliny, that chiefly through his influence, first in Sicyon, then throughout all Greece, noble youths were taught the art of drawing before all others. It was considered amongst the first of liberal arts, and was practised exclusively by the free-born, for there was an especial edict prohibiting slaves from exercising it. The course of study in this school occupied ten years, and the fee of admission was an Attic talent; Pliny mentions that Apelles and Melanthius both paid this fee. Apelles studied under Ephorus of Ephesus before he became the pupil of Pamphilus; Pausias also studied encaustic under Pamphilus. The course of study comprehended instruction in drawing, arithmetic, geometry, anatomy and painting in all its branches. Pamphilus was the first painter, says Pliny, who was skilled in all the sciences, particularly arithmetic and geometry, without which he denied that art could be perfected. By these sciences as applied to painting, we must probably understand those principles of proportion and motion which can be reduced to rule: by arithmetic the system of the construction and the proportions of the parts of the human body; by geometry, perspective and the laws of motion, that is, so much of them as is necessary to give a correct representation of and a proper balance to the figure. Pamphilus seems to have painted but few pictures, but they were all conspicuous for beauty of composition. Nicomachus of Thebes was, according to Pliny, the most rapid painter of his time, but he was as conspicuous for the force and power of his pencil as for its rapidity. Plutarch compares his paintings with the verses of Homer. Nicomachus had many scholars, of whom Philoxenus of Eretria was celebrated as a painter of battles; a battle of Alexander and Darius, by him, is mentioned by Pliny as one of the most celebrated paintings of antiquity, but they were all surpassed by his own brother Aristides, who appears to have been the greatest master of expression among the Greeks.

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.

THE annual general meeting of the Norfolk and Norwich Archæological Society was held at Norwich Guildhall on the 28th ult. General W. E. G. L. Bulwer presided.

Mr. Leonard Bolingbroke read the annual report, which recorded the meetings and excursions for the year.

Dr. Bensly, as treasurer, read the balance sheet, which showed that the year began with a balance in hand of 501*l.* 7*s.* 2*d.*, and ended with a balance in hand of 455*l.* 19*s.* The report was adopted.

General Bulwer was re-elected president, Dr. Bensly hon. treasurer, Mr. Leonard Bolingbroke hon. secretary, and Mr. Barnard hon. auditor.

Prince Frederick Duleep Singh and the Rev. F. Procter were added to the list of vice-presidents.

Mr. Bosworth W. Harcourt then read a paper on "St. Walstan or Wulstun of Bawburgh," and Mr. R. J. W. Purdy "Notes on a Valley in East Norfolk."

After luncheon St. Stephen's Church was visited and a paper read by the vicar, the Rev. Dundas Harford.

The company then went to the High School for Girls, and Mr. G. E. Hawes read a paper on "The Chapel of St. Mary in the Fields." He said that he had discovered the wall of the north aisle and its buttresses, both walls of the north porch, a portion of the south wall of the nave, 38 feet long, the foundations of the east wall of the nave and of the north and south

transepts, the foundations of the north and south piers of the chancel arch, portions of the foundations of the north-east column of the nave, portions of the tower walls and of the south buttress of same, portions of the wall, with buttress, of the north aisle of the chancel, wall further south of nave wall and two graves, one in the nave and one in the north transept. It was surprising that in digging over this large area so little material was found, but it appeared that at the Dissolution the then Dean, Miles Spencer, got all he could and then sold what he could. The king had for his share all the bells in the steeple, and the lead on the nave, chancel, aisles, chapels and steeple. The great hall of the college was probably part of the present school buildings. The parlour was probably to the east and beneath it was a crypt. He had shown that a discovery had been made of buildings which were of historical interest to the city, the site of which for 400 years had been unknown.

GENERAL.

Mr. Pittendrigh Macgillivray has obtained the commission for the Gladstone Memorial which is to be erected in St. Andrew Square, Edinburgh.

A Memorial will be unveiled at Nauplia on July 11 which will commemorate the services of the Frenchmen who were killed in 1821 during the Greek war of independence. The work is by M. Caldoupiis.

The Memorial of Charles Garnier is likely to be inaugurated at the Paris Opera House on the 15th inst. The design was prepared by M. Pascal, the architect, and the sculpture is by M. Thomas. The bust of the architect is an enlargement of one by Carpeaux.

M. Patrice Bonnet, a pupil of M. Esquié, has obtained the Prix Deschaumes of the Académie des Beaux-Arts, which is intended for young architects who distinguish themselves by their aptitude for their art. The value of it is 1,500 francs.

The Baroness Adolphe de Rothschild has handed over to the Louvre, Paris, the last instalment of the sum of 250,000 francs which had been bequeathed by Baron de Rothschild. The money amounts to 40,000 francs, and will be used for the purchase of works of art to be added to the Rothschild collection.

A Royal Commission has been appointed to inquire into the subject of trade disputes and trade combinations and the law affecting them, and to report on the law applicable to same and the effect of any modification thereof. The following are the members:—Mr. Graham Murray, Lord Advocate for Scotland, chairman; Sir William Lewis, Sir Godfrey Lushington, Messrs. Arthur Cohen, K.C., and Sydney Webb. Mr. Hartley Mothersole, barrister, is to be the secretary.

A Collection of books bound in the Guild of Handicraft has been lent for exhibition to the Kunstgewerbe Museum, Berlin.

The Report of the Wesleyan Metropolitan Chapel Building Fund states that the income for the past year was 6,129*l.*, and that grants have been made or promised to the extent of 35,000*l.* Among these is a grant of 7,500*l.* to the Victoria Hall, Deptford, the outlay on which is 22,000*l.* The Leysian scheme in City Road is to receive a grant of 9,000*l.* The total amount granted to mission-halls is 40,450*l.* New chapels are being built at Finchley and at Waltham Abbey. Ten sites for new Wesleyan chapels are held in North London, seven in South London, five in the east and four in the western parts of the Metropolis.

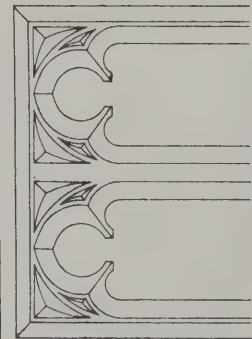
The Government have introduced a "Bill to authorise the appropriation of the surplus funds derived under the Battersea Park Act towards the opening of the Mall into Charing Cross and other metropolitan improvements."

Mr. Roberts, the Australian artist who is painting an historical picture for presentation to the King, representing the scene at the opening of the Commonwealth Parliament in 1901, is now at work in a room placed at his disposal in the Imperial Institute. The Prince and Princess of Wales have consented to sit for Mr. Roberts.

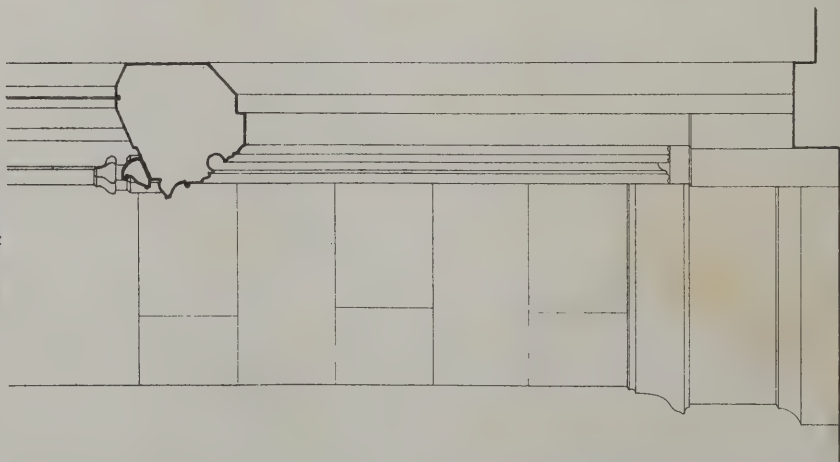
The Next Ordinary Meeting of the Society of Engineers will be held on Monday next, June 8, at the Royal United Service Institution, Whitehall. A paper will be read entitled "Electric-Light Stations, their Design and Arrangement" (illustrated by drawings of the Bridlington electric-light station), by Mr. Ernest R. Matthews, C.E., F.G.S.

Mr. Batsford will publish in a few days an interesting volume illustrating old English doorways from Tudor times to the end of the eighteenth century, reproduced from photographs specially taken by Mr. W. Galsworthy Davie, whose delightful volume on "Old Cottages and Farmhouses in Kent and Sussex" has been so widely appreciated. The photographic plates will be supplemented by some historical notes and sketches by Mr. Henry Tanner, jun., author of "English Interior Woodwork."

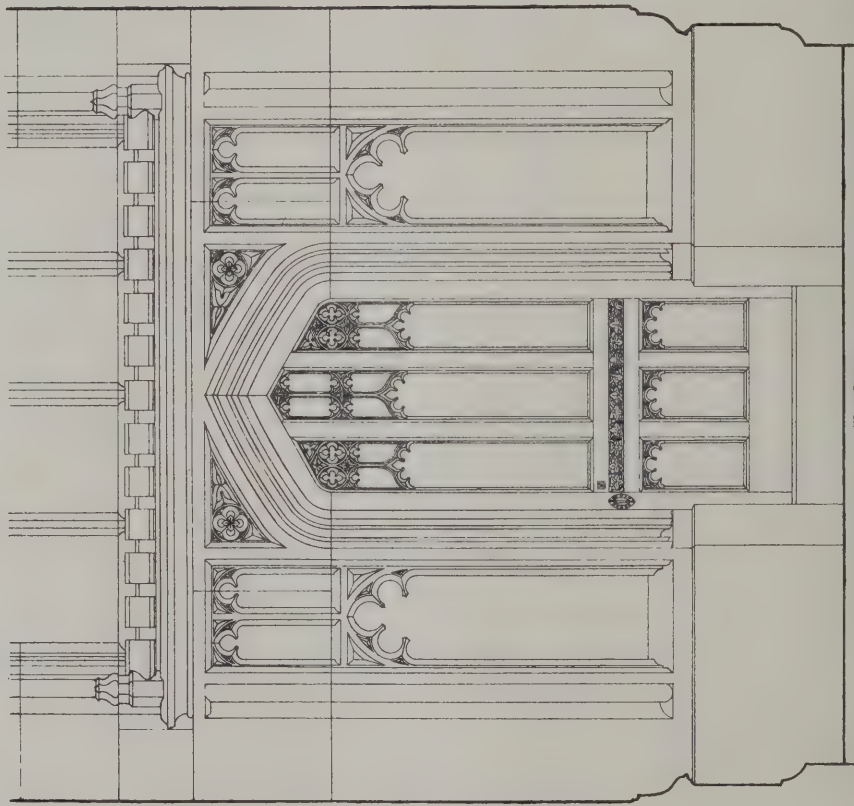
MANCHESTER CATHEDRAL. Detail of Door, Jesus' Chantry on South Side.



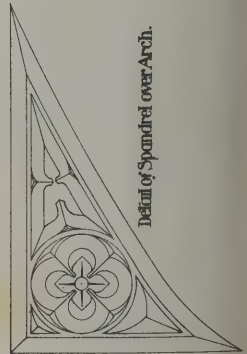
Detail of Upper Stone Panels.



Section.



Elevation.

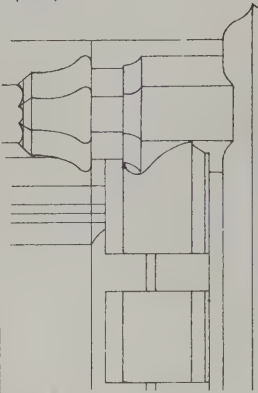


Detail of Spandrel over Arch.

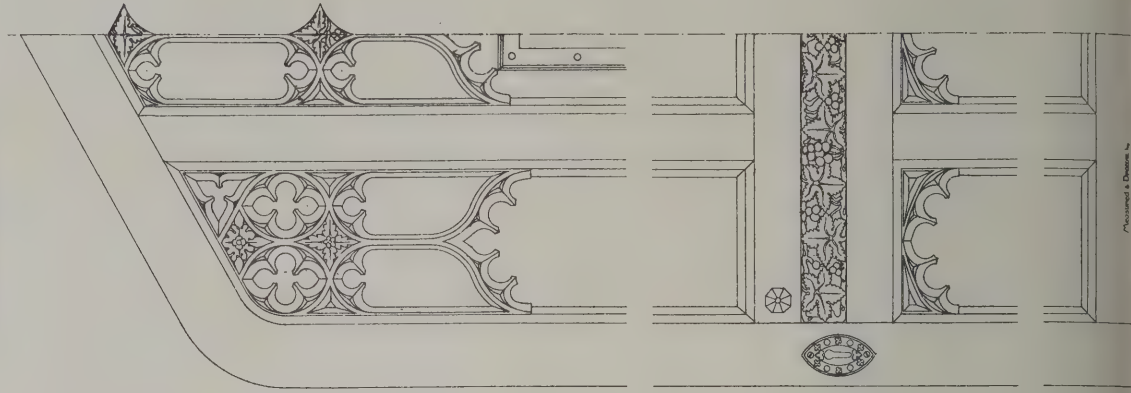


Plan.

Nº 5.



Detail of Base to Window Jamb.





PHOTOGRAPHED BY S. B. BOLAS & CO 77, OXFORD STREET, W

ST. JOHN'S MISSION CHURCH
Messrs. TREADWELL

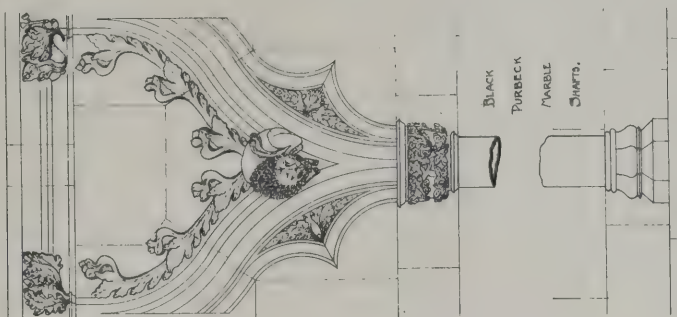
1903.



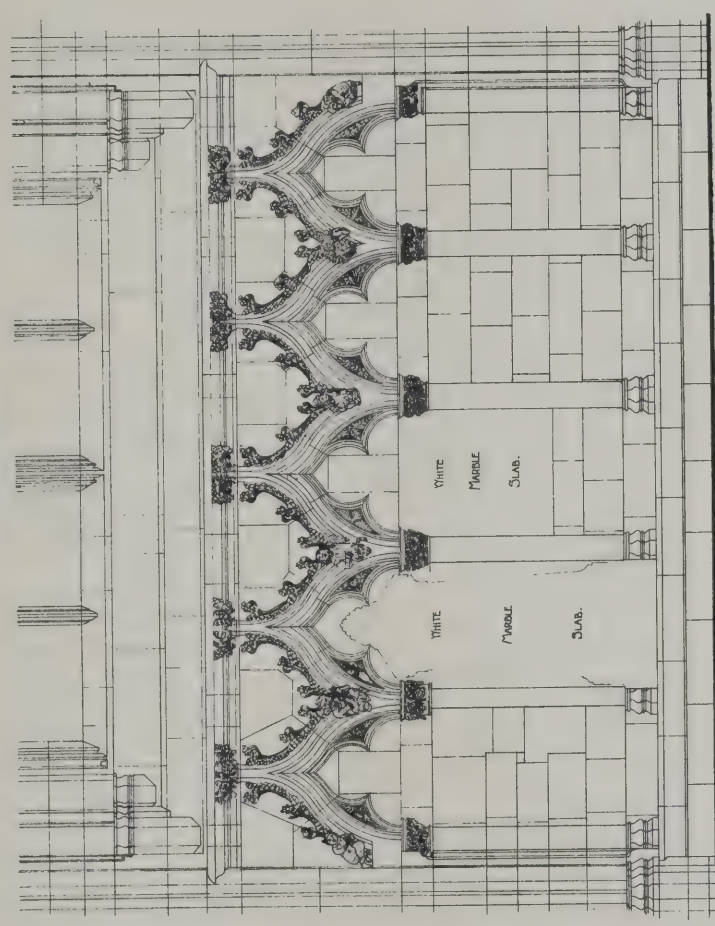
INK-PHOTO. SPRAGUE & CO. LTD. 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

M: INTERIOR, EAST END.

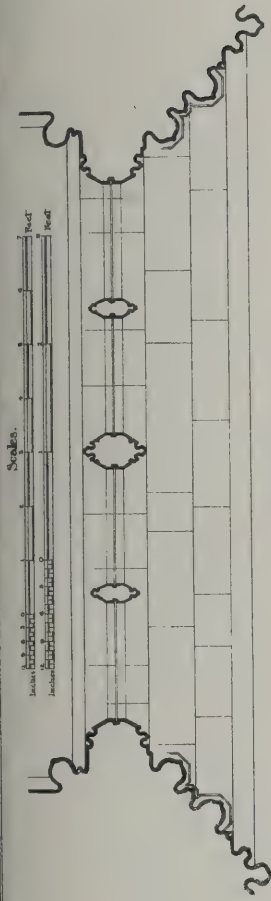
N. Architects.



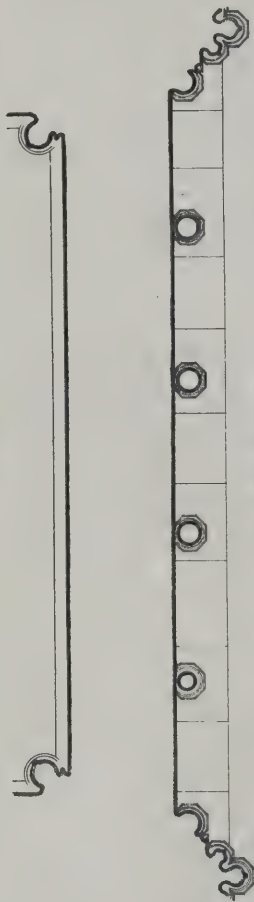
Detail of Arcade.



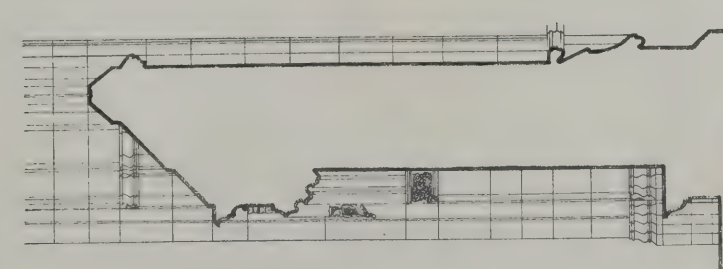
Elevation.



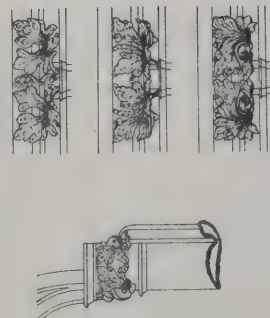
Plan Through Window.



Plan Through Arcade.



Section.





PHOTOGRAPHED BY S. B. BOLAS & CO

LINDFIELD GARD

Messrs. HOME

5th 1903.



INK PHOTO SPRACUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LAKE, E.C.

WIMBORNE, N.W.

Architects.



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5th 1903.



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W.: THE ENTRANCE HALL.

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THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BRIDLINGTON.—June 19.—Schemes are invited for providing the village of Flamborough (1,000 inhabitants) with an efficient supply of water. Mr. John B. Simpson, clerk, Rural District Council, Bridlington.

CROYDON.—June 9.—Competitive designs and estimates are invited for a children's home and two relief stations to be erected in Croydon. A premium of £15 15s. is offered for the best design for the children's home and £10 10s. for the second best, and a premium of £10 10s. is offered for the best designs for the two relief stations. Mr. Harry List, clerk, Union Offices, Mayday Road, Thornton Heath.

IRELAND.—June 18.—The Trustees of the Limerick free library and museum invite designs from architects in independent practice for the proposed Carnegie library and museum to be built in the People's Park, Limerick. Prizes of 75% and 25% respectively will be awarded to the designs placed first and second in the competition. Mr. W. M. Nolan, town clerk, Town Hall, Limerick.

POPLAR.—June 23.—Competitive designs are invited for a public library to be erected in Cubitt Town, Poplar, E. A premium of 75% is offered for the design accepted by the

Council, which will be deducted from the architect's commission should he be employed as architect in the execution of the work. Mr. Leonard Potts, town clerk, High Street, Poplar.

SCOTLAND.—June 13.—Competitive plans are invited for the formation and laying-out of ground for new cemetery at Wellhall, extending to about 9½ acres. Mr. A. L. Smith, 25 Duke Street, Hamilton.

TAUNTON.—July 20.—Competitive designs are invited for a library building to be erected in Corporation Street, at a cost not exceeding 5,000% inclusive. Premiums of 30%, 20% and 10% will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. George H. Kite, town clerk, Municipal Buildings, Taunton.

WALES.—Designs are invited for a type of self-contained terrace house for the working classes. A premium of 10% 10s. is offered. Particulars, with a lithographed plan of the proposed site, can be obtained from the Borough Surveyor, Somerset Place, Swansea.

CONTRACTS OPEN.

ALTRINCHAM.—June 10.—For additions and alterations to the county police station at Altrincham, Cheshire. Mr. H. Beswick, county architect, Newgate Street, Chester.

AYSGARTH.—June 12.—For alterations and additions at the workhouse, and the erection of a new block of buildings for receiving wards, laundry, mortuary, &c. Mr. W. E. M. Winn, clerk to Guardians, Askrigg, Yorks.

BARNES.—June 12.—For the erection of four shops, High Street, Barnes. Messrs. F. & W. Stopper, architects, 90 and 91 Queen Street, Cheapside, E.C.

BRIDGWATER.—June 9.—For part demolition and rebuilding of the chimney-shafts at Duff's Court. Mr. W. T. Baker, town clerk, King Square, Bridgwater.

BRISTOL.—June 12.—For the erection of the first portion of St. Stephen's Church, Soundwell. Mr. Henry M. Bennett, architect, 36 Corn Street, Bristol.

BRIXHAM.—June 16.—For rebuilding the Buller's Arms inn, at Brixham, Devon. Mr. Fred Wm. Vanstone, architect, Palace Chambers, Paignton.

BURSELEM.—June 9.—For the erection of a branch post-office at Burslem, Stoke-on-Trent. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

BUTTERSHAW.—June 9.—For erecting two houses, Buttershaw, Yorks. Messrs. Brayshaw & Dixon, architects, Bowling Old Lane, Bradford.

CAMBORNE.—June 12.—For the erection of two dwelling-houses of six rooms each at Penponds, Camborne, Cornwall. Mr. W. Raven, Praze, Crowan.

CARLISLE.—June 8.—For alterations to 7 Victoria Place. Mr. Joseph Graham, architect, Bank Chambers, Bank Street, Carlisle.

CARLISLE.—June 13.—For the erection of a new inn in Caldotes, Carlisle. Mr. James Leslie, architect, 71 Broad Street, Carlisle.

CONSETT.—June 10.—For the erection of four tenements, self-contained house, coachhouse and stable at Consett, Durham. Mr. T. H. Murray, architect, Consett, co Durham.

COVENTRY.—June 13.—For an extension to the electric-light works, Sandy Lane. Mr. J. E. Swindlehurst, city surveyor, St. Mary's Hall, Coventry.

DEAL.—June 9.—For the erection of a public house at Deal. Messrs. Jennings & Duthoit, architects, Dover.

DUBLIN.—June 8.—For the erection of two platelayers' cottages near Beauparc, and three platelayers' cottages at

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EAST ARDSLEY.—June 11.—For the erection of branch store and house at East Ardsley, Yorks. Messrs. R. Castle & Son, architects, London City and Midland Bank Chambers, Cleckheaton.

EAST DEREHAM.—June 20.—For the repair of the bridge at Worthing. Mr. Walter M. Barton, clerk, Guildhall, East Dereham.

EYEMOUTH.—June 8.—For the erection of latrines at Eyemouth (Berwickshire) public school. Mr. J. Donaldson, Parish Council Office.

FORDINGBRIDGE.—June 14.—For the erection of a pair of cottages at Sandel Heath and a single cottage at Damerham, both near Fordingbridge. Mr. Fred Bath, architect, Crown Chambers, Salisbury.

HEREFORD.—June 19.—For erection of proposed isolation hospital, caretaker's house and other works at Stretton Sugwas, in the county of Hereford. Mr. Ernest G. Davies, architect, 7 Bridge Street, Hereford.

HOLBEACH.—June 9.—For additions to the Holbeach Union infirmary. Mr. F. Burdett Ward, architect, 7 York Row, Wisbech, Lincs.

HORNSEY.—June 8.—For the erection of workmen's dwellings (140 houses) in Hawthorn and Beechwood Roads. Mr. E. J. Lovegrove, engineer to the Urban District Council, 99 Southwood Lane, Highgate, N.

HOUGHTON-LE-SPRING.—June 20.—For the erection of a Wesleyan minister's house, Houghton-le-Spring, Durham. Mr. J. P. Tulip, 6 William Street, Houghton-le-Spring, R S O.

ILFORD.—June 15.—For the erection of a boys and girls' school for 965 children, and an infants' school for 480 children, with latrines, play-sheds, fencing and schoolkeeper's house, on the Highlands site, Cranbrook Park, Ilford. Mr. C. J. Dawson, architect, 6 Cranbrook Road, Ilford.

ILFORD.—June 22.—For the erection of a lodge and convenience at the north-west entrance to the South Park, Green Lane, Ilford. Mr. John W. Benton, clerk, Town Hall, Ilford.

IPSWICH.—June 16.—For the erection of an infants' school and alterations to the existing buildings at Wherstead Road school. Mr. T. W. Cotman, architect, Northgate Street, Ipswich.

IPSWICH.—June 12.—For the enlargement of post office at Ipswich. Conditions and form of contract may be seen on application to the Postmaster.

IRELAND.—June 19.—For the erection of a house on main street, Derrygonnelly. Mr. D. Elliott, Derrygonnelly.

IRELAND.—June 10.—For the erection and completion of grand stand at the Garryowen Athletic Grounds, Ltd., Limerick. Mr. Brian E. F. Sheehy, architect, 57 George Street, Limerick.

IRELAND.—June 10.—For the erection of a portable iron hospital upon the workhouse premises, Loughlinstown, co. Dublin. Mr. Patrick Cuniam, clerk to Guardians, Loughlinstown.

IRELAND.—June 13.—For the erection of a creamery near Lismore railway station. Mr. William Hartnett, secretary, Chapel Street, Lismore.

IRELAND.—June 15.—For the erection of dwelling-house, shop and out-offices at Muckamore, Antrim. Mr. F. E. Lockwood, architect, 91 Victoria Street, Belfast.

IRELAND.—June 15.—For the erection of five shops at Cromac Square and Cromac Street, Belfast. Mr. Thomas Pentland, architect, 35 High Street, Belfast.

IRELAND.—June 27.—For the erection of a golf house off Hamilton Road, Bangor. Mr. F. C. Doran, hon. secretary, Bangor Golf Club, Ward Avenue, Bangor.

ISLEWORTH.—June 10.—For the erection of piggeries in the grounds of Warkworth House, adjoining the workhouse. Mr. William Stephens, clerk, Union Offices, Isleworth.

ISLINGTON.—June 9.—For brick paving to the floor of the public washhouse at the Hornsey Road baths. Mr. J. Patten Barber, Town Hall, Upper Street, Islington, N.

KEW, & C.—June 16.—For ordinary works and repairs to public buildings, &c., in the Kew, Richmond and Hampton Court districts. Particulars may be obtained at H.M. Office of Works, Storey's Gate, Westminster, S W.

KIRDFORD.—June 30.—For removing and rebuilding the east wall, and the erection of a new wall in continuation of and in keeping with the present north wall at the churchyard, Kirdford, Sussex. The Vicar, Kirdford, Billingshurst.

LEEDS.—June 9.—For the construction of an underground latrine in York Street extension, Leeds. Particulars may be obtained at the City Engineer's Office (Unhealthy Areas Improvement Department), Municipal Buildings, Leeds.

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LEEDS.—June 9.—For the erection of boiler-house and engine-room at the New Wortley gasworks. Mr. R. H. Townsley, general manager, Gas Offices, Municipal Buildings, Leeds.

LITTLEBOROUGH.—June 9.—For the erection of a rubble retaining wall on the Halifax main road, Littleborough, Lancs. Mr. W. H. Schofield, surveyor, County Offices, Preston.

LONDON.—June 9.—For the erection of workshops at the new savings bank, West Kensington. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

LONDON.—June 10.—For ordinary works and repairs to buildings in the London district for three years from July 1. Particulars may be obtained at H.M. Office of Works, Storey's Gate, Westminster.

LONDON.—June 11.—For repairing, painting and cleansing the mortuary at Wanless Road, Loughborough Junction, S.E. Mr. Henry Edwards, borough engineer, Lambeth Town Hall, Kennington Green.

LONDON.—June 23.—For the erection of the second portion of the new car-sheds at Clapham, S.W., including about 400 tons of steel stanchions, girders and roofwork, for the London County Council. Particulars at the Architect's Department (Highways Section), 19 Charing Cross Road, W.C.

LONDON.—June 24.—For widening and enlargement of Victoria station, for the London, Brighton and South Coast Railway Company. Mr. J. J. Brewer, secretary, London Bridge Terminus, S.E.

LOWER BEBINGTON.—June 16.—For the erection of a cart shelter and boundary wall in New Ferry, Lower Bebington, Cheshire. Plans may be seen and forms of tender obtained on application to the Surveyor, Council Offices.

LUTON.—June 10.—For the erection of vagrant wards at the workhouse, Dunstable Road, Luton. Messrs. J. R. Brown & Son, architects, Castle Street, Luton.

MAIDENHEAD.—June 12.—For the extension of the central station buildings in Braywick Road. Mr. Percy Johns, borough surveyor, Guildhall, Maidenhead.

MANCHESTER.—June 15.—For the erection of a medical superintendent's house at Monsall Hospital. Specification and bill of quantities at the office of the City Architect, Town Hall, Manchester.

MORTLAKE.—June 9.—For the erection of twenty-six workmen's dwellings, South Worple Way, Mortlake. Mr.

G. Bruce Tones, surveyor, Council Offices, High Street, Mortlake, S.W.

NETHERFIELD.—For enlargement of premises at Netherfield, for the Co-operative Industrial Society. Mr. R. Whitbread, architect, Carlton.

NORWICH.—June 22.—For the erection of retort house, coal stores and other buildings at the gasworks. Mr. Thomas Glover, engineer and manager, Bishop Bridge, Norwich.

NUNEATON.—June 9.—For the erection of science and art school in King Edward Road, Nuneaton. Mr. H. Quick, architect, 64 Hertford Street, Coventry.

PRESTON.—June 10.—For the erection of an isolation cottage (Contract No. 24) at the Preston and County of Lancaster Queen Victoria Royal Infirmary. Mr. F. E. Dixon, architect, 49 Lune Street.

PONTEFRAC.—June 9.—For the erection of Wesleyan church (with tower) and Sunday-schools at Purston, near Pontefract. Messrs. Garside & Pennington, architects, Pontefract.

ST. MARYLEBONE.—June 10.—For the erection of a block of tenement dwellings in John Street, Edgware Road. Mr. Harry B. Measures, architect, 16 Great George Street, Westminster, S.W.

SCOTLAND.—June 8.—For the erection of a post office at Musselburgh. Drawings, specification and a copy of the conditions and form of contract may be seen at H.M. Office of Works, 3 Parliament Square, Edinburgh.

SCOTLAND.—June 13.—For additional hospital accommodation at Craiglockhart poorhouse, Edinburgh. Mr. And. Ferrier, clerk, Parish Council Chambers, Castle Terrace, Edinburgh.

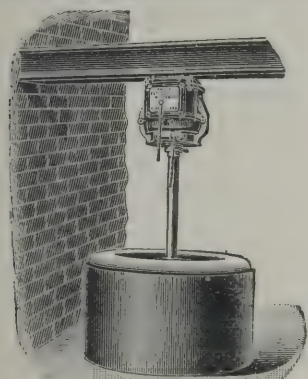
SCOTLAND.—June 13.—For the erection of a dwelling-house at Dunphail. Mr. John Forrest, architect, Forres.

SCOTLAND.—June 16.—For the erection of a post-office at Linlithgow. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, Edinburgh.

SHEFFIELD.—June 8.—For the erection of Board-room and union offices at Union Road, The Edge, Sheffield. Messrs. Ellis Bros., architects, Orchard Street, Sheffield.

SHEFFIELD.—June 23.—For the erection of University College, Sheffield. Messrs. Gibbs & Flockton, architects, 15 St. James Row, Sheffield.

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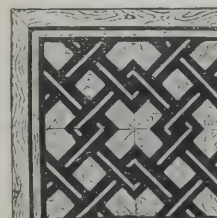
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SKELMANTHORPE.—June 9.—For the erection of a dwelling-house in Commercial Road, Skelmanthorpe, Yorks. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

SOUTHAMPTON.—June 11.—For the erection of a brick chimney-shaft, 200 feet in height, at the electricity works, Western Shore, Southampton. Mr. R. R. Linthorne, town clerk, Municipal Office, Southampton.

STAVERTON.—June 15.—For repairs at Staverton Farm, near Trowbridge, and to shed. Messrs. Foley, Son & Mundy, surveyors, Trowbridge.

STOCKWELL.—June 9.—For the erection of a new sorting office at Stockwell. Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

STOURBRIDGE.—For (1) erection of the new workhouse and infirmary and appurtenant buildings at Kingswinford, and (2) erection of cottage homes and other buildings at Norton, near Stourbridge. Mr. Arthur Marshall, architect, King Street, Nottingham.

STOWMARKET.—June 16.—For alterations and additions to the union house and laundry and drainage scheme. Mr. John Corder, architect, Ipswich.

SUNDERLAND.—June 8.—For erection of public baths and washhouses in Hendon Road. Messrs. Brown & Spain, architects, 11 John Street, Sunderland.

THIRSK.—June 12.—For the erection of school and classrooms to the Wesleyan church, Thirsk, Yorks. Mr. Thomas Stokes, architect, Thirsk.

TOOTING.—June 17.—For providing and fixing certain joinery fittings at Tooting Bec asylum. Mr. T. Duncombe Mann, clerk, Metropolitan Asylums Board, Embankment, E.C.

WALES.—For the erection of a farmhouse at Coed Devonald. Mr. William D. Davies, Plasyparke, Brynberian, Eglwysrwr.

WALES.—June 8.—For (a) enlarging the three departments of Williamstown Board school to provide additional accommodation for 110 boys, 50 girls and 56 infants; and (b) enlarging and improving the master's house at Porth Board school. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—June 8.—For the erection of a dwelling-house, &c., at Waunsegur, St. Dogmells. Mr. T. Jones, Plaslawrence St. Dogmells.

WALES.—June 8.—For new shop front and fittings, Wind Street, Swansea. Mr. Charles T. Ruthen, architect, Bank Chambers, Heathfield Street, Swansea.

WALES.—June 8.—For the erection of a new department to accommodate 400 girls, with a cookery kitchen, at Mardy, Ystradyfodwg. Mr. Jacob Rees, architect, Hillside Cottage, Pentre.

WALES.—June 8.—For the erection of a school for infants to accommodate 300 children, with out-offices, boundaries and playground, at Blaenau-Gwent, Abertillery, Mon. Mr. R. L. Roberts, architect, Abercarn, Mon.

WALES.—June 8.—For the erection of proposed workmen's hall at Abercynon. Mr. S. Gibson, architect, Commercial Street, Mountain Ash.

WALES.—June 8.—For additions to the cloakrooms in connection with Lakefield (girls and infants') and Copper Works (girls') schools, Llanelly. Mr. J. B. Morgan, architect, Llanelly.

WALES.—June 9.—For improvements and alterations to the Union workhouse, Pwllheli. Mr. R. G. Thomas, architect, Menai Bridge.

WALES.—June 9.—For the erection of a Welsh Calvinistic Methodist chapel, Resolven. Mr. W. Beddoe-Rees, architect, 37 St. Mary Street, Resolven.

WALES.—June 9.—For the erection of eleven houses on the Cwmneol estate, Cwmaman. Messrs. Llewellyn Smith & Davies, architects, Aberdare.

WALES.—June 11.—For the erection of chapel, for the committee of Bethel Baptist church, Cwmpark. Mr. Jacob Rees, architect, Pentre.

WALES.—June 12.—For the erection of 250 dwelling-houses at Aber Bargoed. Mr. Geo. Kenshole, architect, Hanbury Road, Bargoed.

WALES.—June 12.—For the erection of three houses at Canning Street, Ton, Pentre. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre.

WORKINGTON.—June 12.—For erection of a shop, store, dwelling-house and other out-offices, at the corner of Corporation Road and Queen Street, Workington. Messrs. W. G. Scott & Co, architects, Victoria Buildings, Workington.

WALES.—June 15.—For the erection of showrooms and stockrooms, Market Square, Merthyr Tydfil. Mr. C. M. Davies, architect, 112 High Street, Merthyr.

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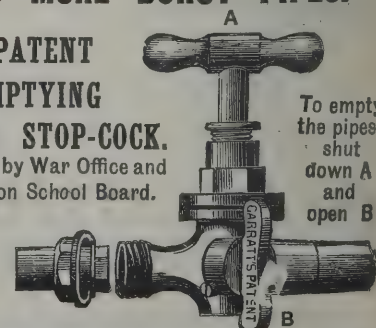
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London School Board.



GARRATT & CO.

Leipsic Road, Camberwell, S.E.

WALES.—June 23.—For the erection of the superstructure and other works for the new lunatic asylum at Whitchurch, near Cardiff. Messrs. Oatley & Skinner, architects, Edinburgh Chambers, Baldwin Street, Bristol.

WALES.—June 24.—For additions, alterations and improvements to the Brynhyfryd Board school, Swansea. Mr. G. E. T. Laurence, architect, Chandos Chambers, 22 Buckingham Street, Adelphi, W.C.

WALES.—June 30.—For the erection of a schoolroom and reseating and erecting new galleries at Bethany Baptist chapel, Pembroke Dock. Messrs. George Morgan & Sons, architects, 24 King Street, Carmarthen.

WEST HAM.—June 15.—For the cleansing, repair and painting of schools during the summer vacation. Mr. William Jacques, architect, 2 Fen Court, E.C.

FOR several years past the increase both in the export and import trade of Cardiff has been such that, in spite of the 111 acres of water space covered by the three existing docks at that port, another dock, deeper and larger than any of the others was needed and will shortly be opened. The new dock is 2,550 feet in length, with a breadth of 800 feet to 1,000 feet, and a depth of 50 feet below the level of the coping. Its total area is 50½ acres, thus occupying 6½ acres more than the water space covered by the Bute East Dock, and 17½ acres more than the Roath Dock. A sea-lock connecting the new dock with the Roath Dock is now in process of completion. This is 800 feet long, 90 feet wide and 50 feet deep, with a total of 41 feet 6 inches of water over the sill at ordinary spring tides and 32 feet at ordinary neap tides.

A NEW parcels post office is being erected at Russell Road, Murrayfield, Edinburgh, and is expected to be ready for occupation at Christmas in time for the heavy parcel traffic of that season. The site of the building—which will be fairly large and constructed of brick—is the vacant piece of ground immediately adjoining the rubber factory at Russell Road. For years past the Drili Hall, Forrest Road, has been used for the heavy Christmas parcels traffic, and it would seem from the step now taken that the postal authorities had been anxious to have a building of their own, which would be specially adapted for dealing with that class of traffic. The work at Murrayfield is being pushed on with all possible speed.

TENDERS.

BARNESLEY.

For renewal of sewer in Mr. Matthewman's fields. Mr. W. P. YOUNG, surveyor.

J. E. Nadin	£133	7	0
M. Grantham	126	17	7
M. A. Hague	126	10	0
G. H. Burrows	120	0	0
Wright & Walling	116	16	3
I. HAGUE, Hoyland (accepted)	115	0	0

BILSTON.

For wiring and fitting-up for lighting by electricity (Contract No. 1) the town hall, public offices and free library; (No. 2) public market; (No. 3) public baths; (No. 4) technical schools. Mr. J. P. WAKEFORD, surveyor.

Accepted tenders.

Furze & Co., Nottingham (1).
H. Bailey & Co., Accrington (2).

BIRMINGHAM.

For additions to kitchen buildings at the Workhouse Infirmary. Mr. W. H. WARD, architect, Paradise Street, Birmingham.

D. Roberts	£1,055	0	0
Smith & Pitts	1,034	0	0
F. Nichols & Co.	1,001	0	0
J. Atkinson	989	0	0
J. Dallow	950	0	0
Sapcote & Sons	944	0	0
E. Bates	895	13	4
Hunt Bros.	872	12	8
W. Hopkins	865	0	0
A. C. Hughes	844	0	0
W. H. Gibbs	830	0	0
E. CROWDER, Birmingham (accepted)	802	15	0

BRIDPORT.

For the erection of a thirteen-bed iron hospital at Bradpole, near Bridport, Dorset.

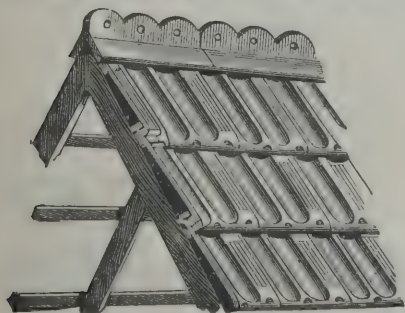
W. HARBROW, South Bermondsey Station, London, S.E. (accepted) £452 0 0

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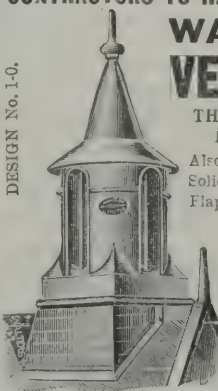
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ney Cows, &c.

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ASPHALTE,

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WITHOUT, LONDON, E.C.



LIVERPOOL.

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Total Security, **£3,700,000.**

BLACKHILL.

For the cleaning, varnishing, &c, of the Blackhill (Durham) Wesleyan church.

J. Siddle	£43	18	4
J. Thirlwell	37	10	0
G. Temple	35	12	6
J. Robson	29	5	0
J. ROBSON, 29 Thomas Street, Blackhill (accepted)	27	2	6

BRADFORD.

For the erection of a doctor's house, Barkerend Road, Bradford. Mr. W. H. HERBERT MARTEN, architect, Cheap-side Chambers, Bradford.

Accepted tenders.

Normington & Proctor, 43 Dirkill Street, Great Horton, Bradford, mason	£521	0	0
J. Fortune, 127 Adolphus Street, Bradford, joiner	250	0	0
W. Hodgson, 125 Leeds Road, Bradford, plumber	125	0	0
T. Keighley, Boothroyd, Town Lane, Idle, Bradford, plasterer	115	0	0
T. Thornton, Shipley, slater	89	0	0

BRANDON.

For sinking well and borehole and all contingent works. Messrs. HERBERT WALKER & SON, engineers, Albion Chambers, King Street, Nottingham.

T. Smithdale & Son	£1,558	11	6
W. & G. Fade	1,542	6	5
J. H. Vickers, Ltd.	1,450	0	0
J. F. Price	1,359	3	0
W. Brown & Son	1,250	0	0
Dunn & Booth	1,184	5	9
F. Smith	1,138	12	6
J. Thom	1,086	13	4
F. Bennett	880	0	0
BARNES & SHARPE, Sleaford (accepted)	708	15	6

CROYDON.

For making-up Little Roke Avenue.

Free & Sons	£630	18	6
J. Monger	585	0	0
E. Iles	583	14	0

BRIDLINGTON.

For erection of engine-room, boiler-house, boiler settings, chimney-shaft and offices. Mr. ERNEST R. MATTHEWS, borough surveyor.

O. Atkinson	£8,553	0	0
Jarem & Son	6,775	15	0
J. Gould, Ltd.	6,467	13	1
E. Good & Sons	6,418	8	8
Booth	5,893	0	0
R. Musk	5,792	10	5
Sampson & Siddall	5,680	0	0
J. Sawdon	5,398	0	0
J. H. Hudson	5,310	0	0
G. STORR & SONS (accepted)	5,238	0	0
Sprakes & Sons	5,100	0	0

DARLINGTON.

For the erection of sixteen houses at Cockerton. Mr. W. HARGREAVES BOURNE, architect, Darlington.

R. Hodgson & Sons	£4,644	12	9
W. A. Cowan	4,527	0	4
J. W. & M. Mackenzie	4,270	0	0
F. Shepherd	4,116	10	0
R. Blackett & Son	4,014	0	0
T. Boyd & Sons	3,986	19	10
J. & J. AIREY, Darlington (accepted)	3,840	0	0

HASTINGS.

For the construction of a lock-up division and other work in connection therewith at the fish packing station, Rock-a-Nore. Mr. P. H. PALMER, borough engineer, Town Hall, Hastings.

F. MORTON & CO., LTD., Hamilton Ironworks, Garston, Liverpool (accepted)	£156	10	0
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IPSWICH.

For the painting of the outside of the East Suffolk and Ipswich hospital.

E. W. Page	£65	0	0
W. Grayston	62	10	0
A. C. Harding	62	10	0
C. Stearn & Co.	58	0	0
F. H. Orvis	55	0	0
B. BIRD, 129 Norwich Road (accepted)	44	10	0

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Asphalting work. All communications to—

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IRELAND.		
For painting and decorating the nterior of the dispensary and medical officer's residence at Dunmurry, Lisburn.		
J. Reid	£43	10 0
J. Wylie	39	10 0
W. J. HERON, Lisburn (<i>accepted</i>)	34	10 0
For making of road to cemetery, making of roads in cemetery and the erection of entrance-wall and pillars.		
<i>Road to cemetery.</i>		
W. H. Campbell (combined tender for roads to cemetery and roads in cemetery)	£752	19 2
J. Robinson	494	14 0
W. AGNEW, Whitewell, Belfast (<i>accepted</i>)	447	13 0
<i>Roads in cemetery.</i>		
J. Robinson	298	0 0
W. Agnew	198	15 0
J. GARDNER, Dunbought, Clough, co. Antrim (<i>accepted</i>)	169	17 0
<i>Entrance-wall and pillars.</i>		
J. Gardner	69	0 0
W. H. CAMPBELL (<i>accepted</i>)	21	19 0

LEAVESDEN.		
For the erection of sanitary annexes at the Leavesden Asylum, Herts.		
C. Miskin & Sons	£2,780	0 0
J. & J. Goss	2,753	15 6
A. H. Inns	2,750	0 0
Clark Bros.	2,584	6 0
H. Martin	2,442	0 0
R. L. TONGE, Jubilee Road, Watford (<i>accepted</i>)	2,398	0 0

LEICESTER.		
For the erection of stabling and six cottages, Nedham Street. Mr. J. WIGG, architect, 5 St. Martin's East, Leicester.		
Bland & Co.	£2,894	0 0
J. H. Clayton	2,880	0 0
Hardington & Elliott	2,830	0 0
J. Hutchinson & Sons	2,805	0 0
F. Beck & Co.	2,800	0 0
J. O. Jewsbury	2,709	0 0
COLE, Bridge Road (<i>accepted</i>)	2,685	10 0

LONDON SCHOOL BOARD.		
For the erection of higher grade school of three storeys, Childerley Street site, Fulham.		
C. Miskin & Sons	£19,065	0 0
Killby & Gayford	18,930	0 0
F. Gough & Co.	18,770	0 0
J. Allen & Sons, Ltd.	18,616	0 0
Holloway Bros., Ltd.	18,486	0 0
E. Lawrance & Sons	17,786	0 0
W. King & Son	17,710	0 0
Lathey Bros.	17,644	0 0
Leslie & Co, Ltd.	17,564	0 4
Patman & Fotheringham, Ltd.	17,472	0 0
Treasure & Son	17,419	0 0
Martin, Wells & Co, Ltd.	17,363	0 0
Spencer, Santo & Co., Ltd.	17,334	0 0
Stimpson & Co.	17,150	0 0
J. Carmichael	16,884	0 0
W. Johnson & Co, Ltd.*	16,580	0 0
J. & M. Patrick	16,234	0 0
For works to offices, &c., Great College Street school, Camden Town.		
Godson & Sons.	£1,060	0 0
G. Neal	1,005	0 0
C. W. Killingback & Co.	999	0 0
Marchant & Hirst	967	0 0
R. P. Beattie	917	11 0
G. S. S. Williams & Son	902	0 0
Stevens Bros.	877	0 0
J. Peattie	853	0 0
F. Bull*	847	13 6

For partitions, &c., Beresford Street school, Walworth.		
Maxwell Bros, Ltd.	£579	0 0
E. P. Bulled & Co.	567	0 0
G. Kemp	550	0 0
Lathey Bros.	549	0 0
W. V. Goad	539	0 0
J. Marsland & Sons	530	0 0
W. Downs	525	0 0
H. Bouneau	521	12 6
E. Triggs*	465	0 0

* Recommended for acceptance.

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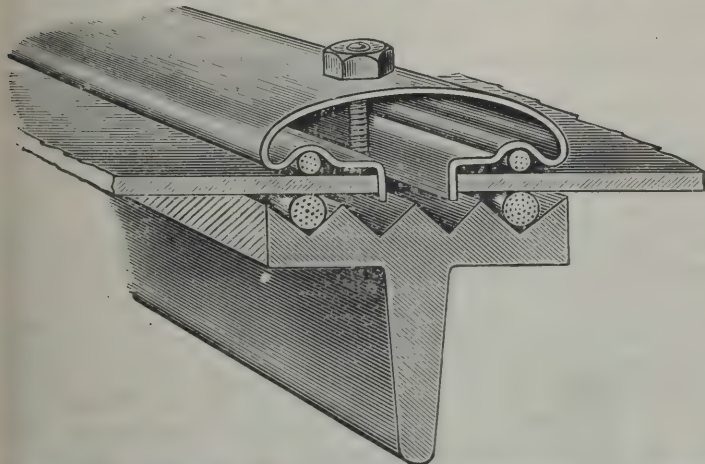
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For Index of Advertisers, see page x.

LONDON SCHOOL BOARD—continued.

For new school of three storeys, New King's Road site, Fulham (Chelsea R).

Holloway Bros., Ltd.	£25,025	0	0
McCormick & Son	24,987	0	0
C. F. Kearley	24,822	0	0
J. Carmichael	24,816	0	0
Spencer, Santo & Co., Ltd.	24,192	0	0
W. Smith & Son	23,953	0	0
J. Garrett & Son	23,698	0	0
J. Allen & Sons, Ltd.	23,659	0	0
Leslie & Co., Ltd.	23,531	0	0
E. Lawrance & Sons	23,468	0	0
J. Marsland & Sons	23,405	0	0
Lathey Bros.	23,250	0	0
Treasure & Son	22,849	0	0
W. King & Son	22,738	0	0
Martin, Wells & Co., Ltd.	22,362	0	0
J. & M. Patrick*	21,271	0	0

For the erection of senior mixed school, Offord Road site, Barnsbury (Finsbury AS).

G. S. S. Williams & Son	£12,725	0	0
C. Miskin & Sons	12,061	0	0
T. L. Green	12,027	0	0
W. Gregar & Son	11,856	0	0
J. Grover & Son	11,761	0	0
W. M. Dabbs & Son	11,672	0	0
A. Porter	11,428	0	0
E. Lawrance & Sons	11,177	0	0
C. Dearing & Son	11,097	14	0
Treasure & Son	11,089	0	0
McCormick & Sons	11,068	0	0
J. & M. Patrick	11,040	0	0
Patman & Fotheringham, Ltd.*	10,796	0	0

For heating apparatus in new portion, Ivydale Road school, Nunhead.

Stevens & Sons	£323	0	0
A. H. Skinner & Co.	322	0	0
M. Duffield & Sons	293	0	0
G. & E. Bradley	287	10	0
Brightside Foundry and Engineering Co., Ltd.	285	0	0
Bates & Sons	273	0	0
E. Oldroyd & Co., Ltd.*	260	0	0

* Recommended for acceptance.

LONDON SCHOOL BOARD—continued.

For new graded school of three storeys, Blakesley Street site, Stepney (Tower Hamlets H).

F. & J. F. Wood	£22,601	0	0
W. Downs	22,525	0	0
G. E. Wallis & Son	22,294	0	0
G. S. S. Williams & Son	22,270	0	0
G. Munday & Sons.	22,262	0	0
Perry & Co.	22,224	0	0
J. Grover & Son	22,181	0	0
J. & M. Patrick	21,960	0	0
C. Dearing & Son	21,908	12	0
W. Gregar & Son	21,820	0	0
J. Appleby & Sons	21,810	0	0
J. & C. Bowyer	21,775	0	0
E. Lawrance & Sons	21,390	0	0
Treasure & Son*	21,278	0	0

For graded school of three storeys, and higher grade school of three storeys, Myrtle Street site, Stepney (Tower Hamlets G).

Lathey Bros.	£32,100	0	0
W. Downs	31,327	0	0
Clarke & Bracey	31,265	0	0
G. S. S. Williams & Son	31,185	0	0
McCormick & Son	30,990	0	0
A. Porter	30,931	0	0
J. Grover & Son	30,918	0	0
F. & F. J. Wood	30,785	0	0
J. Smith & Sons, Ltd.	29,891	0	0
W. Gregar & Son	29,820	0	0
J. & M. Patrick	29,634	0	0
E. Lawrance & Sons	29,480	0	0
G. E. Wallis & Sons	29,387	0	0
Treasure & Son	29,124	0	0
J. Garrett & Son*	29,031	0	0

For additional heating, Duncombe Road school, Upper Holloway.

C. Kite & Co.	£475	0	0
Turner & Co.	412	10	0
Stevens & Sons	402	0	0
J. & F. May	395	0	0
M. Duffield & Sons	350	0	0
Bates & Sons	319	0	0
G. & E. Bradley*	285	10	0

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Fungus, Decay, &c.

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Stain.Enquiries
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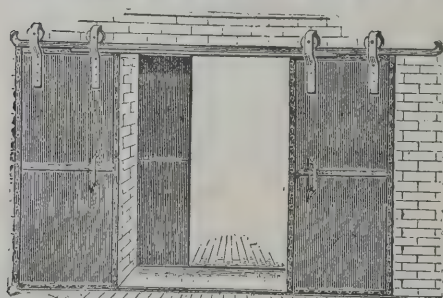
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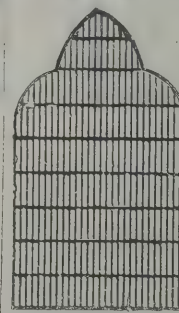
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LONDON SCHOOL BOARD—continued.

For cleansing, repairs, &c., Fellows Street temporary school, Hackney Road.

Parrott & Isom	£449	0	0
Barrett & Power	360	0	0
D. Gibb & Co.	355	0	0
Corfield & Co.	335	0	0
Johnson & Co.	299	0	0
A. J. Sheffield	262	0	0
Stevens Bros.	246	0	0
MARCHANT & HIRST (accepted)	189	0	0

* Recommended for acceptance.

For heating apparatus, Boundary Lane school, Camberwell.

Skinner, Board & Co.	£1,058	0	0
W. G. Cannon	959	0	0
Vaughan & Brown	912	0	0
J. & F. May	895	0	0
Stevens & Sons	881	10	0
Mather & Platt, Ltd.	880	0	0
Wipple Bros. & Row	850	0	0
J. Esson & Son	826	0	0
R. H. & J. PEARSON, LTD. (accepted)	795	0	0

For heating apparatus, North Street boys and girls' school, Limehouse.

Mather & Platt, Ltd.	£595	0	0
J. Grundy	577	0	0
J. & F. May	571	0	0
A. Dougill	541	0	0
J. Wontner Smith, Gray & Co.	504	0	0
J. Defries & Sons, Ltd.	484	0	0
M. Duffield & Sons	453	0	0
BRIGHTSIDE FOUNDRY AND ENGINEERING CO., LTD. (accepted)	429	0	0

For heating apparatus in new portion, West Square school, Southwark.

R. Clarke	£169	0	0
J. Wontner Smith, Gray & Co.	165	7	6
W. G. Cannon	159	0	0
J. & F. May	157	0	0
R. H. & J. Pearson, Ltd.	140	0	0
Bates & Sons	139	0	0
J. WILLIAMS & SONS, LTD. (accepted)	118	15	0

LONDON SCHOOL BOARD—continued.

For sanitary works, Upper Kennington Lane school.

G. Parker	£1,821	0	0
J. F. Ford	1,719	0	0
Johnson & Co.	1,623	0	0
Rice & Son	1,670	0	0
Maxwell Bros., Ltd.	1,553	0	0
J. W. Falkner & Sons	1,583	0	0
W. Hammond	1,577	0	0
Lathey Bros.	1,525	0	0
J. PEATTIE (accepted)	1,418	0	0

For sanitary works, &c., Waldron Road school, Lower Tooting.

J. W. Falkner	£2,083	0	0
E. Triggs	2,027	0	0
J. & M. Patrick	1,992	0	0
H. Leney & Son	1,949	0	0
R. P. Beattie	1,925	0	0
W. Johnson & Co., Ltd.	1,898	0	0
Rice & Son	1,879	0	0
LATHEY BROS. (accepted)	1,859	0	0

MANOR PARK.

For the erection of a sorting office at Manor Park.

J. F. Holliday	£2,280	0	0
A. T. Haines & Co.	2,000	0	0
E. S. Hammerton	1,994	11	0
A. J. Sheffield	1,987	0	0
Braid, Pater & Co.	1,968	0	0
T. Bruty	1,838	0	0
F. Bull	1,832	0	0
J. W. Jerram	1,798	0	0
W. H. Lorden & Son	1,777	0	0
J. A. Reed	1,760	0	0
Foster Bros.	1,727	0	0
H. Wall & Co.	1,709	0	0
J. Shelbourne & Co.	1,683	0	0
E. West	1,669	0	0
Edwards & Medway	1,660	0	0
L. J. Lamplough	1,659	0	0
A. E. Symes	1,622	0	0
W. Lawrence & Son	1,594	0	0
H. C. Horswill	1,580	0	0
F. WILMOTT (accepted)	1,447	0	0

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NORMANTON.

For erection of infants' Sunday-school and additions to chapel, Wakefield Road, Normanton. Mr. ARTHUR HARTLEY, architect, County Chambers, Castleford.

Accepted tenders.

- R. Walker & Sons, Castleford, builder.
 R. W. Gibson, Normanton, joiner.
 Atkinson & Son, Leeds, slater.
 J. Lockwood, Staincliffe, near Dewsbury, plasterer.
 Bateson & Son, Castleford, plumber.
 Rayner & Son, Southgate, Wakefield, painter.

For erection of Sunday-schools at Hopetown, Normanton. Mr. ARTHUR HARTLEY, architect, County Chambers, Castleford.

Accepted tenders.

- R. Walker & Sons, Castleford, bricklayer.
 W. Holland, Castleford, joiner.
 Atkinson & Son, Leeds, slater.
 J. Lockwood, Staincliffe, near Dewsbury, plasterer.
 Bateson & Son, Castleford, plumber.
 A. Webster, Normanton, painter.

OXFORD.

For mains and electric-light wiring at Queen's College, Oxford, for 666 points. Mr. MORGAN WILLIAMS, engineer, 39 Victoria Street, Westminster, S.W.

- Bergtheil & Young £2,318 0 0
 H. M. Leaf 1,770 0 0
 Hill, Upton & Co. 1,533 0 0
 BENSON & CO. (accepted) 1,475 17 0

PLEASLEY.

For the erection of mixed and infant school at Pleasley. Mr. JOS. PERKIN, architect, Main Street, Shirebrook, and Leyton Avenue, Mansfield.

- A. Eastwood £4,489 14 0
 J. Greenwood 4,466 0 0
 Vallance & Blythe 4,395 0 0
 J. R. Reaville 3,370 0 0
 F. H. Moore 4,225 0 0
 Lund & Swann 4,165 0 0
 R. Peck 4,000 0 0
 A. F. HOUFTON, Mansfield (accepted) 3,990 0 0
 W. Thomasson 3,973 0 0
 A. B. Clark 3,734 0 0

QUEENSBURY.

For the erection of two houses, Kitchen Lane, Queensbury, Yorks. Messrs. JOHN DRAKE & SON, architects, Queensbury.

Accepted tenders

- Jones & Wilcock, mason £430 0 0
 J. Jones, joiner 103 0 0
 W. Stocks, plumber 78 0 0
 D. Sidcliffe, plasterer 33 18 0
 J. Smithies & Son, slater 26 7 6
 E. Balmforth, painter 15 8 4

SCOTLAND.

For the erection of a new higher grade department within the academy grounds at Alva. Messrs. KERR & M'CULLOCH, architects, 30 Mar Street, Alloa.

Accepted tenders.

- Miller Bros., Tillicoultry, mason, brick and steelwork £1,176 10 8
 W. King, Kincardine, carpenter, joiner and glazier 667 12 8
 D. Dawson, Alva, plumber and gasfitter 209 0 0
 C. Ritchie & Co., Torphichen Street, Edinburgh, heating 117 0 0
 J. Grant, Alloa, plaster, cement and tile 108 0 3
 H. Harrold, Alva, slater 99 7 6

For street works in Port Street, Butts Street and Scotts Street, Annan.

- A. Lang £4,622 10 0
 J. Jamieson & Sons 4,489 2 8
 D. & D. Neilson 4,479 8 4
 J. J. Robson 4,170 15 3
 McLaren & Co. 3,974 17 6
 J. & J. Neilson 3,903 9 10
 Tilburn & Co. 3,885 0 3
 W. Wilson 3,743 10 6
 H. & N. Brannigan 3,704 3 11
 G. E. Simpson 3,690 0 0
 R. C. Brebner & Co. 3,611 16 1
 J. McDermott & Sons 3,455 11 0
 W. Dobson 3,094 9 3
 C. McANDREW, 12 New Road, Ayr (accepted) 2,931 14 8

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SCOTLAND—continued.

For the erection of new combination poorhouse, Omoa, Motherwell. Mr. ALEX CULLEN, architect, Motherwell.
Accepted tenders.
Loudon & Inglis, Cleland, mason . . . £15,536 5 8
T. Millar, Motherwell, joiner . . . 6,093 0 2
Steel & Wilson, 4 Washington Street, Glasgow, plumber . . . 2,912 14 4
H. McLean, Motherwell, plaster and granolithic work . . . 1,799 16 11
Steel & Wilson, heating and ventilating . . . 1,724 11 6
J. T. MacDonald, Farme Loan Road, Rutherglen, slater . . . 961 2 3
Cherry & Co., 100 Bath street, Glasgow, tiler . . . 947 3 5
Law & McFarlane, Bellshill, painter . . . 579 12 10

SHEFFIELD.

For the erection of six dwelling-houses at Catcliffe. Mr. EDMUND WINDER, architect, Corn Exchange Chambers, Sheffield.
J. Thorpe . . . £1,619 7 9
Grantham . . . 1,500 0 0
Lund & Swan . . . 1,490 0 0
Badger & Appleby . . . 1,421 15 0
T. Grey & Sons . . . 1,370 0 0
C. Green & Co. . . . 1,300 0 0
J. Bishop . . . 1,274 0 0
Carpenter & Co., Ltd. . . . 1,273 0 0
J. Moran . . . 1,259 0 0
F. FOERS, Freeton, Rotherham (accepted) . . . 1,150 0 0
J. Head . . . 999 0 0
J. Reed . . . 978 0 0

SHEFFIELD—continued.

For rebuilding the Fox House hotel, Sherland Lane and Ardmore Street, Attercliffe, Sheffield. Messrs. HALL & FENTON, architects, 14 St. James's Row, Sheffield.
Quantities by the architects.
W. & A. Forsdike . . . £1,750 0 0
C. H. Gillam . . . 1,725 0 0
J. Mastin & Son . . . 1,635 0 0
E. Moore . . . 1,605 0 0
T. Margerrison . . . 1,585 0 0
H. J. Lilleker . . . 1,573 0 0
A. Bradbury . . . 1,551 10 0
Martin & Hughes . . . 1,539 0 0
M. Hancock . . . 1,525 0 0
H. Watkinson . . . 1,513 0 0
J. Masson . . . 1,511 10 0
H. WHITE, 15 Stemp Street, Sheffield (accepted) . . . 1,500 7 0
J. W. Dickens . . . 1,500 0 0

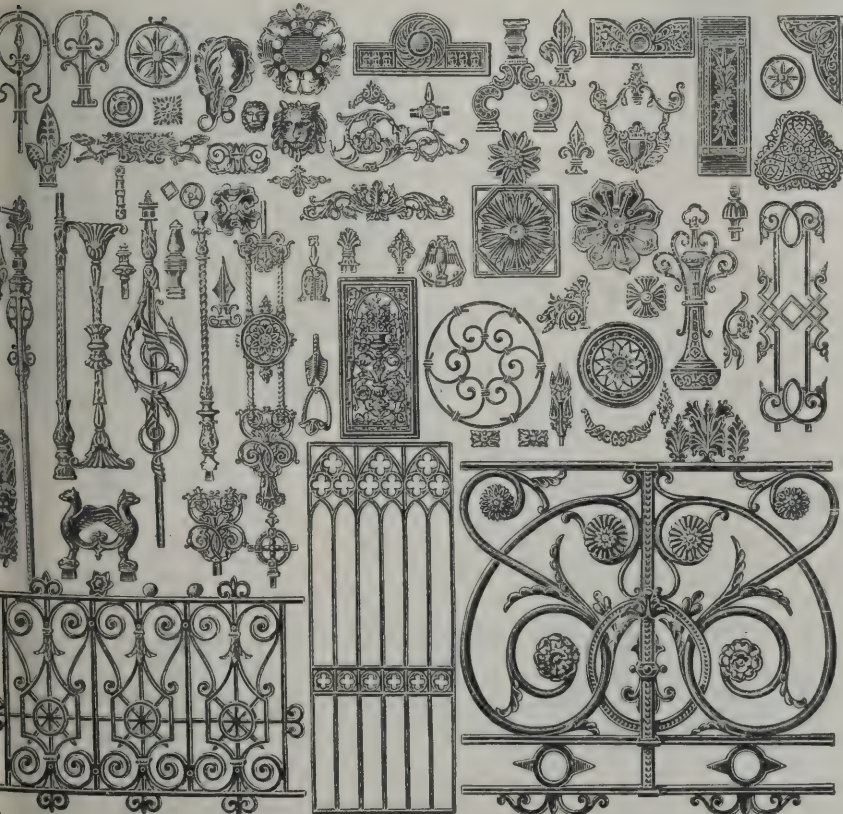
TIPTON.

For street works in Castle Road. Mr. W. H. JUKES, surveyor.
Currall, Lewis & Martin . . . £629 0 0
E. Boore . . . 503 0 0
Willett & Son . . . 498 0 0
Thompson & Co. . . . 496 0 0
A. Cooper & Son . . . 495 0 0
C. Smith . . . 485 0 0
T. ALLSOPP, Walton Street, Tipton (accepted) . . . 481 0 0
T. Mayes . . . 465 0 0

TORKSEY.

For demolishing the existing chimney-shaft and boundary wall at the Torksey engine-house and the construction of new shaft, 90 feet high, with flues to connect same with boilers, new boundary wall, timber bridge, &c. Messrs. HERBERT WALKER & SON, engineers, King Street, Nottingham.
Wilsons Bros. . . . £1,449 6 2
T. Barlow . . . 1,437 10 0
A. Nevins & Co. . . . 1,070 0 0
Radford & Greaves . . . 994 0 0
T. B. Cooper . . . 985 0 0
J. H. Vickers, Ltd. . . . 945 0 0
J. HUTCHINSON & SON, Nottingham (accepted) . . . 905 0 0

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TAUNTON.

For the erection of a farmhouse at Brewers Water, Crowcombe, Taunton. Mr. GEORGE C. STRAWBRIDGE, architect, 25 Alma Street, Taunton.

Amended tender.

J. Jadd, Bicknoller, Taunton £1,515 0 0

TORQUAY.

For the erection of an annexe at the Victoria and Albert hotel, Torquay. Messrs. E. APPLETON & SON, architects, 10 Abbey Road, Torquay. Quantities by Mr. C. SEWELL APPLETON.

J. Smerdon £2,736 0 0
T. Vanstone 2,542 12 0
E. P. Bovey & Sons 2,525 0 0
R. F. YEO & SONS, Torquay (*accepted*) 2,493 0 0
S. Blatchford 2,488 0 0
J. C. & W. Watson 2,470 0 0
M. Bridgman 2,434 14 5

For pulling-down and rebuilding 21 and 22 George Street. Messrs. E. APPLETON & SON, architects, Torquay. Quantities by Mr. C. SEWELL APPLETON.

J. C. & W. Watson £958 0 0
S. Blatchford 948 0 0
E. Pike 940 0 0
J. Smerdon 920 0 0
T. Vanstone 890 0 0
R. F. YEO & SONS (*accepted*) 874 0 0

UXBRIDGE.

For the supply of a set of three-throw deep-well pumps at the workhouse, Hillingdon East.

G. MATHER & SON, Wellingborough (*accepted*) . £65 0 0

WALES.

For painting, papering and varnishing the Gordon Lennox Constitutional Club, Merthyr Vale.

W. H. Williams £27 15 0
J. Davis 25 10 0
S. M. Rees 20 12 0
W. Millward 18 15 0
J. B. WILLIAMS, 30 Bridge Street, Troedryhiw (*accepted*) 18 10 0

WALES—continued.

For repainting and redecorating Zion chapel, Cwmavon, Port Talbot. Mr. FRANK B. SMITH, architect, Port Talbot.

J. B. Edwards £190 0 0
W. T. Lougher 175 0 0
PUGSLEY & SON, Park Street, Swansea (*accepted*) 125 0 0
H. Mathias 105 0 0

WARWICK.

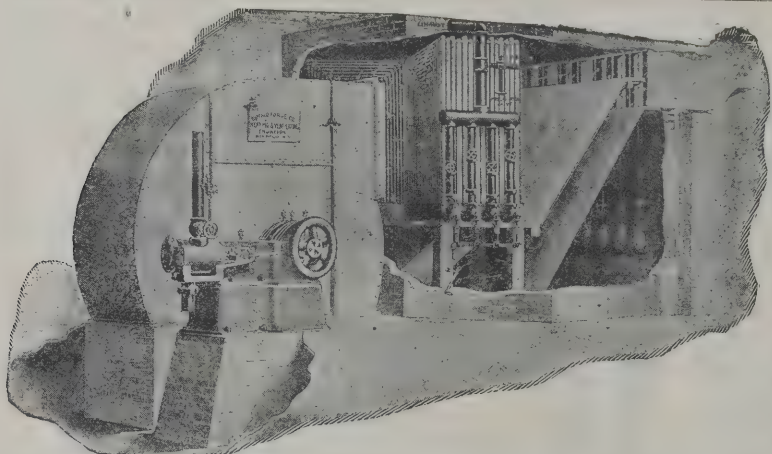
For additional nurses' accommodation, extensions to wards and erection of a porter's lodge at the Warwick Joint Hospital. Mr. F. P. TREPRESS, architect, Warwick. Quantities by architect.

T. Bailey £3,968 0 0
Moss & Sons 3,876 0 0
G. J. Smith & Sons 3,864 0 0
R. Bowen 3,845 0 0
Fincher & Co. 3,810 0 0
F. W. Watson 3,765 0 0
Kelley & Son 3,537 0 0
G. Preston 3,509 0 0
E. TALLISS, Warwick (*accepted*) 3,475 0 0
G. Marshall 3,405 0 0
W. Hopkins 3,399 0 0

WATFORD.

For the Coronation enlargement to the Watford District hospital. Mr. CHAS. P. AYRES, architect.

Foster Bros. £2,983 0 0
J. Darvill 2,770 0 0
S. Swain 2,760 0 0
W. King 2,750 0 0
Saw Bros. 2,685 0 0
H. B. Watkins 2,680 0 0
Webster & Cannon 2,680 0 0
Andrews & Sons 2,648 0 0
Clarke Bros. 2,640 0 0
Dupont & Co. 2,626 0 0
Clifford & Gough 2,619 0 0
C. Brightman 2,590 0 0
G. & J. Waterman 2,493 0 0
H. BROWN, Watford (*accepted*) 2,450 0 0



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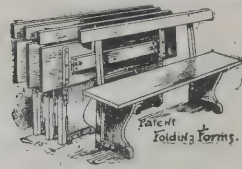
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For Index of Advertisers, see page x.

WREXHAM.

For constructing a wrought-iron shed in the clinker yard, Willow Road.

I. DIXON & CO., Liverpool (accepted) . . . £38 10 0

For the erection of a retaining wall and widening of road in Chapel Street, Ponkey. Mr. T. REES EVANS, surveyor, Johnston, Ruabon.

L. Davies £112 0 0

J. Davies 90 0 0

Jenkins & James 90 0 0

W. JONES, Bryn Hyfryd, Ponkey (accepted) . . . 80 0 0

YORK.

For the erection of new engine and boiler-houses, offices, &c., at the electricity generating station. Mr. A. CREER, city engineer.

H. ARNOLD & SON, Doncaster (accepted) . £13,250 0 0

BUILDING AND BUILDERS.

THE corner-stone of a new vestry in connection with St. Thomas's Church, Lower Crumpsall, has been laid. It is chiefly needed for the choir, and will cost about 450/.

THE Postal authorities have now, after a lapse of two years, invited tenders for the work in connection with the erection of a new post office for Linlithgow and district. The present accommodation is very limited, and two years ago a site for new buildings was secured at the east end of the town, adjacent to the railway station.

A NEW Wesleyan church is being built at Longwood, Huddersfield, the memorial-stone of which has been laid by Sir William H. Broadbent, M.D., F.R.S., his family having long been connected with Methodism in that neighbourhood. Sir William Broadbent was himself at one time a scholar and a teacher in the school.

FOUR men were lately at work on a scaffold which had been erected in the goods shed of the Great Northern Railway at King's Cross, London, for the purpose of whitewashing, when suddenly the scaffolding collapsed, throwing all four men to the ground, a distance of 20 feet. The men were removed to the Royal Free Hospital, where the house surgeon found that William Hawkins had sustained a fracture of the left leg and fractured ribs, in consequence of which he was admitted as an in-patient; George Carter had sustained injuries to the

head and both knees; William Lee sustained severe cuts of the right knee and left eye; whilst Robert Turner received severe injuries to both ankles.

ON Saturday afternoon the Bishop of Shrewsbury (Dr. Allen) laid the foundation-stone of a new Roman Catholic church for the parish of St. Philip and St. James, at Stockport, to be known as the Church of Our Lady Queen of Apostles. The church, when completed, will be one of the finest in the diocese, and it is estimated to cost about 11,000/.

THE church will be of Gothic design. Its length to the cloister behind the chancel will be 118 feet, and the length of the nave 87 feet, the sanctuary 24 feet, and the cloister 7 feet. A presbytery will be attached to the church, and is estimated to cost 2,000/.

THE foundation-stone was laid on the 27th ult of eighty-five dwellings on the Grove Vale Estate, Camberwell. These houses, with two storeys only and gardens in front and rear, will be models of comfort and suitability if they realise all the advantages depicted on the plans prepared by the borough engineer. The mayor of Camberwell (Councillor Goddard Clarke, L.C.C.) performed the inaugural ceremony, when a hope was expressed that some of the houses, which will accommodate 166 families, will be occupied in the early autumn. In addition to erecting these dwellings the Council has taken steps to purchase houses in the most congested and insanitary parts of the borough, and to improve them and make them more suitable for the needs of the persons who are compelled to live in the neighbourhood.

A MEETING of the executive committee of the Swansea Harbour Trust was held on the 28th ult. under the presidency of the Mayor for the purpose of considering the sketch-plans for the new dock, which is to be constructed at a cost of about 1,500,000/. Mr. Meik (the consulting engineer), with Mr. Schenk (the chief engineer of the Trust), were present, and the plans were exhaustively explained. No material alterations were suggested, and it was decided that the detailed drawings should be put in hand at once and assistance obtained to insure the utmost despatch. It is hoped these will be completed in two or three months, and then the Trust will be in a position to invite tenders for the carrying out of the great undertaking. The dock will cover an area of about 70 acres, and the lock will be 875 feet long and 90 feet wide. The capabilities of the lock were illustrated by diagrams, showing the accommodation needed by the largest vessel afloat, the *Cedric*, and the capacity of the proposed lock to more than meet the requirements.

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TELEGRAMS,

"Trowelled, London."

VARIETIES.

THE Scottish Episcopal church of St. Adrian, Gullane, was opened on Whit Monday by the Very Rev. the Dean of Edinburgh.

A NEW Wesleyan chapel, which has seating accommodation for about 200 people, was opened at Bomere Heath, Shrewsbury, on the 28th ult. The cost of the building is approximately 1,200*l*.

THE restoration and enlargement of Hartsborne parish church, Derbyshire, has been carried out at a cost of 2,600*l*. The formal dedication and consecration of the new portion took place on Saturday afternoon.

A SAD accident has befallen two distinguished artists of Verona, named Zannoni and Rancani. They were engaged in painting the ceiling of a church near Verona, when a board on the scaffolding broke. Both men fell a distance of 43 feet and were killed. Signori Zannoni and Rancani were extremely clever artists, and were noted for their frescoes, many of which they had executed with great success.

THE new opera house at Buxton was opened on Monday evening. The new building, the architect of which was Mr. Frank Matcham, has cost 25,000*l*, is fireproof throughout, and the stage is entirely cut off from the auditorium by a fireproof curtain. It is illuminated with the electric light. The painting by Mr. Hemsley, London, is a very distinct feature.

ON the 30th ult. Mr. W. M. Crowfoot, chairman of the Beccles School Board, formally opened the new infant school erected by the Board for the accommodation of infants, whose numbers have outgrown the old building in Peddar's Lane, formerly known as the British schools. The new building was designed by Mr. A. Pells, of Beccles, and erected to his plan by Messrs. Grimwood, of Ipswich.

THE new English Presbyterian church at Holywell has now been completed, and arrangements have been made for the opening ceremony to take place at an early date. The site is in Whitford Street, and was purchased at a cost of 1,000*l*, while the building has cost another 2,000*l*. The building has a frontage of red Ruabon brick with ornamental tower, and has been erected by Mr. Richard Jones, contractor, Holywell, from the plans of Mr. T. G. Williams, architect, Liverpool.

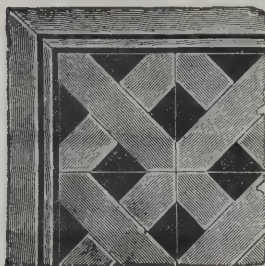
THE directors of the London, Brighton and South Coast Railway Company are making vast improvements on the line. Last week the new goods station was opened at Bournemouth. The new premises occupy some 10½ acres of land and have cost over 250,000*l*. to erect. Without doubt the London, Brighton and South Coast Railway Company have now one of the finest and most up-to-date goods stations to be found in the United Kingdom, and the directors are to be congratulated on their enterprise.

THE large east window of Troon parish church has been filled with stained glass. The subject is the Ascension of Christ. In the upper part of the central and most important opening Christ is seen rising high into a firmament of seraphs where He is received by the heavenly host of praising and adoring angels which fill in the upper parts of the side openings. Occupying the lower part of all the five openings are the Apostles gazing upward with evident feelings of love, wonder and awe. The colour treatment of the window is full and rich.

THE new parish church of Dean, Edinburgh, which has been erected at a cost of nearly 11,000*l*, was opened on the 30th ult. The new building, which has been built from plans prepared by Messrs. Dunn & Findlay, architects, stands close to the margin of the Queensferry Road, is a substantial structure, and will have a prominent spire. The edifice is worthy of its surroundings and of its associations. There are 935 sittings, about 300 more than in the former church. There will be a new pipe organ, to cost 800*l*, which sum has been provided.

THE Lord High Commissioner and suite visited Blackhall, a rising suburb of Edinburgh, and laid the foundation-stone of St. Columba's parish church. He had laid, he said, the foundation of a large church, which would eventually meet the accommodation of not only the present population, but the increased population which would follow. The church will cost 6,000*l*. and will hold 900 people. The architecture of the building is a simple treatment of the Norman style, with a tower at the north-west corner. The interior will be finished in stonework with open timber roofs. Meantime only the nave is to be erected at a cost of about 4,000*l*, and it is expected to be opened in about ten months.

CREWE railway station is to be considerably enlarged to enable the officials of the London and North-Western Railway



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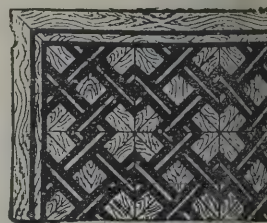
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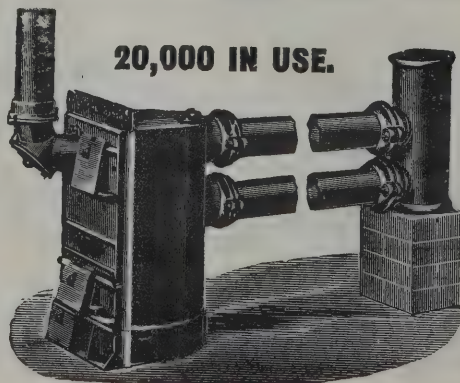
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pany to cope with the growing traffic between the north and the Midlands. The tunnelling arrangements to facilitate the through goods traffic took five years to complete, involved enormous cost. The new station needs an extension for passenger traffic. These extensions, which will facilitate the employment of hundreds of men for an indefinite period, have now been commenced. There will be eight platforms, each over a quarter of a mile long. The headquarters of the telegraph department are being consolidated at Crewe, and large suites of offices will be erected on the west side of the station. Mr. Arthur Moore, superintendent of the signalling and electrical department of the railway company, has been given entire charge of the whole telegraphic work on the system.

TRADE NOTES.

A mosaic in the entrance to the Sailors' Palace recently erected by the Prince of Wales was executed by Messrs. Speker, Ltd., Bath House, 57-60 Holborn Viaduct. The isolation hospital at the Rainhill Asylum, Liverpool, is being warmed and ventilated by means of Shorland's patent Manchester stoves with descending smoke flues by Messrs. H. Shorland & Brother, of Manchester. A LARGE clock, showing time on two 6-foot dials and running hours, has been erected at the church at Darley Abbey, Derbyshire, by John Smith & Sons, Midland Clock Works, Derby, and was started this Whitsuntide. The whole of the expense is being borne by Mr. Walter Evans, Darley Abbey.

ELECTRIC NOTES.

The Fife electric-power Bill has been passed by the Committee on unopposed bills of the House of Lords. The electric-lighting committee of the Edinburgh Town Council have recommended that the charge for private electric lighting be 3½d. per unit—the same as last year—and charge for motor-power 1½d. per unit instead of 1½d. as last year. A PETITION was presented at Dalkeith Dean of Guild Court on Monday, by the Electric Supply Corporation, Ltd.,

London, for permission to erect an electric generating station in Croft Street, Dalkeith. The magistrates granted the request. The Corporation will carry through their arrangements made with Messrs. Crompton & Co. for the electric lighting of the streets of Dalkeith.

A CONTRACT has been signed between the directors of the Wirral Railway Company and the British Westinghouse Company for the electrification of the railway on the same system as that now successfully working on the Mersey Tunnel Railway. The Wirral Railway is about fifteen miles in length, and connects Liverpool by means of the Mersey Railway with the residential district of the Wirral peninsula in Cheshire, West Kirby and New Brighton being the terminal points.

MR. F. H. TULLOCH (Local Government Board inspector) held an inquiry at the town hall, Wednesbury, into an application by the Town Council for sanction to the borrowing of £11,000 for electric lighting. The town clerk (Mr. T. Jones) said the Corporation had been induced to take this action by a demand for electricity, and that this actually existed was borne out by the fact that the Council was unanimous in resolving to incur the expenditure, which had not been opposed by a single ratepayer. The Corporation did not propose to generate their own electricity, but to take a supply from the Midland Electric Corporation for Power Distribution, who had obtained a provisional order to supply electricity to Wednesbury and neighbouring districts, but had undertaken to supply the Corporation in bulk upon certain agreed terms, which would enable the Corporation to recoup themselves for the cost of distribution. Mr. W. Stevens (electrical engineer) gave details of the scheme, and said the risk to the Corporation was very slight, as they would simply purchase to the extent to which they could sell current to their customers. They intended to cater for all classes, and to supply through 1d., 6d. or 1s.-in-the-slot meters when necessary. To begin with, the area of supply would be limited to a district in the centre of the borough. In reply to the inspector, the town clerk said there was a demand by manufacturers for electricity for motive purposes. The charges proposed to be made to consumers by the Corporation would compare favourably with those in vogue in other parts of the district, as they would be as low as at Walsall, lower than at Dudley, and considerably lower than in Birmingham. For a penny the Corporation would be able to give the use of an 8 candle-power light for 5½ hours. There was no opposition to the application.

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AN ENGINEER'S TRIP TO THE ORIENT.*

FRIENDS and fellow-members of the Western Society of Engineers—I have not been on a junketing expedition this time. I have been abroad, going westward. Once before I started to go around the world, twenty years ago, to learn what I might about the world by such a trip, and I started eastward. I took a whole year for an examination of Europe alone, went through every country in it almost, through almost all of the large iron and steel establishments that seemed worthy of close inspection, and I found that I was going the wrong way. There was nothing in them that I had not seen before, and I concluded that I would go back home and take a rest, and the next time I started I would go the other way. And I would advise you, gentlemen, if you should ever propose to go around this globe with advantage, to go westward. That way the star of empire has taken its way, and that way the star of knowledge has also taken its way. Each thing is explained by what you have seen before as you go westward, and the other way it is all a puzzle.

I have recently gone through Japan, Corea and a portion of Manchuria on a business trip.

And, in the first place, do not get the idea that there are no engineers over there on the other side of the Pacific. There are a great many engineers, and there are a great many first-class engineers, not only Americans and Europeans, but among the natives themselves. I was brought into close contact with some of the most prominent engineers in the Orient, and I found many of them thoroughly educated and well posted. Take, for instance, Matsumoto, of Japan. He graduated at the Van Rensselaer Polytechnic Institute, at Troy, N.Y., went out to Japan, and, being of a high family, soon got into a fine position and for a great many years has been at the head of the Imperial railways of Japan. I had the good fortune to entertain him at my house when he was here and got quite intimate with him, passed many pleasant hours with him on the other side, and questioned him as closely as I could as to what he had been doing in Japan. I found him "up to date" and admirably informed. I also met N. Shiraishe and many others. They are thoroughly educated. They send their brightest young men to this country and to Europe. They have done so for a great many years, and they are thoroughly trained, and some of them remain in this country and Europe until they get

* An address by General William Sooy Smith, delivered before the Western Society of Engineers.

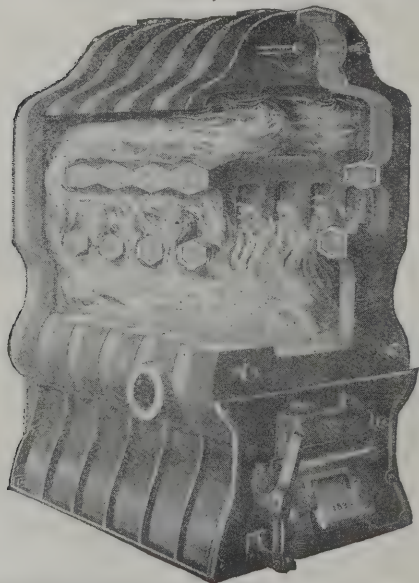
a knowledge of practical engineering in a practical way, then go back home prepared to take high positions.

There is one thing I would strongly advise engineers not go to the Orient without some previous understanding. Do not think there are not engineers, and good engineers, that part of the world. Another reason is that wages are exceedingly low, as compared with wages here. I think wages are not more than half as much as in this country, also, in Japan especially, there is a strong national feeling. They are a people ambitious to do for themselves, and therefore do not depend upon engineers from outside.

When I started East some twenty years ago I saw many things to convince me that we were then neck and neck with the best of them in Europe. Upon one occasion in London I was questioned by a party of eminent civil engineers something like this:—"You have been considerably about the country?" "Oh, yes." "And looked at our engineering works?" "Yes; as well as I could." "Well, won't you be kind enough to give us your impressions?" "Well," said I, "I have recently been up in Yorkshire and walked some miles over one of your lines and crossed a number of bridges and studied them as well as I could, and didn't find they were as good as ours." "Why not?" "Well, the box and plate girders of 50, 60 and 70-foot spans. Your joists transversely on your bridges and often on the flanges of your girders, giving them a tipping effect; on girders you then spring brick arches from one joist to another and on top of these arches put from 2 to 3 feet of gravel. You tell me why you build your floor-system in this way? What do you want with the gravel, and what do you want the arches, except to hold the gravel?" "Well," said I, "how do you do it?" I answered, "In the first place, we do not use box or plate girders to any extent; we can cut a large part of the material the girder contains and leave it as strong. We build trusses, putting the material in the direction of the strains. We attach our beams to the foot of these uprights, at the point of intersection of braces, and on these beams put the track-stringers and lay track on them." "With the floor all open?" "Why not?" "How do your men cross your bridges?" "Why, we employ sober men and put a running-plank on one side of the track and allow the men to walk it; if they don't, they can fall. They laughed, and some of them said, "The Yankee is right. And so the comparison stood at that time. Wherever I look over their structures—and some of them were admirably built

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ly everywhere there was a great waste of material. They
e now learned to avoid this somewhat.

The circumstances surrounding the American engineer in
beginning were the most favourable possible to develop the
e spirit of the engineer, compelling him to do the very best
k he can with the least means. We were compelled to
nomise in every way in order to do that. First was the fact
t material was scarce and hard to get and, therefore, dear,
we had to build our structures on proper lines and in
ordance with the strictest requirements of economy. We
to borrow capital, for we had no money to build railroads.
e builders of the road, who furnished the money, were very
eful to get engineers who could do the most work for the
st money. That influence has followed our profession in all
work from the beginning to the present day, and that
ence I believe has been more potent than all others to
elop in this country a high order of engineering science, of
ch we may be justly proud.

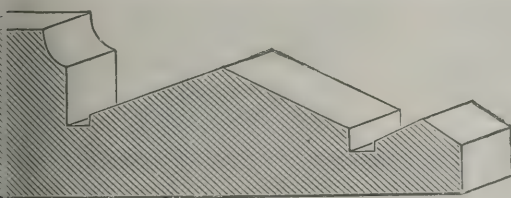
At the same time, let us recognise the merits of engineers
other countries. Of all things vanity, such as we are liable
will be the most dangerous to the success of which we now
that we are justly proud. We have as a profession in this
ntry done our very best to ascertain the laws which govern
substances which we employ. We have analysed in the
st rigorous manner the strains and the different factors which
er into our structures, and we are certainly far in advance
anything we could boast of ten years ago, and I believe we
neck and neck with the best engineers in the world, if not
ttle bit ahead. At the same time, when we are speaking of
se other men, let us remember that these very men have
n taught in our schools, have been upon our works, and
e been educated here in our methods, and it is not fair to
that they are merely copyists, because in certain instances
ch I met with during my recent trip in the East, I found
t they have not only adopted our methods, but have
eloped them in some cases, and even improved upon them.
hile over there I happened to fall in with Shiraishe. He
l met me in this country, at Hâvre de Grace, while I was
lding the Susquehanna bridge at that point. I met him in
velling, and we fell into conversation accidentally. I soon
covered he was an engineer, and handed him my card. He
t, "I have met you before," and he referred back to our
eting at Hâvre de Grace. Then he told me he was about
ould a dry-dock at a certain place and was very much
led about the plan. He gave me the data and circum-

stances in detail, and I said, "That is an ideal case for the
application of the 'freezing process'." I explained it to him
and was astonished to see how quickly he took hold of it and
understood its advantages as applied to the very case he had in
hand. That led to correspondence and consultation, and he
has gone on and suggested improvements in the application of
it that were different and better than any that we knew before.
For instance, in this large excavation he suggested that we
should only freeze a portion of it at a time, using the same set
of pipes over and over again, thus saving a heavy expense. So
they are not mere copyists, for they have the ability to
originate, to adopt the proper methods, and to improve on
them and discover new processes of their own.

I saw a good deal of work that astonished me; some of it
very old work. Many of you may have seen such work. I
never did in my life. I saw a stone wall laid with blocks that
were about that large (indicating), and they were laid in
diagonal courses, not horizontal. Give this a little thought,
and you will see that it has advantages. There is no chance
of cracking vertically, the loads are distributed by giving the
compressive resistances of the stones a diagonal direction. I
never saw masonry built that way anywhere except in the East.

Now, in doing work they are very far behind American
methods. They employ hand-labour, but they have such an
abundance of it that you can't wonder. It is cheaper than the
best machinery we can employ. They coal a ship quicker and
cheaper by hand than we can by the very best machinery.
While they work for from five dollars to six dollars a month
and take care of themselves, they do not do near the amount
of work that our men do. It takes three or four coolies to do
as much as one of our labourers, but even then the labour is
very cheap. And if they were to substitute machinery much
the larger part of those people would be thrown out of employ-
ment, and starvation would stare them in the face. They have
built first-rate ships, from stem to stern. They make all the
machinery that goes into them. They man them and they run
them as successfully as any other people. The only objection
I have to them is that the doors are entirely too low. I con-
tinually bumped my head in going through them.

Now, as to the works that are to be done, there is no end of
them. Some works as great as the world has ever seen still
remain to be done there. The opening of the Yang-tse-Kiang
river is a tremendous undertaking. Great harbours have to
be built where there are none now. And the railway systems
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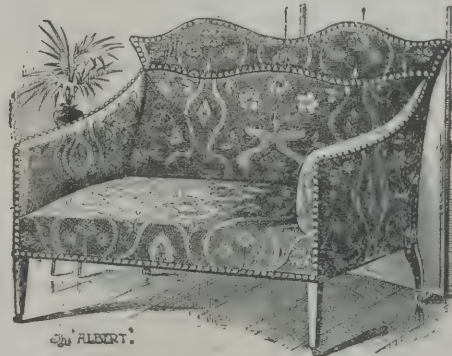
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rapidly. It looks very much like our own country, consisting of mountains, hills and valleys, much of it fertile, with products very much like our own. I saw a great deal of Indian corn growing there, but it is of an inferior quality.

Now there is another thing that will retard our operations in that country. It is the very low price of everything. It is a cheap country, wonderfully cheap, and this is a wonderfully dear country. They only buy from us the things that they must buy. The only things we export to that country in any great amount are our bread stuffs. Our bread stuffs are in competition with their rice, which keeps the prices down very low. Almost everything else they can produce much cheaper than we can. Therefore I don't think that we need expect a great commerce with that country. I suppose we will get it gradually, in the course of a great many years. There is nothing could appear more stupid to anyone who looks at the country from that side than the Chinese Exclusion Act. There is a great surplus of labour and the best kind of labour, although their men are not as vigorous as ours. But if men are paid better they will work better. We are short of labour here; there is a conflict here between capital and labour that is becoming more and more troublesome and threatening, and I think none of us can look forward to what must be the status of that conflict without great concern. We, as lovers of this great country, must dread the conflict becoming more and more threatening every year, and must use our brains to the best of our ability to discover some way out of that trouble. There is no doubt that the Exclusion Act, instigated first for a very good reason, is now simply maintained through the influence of the labour of this country, to prevent the lowering of wages, which are now away beyond what they ought to be. We know the labour unions control the elections and the men to be elected must court their favour. That is the bottom of the whole thing and ought to be removed. A broader and a higher understanding of it should be obtained, and our conduct should be on a broader and higher plane. The conduct of our very wealthy people is reaching down to the lower classes, and instead of living simply and economically, there is a strife that is produced by it that pervades the whole of our national life from top to bottom, and we are on that road which the historians all point out as the one that leads to destruction. Almost every great empire that has existed since the beginning of the world to the present time has met with its end because of the luxury of its people. I think that is our greatest danger.

Now if we could get, under proper limitations, enough these labourers to do our work, the prices of everything would be brought down, and we would be getting on to the plane of common sense and our prosperity would be permanent.

ELECTRIC LIGHT IN LIVERPOOL.

Two reports have been presented to the electric power and lighting committee in reference to the electric lighting of the whole of the tramway routes of the city and other thoroughfares. The city lighting engineer states that the total road mileage of tramway routes is 57½ miles, four miles of which are already electrically-lighted. In dealing with these roads it would be desirable from every point of view to utilise the tramway poles where they exist and are available. These are fixed at an average distance apart of 40 yards which would necessitate approximately 2,054 lamps over the entire tramway routes. Tram poles do not exist over the whole of the tramway routes, and it is estimated that 5 electric columns would have to be provided.

"The following are the streets which the engineer considers are principal thoroughfares, in addition to the tramway route viz Great Homer Street, Fox Street, Old Hall Street, Boa Street, Mill Street, Myrtle Street, Brownlow Hill, North John Street (part), South John Street, Hanover Street. The total length of these streets is, about four miles, and it is assumed that the lamps in them might reasonably be placed at an average distance apart of 55 yards, which would necessitate approximately 145 lamps. On this assumption the approximate first cost and additional annual cost would be as follows:—Wiring and equipping lamps, switches, &c, on 15 tram-poles, at 77l. each, 119,042l.; wiring and equipping lamps, switches, &c, on 653 electric lamp pillars, at 84l. 10s. each, 55,178l. 10s.—174,220l. 10s., credited by cost of 3,278 gas lamps, pillars, &c, discontinued, at 1l. 5s. each, 4,097l. 10s. total first cost, 170,123l. Annual cost of 2,199 lamps at 16l. 1s. each, 36,503l. 8s., credited by present cost of gas-lighting 8,856l. 5s. 1d.; total additional cost, 27,647l. 2s. 11d."

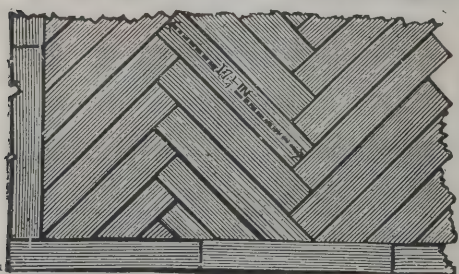
The resident engineer states that if this scheme "were carried out in its entirety it would be necessary to add, say 2,000 horse-power to the generating plant in the stations, and to lay additional street mains in advance of the usual extension for ordinary supply purposes." The engineer estimates that capital expenditure necessary for the above plant and mains approximately at 50,000l.

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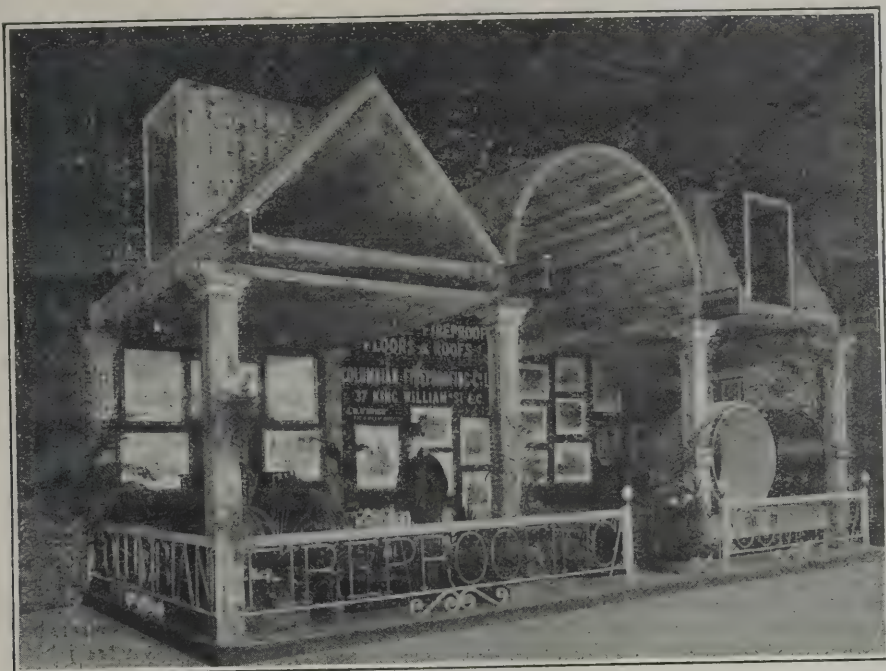
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THE COLUMBIAN FIREPROOFING COMPANY'S STAND.

give a view of the stand of the Columbian Fireproofing Company at the Earl's Court Exhibition. The peculiar interest it may not at first sight strike the stranger, but all parts in the railing to the summit are examples of the company's

6 inches span, which is adapted for a corridor, cloister or passage, and, as will be seen, there is no necessity for any tie-rods. On one side is a sloping roof with dormer; on the other a mansard roof. What is exhibited in the limited space will be as suggestive to the initiated of the difficulties which can be met by the material as if the Columbian Company had introduced some of their large and varied undertakings.



specialties. The railing, for example, exemplifies the peculiar fluted crossbars of steel which were introduced by the company. The columns are of their fireproof material; some of the shafts are plain, others fluted. The upper part shows a variety of roofing. In the centre is a concrete arch 9 feet

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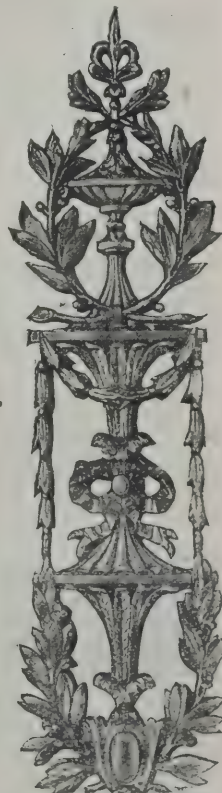
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M. Bonna, of Paris, an engineer having large experience in hydraulic works. Some of them have been in use for as long a period as ten years without showing the least flaw. The system has been also adopted by the Municipality of Paris for the immense conduits required for carrying off the sewage of the capital.

INSTITUTION OF ELECTRICAL ENGINEERS.

At the Royal College of Science, Stephen's Green, Dublin, the Dublin section of the Institution of Electrical Engineers recently held their annual general meeting. Mr. A. E. Porte occupied the chair, and the attendance was large.

The secretary, Mr. Tatlow, read the report for the session, which was adopted, after which votes of thanks were passed to the Council of the Royal College of Science for the use of their rooms and to the outgoing chairman.

An interesting discussion followed on Mr. A. W. Whieldon's paper, "The Electric Generating Station of the Future." The paper dealt first with the coal supply, and went on to state that in connection with our limited coal measures the electrical distribution of power became a question of national importance, and the key for the solving of its problems could only be supplied by the electrical engineers of to-day and to-morrow. So rapid were the changes that were taking place that a time was not far distant when economy would require the linking together of the scattered installations in business centres, so that each might form a part of a concrete whole; and this centralisation, with a general feeding from a common source, would have a most important bearing when the wastage and diminution of the coal supply was taken into account.

WAGES IN GLASGOW.

EVIDENCE was given before the Glasgow Housing Commission by Mr. Andrew Smith, cashier and bookkeeper with Messrs. Charles Brand & Son, contractors, Glasgow, concerning the wages paid to labourers engaged in the construction of the Central Railway, Glasgow, from 1891 to 1896. The lowest paid men had 19s. per week of 57 hours, and the highest rate was 17 2s. 6d. given to bricklayers, masons and blacksmiths' labourers. Since that time the rate had risen, and at the present Grangemouth Dock contract the rate was 17 2s. 11d. for the lowest class of labourers for 55 hours. Witness esti-

imated loss due to broken time at one day a month; in addition to the holidays, would make an average loss of about three weeks in the year, but there was always more or less overtime, which would in some cases make up for the loss. Many of them, however, lost time through their own negligence.

In reply to the Chairman as to the habits of the men whom witness had to deal, he said that if they were sober men they would soon have a higher rate of wages.

Is there not something depressing in working in soft, mucky clay that tends to send a man to the solace which he finds in drink?—I do not think so.

Do you not think that overtime above a week of fifty hours is apt to tire a man, to weary him, as to make him unfit to prostrate and fit for nothing else but drink after that?—On the Continent they work far longer hours than they do in Scotland.

The Chairman: But they have different weather from us. By Mr. Brand: The tone as well as the wages of the men had been improved by the introduction of machinery. V

the exception of two separate years during the past twenty years, there had been more work than they could find labour for. He said that they were advertising at the present time for labourers for the Connel Ferry Railway at 6d. per hour. It was easier to get men in Glasgow than in the country.

Andrew Sharp, junior, cashier to Messrs. James Goldie & Son, contractors, Glasgow, submitted a statement of wages during the year ended March 31 last paid to the various workmen in the employment of his firm. Tradesmen received standard wages in their respective trades. In the case of labourers the wages paid were:—Timbermen and specialist labourers, 6d. to 7d. per hour; bricklayers and masons, 5½d. per hour; navvies 5d. and 5½d. per hour. Watchmen received 21s. 3d. to 22s. 8d. per week for seven nights; boys, 14s. to 18s. per week; carters, 26s. per week with a single horse, and 29s. per week with a pair. Labourers digging clay, 23s. 4d. per week; labourers wheeling clay and bricks, 33s. 7d. per week; labourers building kilns and burning bricks, 36s. per week; labourers jobbing about field, 23s. 4d. per week. Women—Dyers, 19s. 8d. per week; bogie fillers, 19s. per week; tiling bricks, 9s. per week. Boys—Bogie drivers, 17s. per week. Boys and girls—Drawers-off, 15s. 11d. per week.

Do you expect a higher tone of character from your labourers, seeing you pay them more than the minimum wages?—Not necessarily, so long as the work is carried out and the time kept. With regard to masons, he thought the

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generation were steadier in their habits than their fathers

Chairman: That is very gratifying and very interesting. Applying to the Chairman, the witness said that navvies sit and starts, and were not at all regular in their hour. In the present warm weather they would work a when lie down for a few days.

Professor Glaister: Certain kinds of brickfield work for was very laborious. It was so hard that neither he nor Glaister could do it for two days.

THE INTERNATIONAL FIRE PREVENTION CONGRESS.

International Fire Prevention Congress, convened by the Fire Prevention Committee, will be attended by six delegates from our leading Government Departments, by six representatives of the City of London, three from Metropolitan Asylums Board, four from the London Board of Commerce, and quite a number from the other authorities and institutions. Nearly all the leading municipalities have also decided to be officially represented on this occasion, including cities such as Edinburgh, Glasgow, Aberdeen, Liverpool, Birmingham, &c., to the number of eighty corporations. The German, French, Italian, Belgian, and other continental Governments have intimated their intention of sending official delegates, and also a number of leading foreign municipalities. The distant colonies of Australia and Canada, as also India, are sending representatives of the various institutions included. Further, a particularly large deputation of engineers is coming over from the United States. The congress being mainly a technical one dealing with the "prevention" of better construction and equipment, by legislation and precautionary measures, the membership comprises public officials, architects, engineers and fire-brigade men, but the insurance interests will also be represented, as will the universities and other teaching bodies.

The congress will hence be essentially a working one, with no social organisation, but the evenings are to be devoted to a series of entertainments, including a congress banquet and several receptions. Special courtesies have been accorded to the members of congress during their stay in London, inasmuch as the Duke of Sutherland, the Duke of Wellington and others

have thrown open their private galleries; whilst the Speaker of the House of Commons, the Master of the Mint, the Secretary of the General Post Office and other public officials are according various facilities, and several clubs have nominated the visitors honorary members for the time of their stay in London. The great railway and shipping companies are also extending facilities to visitors by reducing their fares or making special arrangements.

Owing to the great demand for participation in the congress, it has now been decided to close the application lists, excepting in the case of the accredited representatives of public authorities, institutions and societies, as from June 5.

The congress bureau up to July 5 will be at No. 1 Waterloo Place, Pall Mall. All communications should be addressed to the General Hon. Secretary of the British Fire Prevention Committee, and not to individuals or sectional hon. secretaries.

THE NEW KURSAAL, HARROGATE.

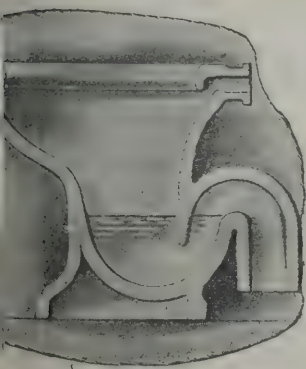
HARROGATE was very jubilant on the 27th ult., the occasion being the inauguration of the new Kursaal which has been erected in a free treatment of the Renaissance style, adjoining the old Spa concert-rooms, and within a stone's throw of the Royal baths. The main vestibule leads to a spacious covered promenade, which practically encircles the whole building. On two sides it commands views of the theatre, from which it is separated by the glass doors which give access to the boxes. On a third it emerges into the open air, and affords charming views of the gardens at the back. By way of the promenade the restaurant and refreshment-rooms are reached, and it also gives entrance to the older building, which may be used either separately or in conjunction with its modern rival. At all events the complete scheme contemplates reading, billiard and smoking-rooms as convenient adjuncts. But the theatre or concert hall is, of course, the main centre of attraction. This is some 72 feet in width and 108 feet in length, roofed in a single rich span. There is a stage designed to accommodate a full orchestra and chorus, and capable of extension if needed. Shortly summed up, the interior is of ornamental fibrous plaster in gold, with marble pilasters and base; the boxes have hangings of Rose du Barry, which goes well with the cream and gold of their segmented fronts, while the upholstering in general is rich and effective, and in keeping with the decorative surroundings. A feature is that that portion of the hall which is nearest

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the stage has a spring floor, enabling it to be used for dancing, while the seating at the back of the hall being raised will constitute a pleasant lounge when the theatre is temporarily converted into a ball-room. There is a capacious balcony, reached by handsome marble staircases—marble, in fact, seems everywhere—and altogether some 2,000 people may be accommodated without much difficulty in a building which is admirably light and particularly well ventilated. Mr. Robert J. Beale, of Old Queen Street, is the architect, and with him has been associated Mr. Frank Matcham.

THE HOUSING QUESTION IN LIVERPOOL.

COLONEL W. R. SLACKE, R.E., Local Government Board inspector, held an inquiry at the Municipal Offices, Dale Street, Liverpool, relative to an application of the City Council to borrow two sums of 150,000*l.* and 1,230*l.* in connection with the carrying out of the provisions of the Working Classes Act, 1890. The members of the Council present were Mr. J. B. Colton (chairman of the housing committee), Mr. E. Russell Taylor (deputy chairman), Mr. Alex. Armour, Mr. Austin Harford, Mr. Thos. Roberts, Mr. J. O'Shea and Mr. F. Harford.

Mr. Cripps, assistant town clerk, in explaining the application for sanction to borrow 150,000*l.*, said the money was required for the purpose of acquiring land and the erection of workmen's dwellings under Part I of the Housing of the Working Classes Act, in connection with the Hornby Street improvement scheme. The Corporation were not yet satisfied with the period allowed by the Local Government Board to repay the loans. Since the last application was made a Select Committee of the House of Commons, appointed to consider the subject, had reported that in their opinion the period to be allowed for housing and rehousing loans should be extended to eighty years. The Local Government Board had not yet power to sanction a loan for that period, but he asked that they should sanction this loan for the full period in their power, namely, sixty years. The Commissioners stated that there were two questions to consider in determining the period for which a loan should be sanctioned for repayment. One was as to the number of years which the buildings would last, and the second as to the length of time the demand would last for the houses. The deputy-surveyor would tell the inspector that the houses it was proposed to erect would last for 150 years—120 years at any rate. As to the time the demand would last, he pointed

out that Liverpool was a seaport, and that these houses were to be erected within half a mile of the river, and that they were to be occupied by dock labourers and people earning their livings at the docks. So long as Liverpool was a seaport, long would there be a demand for these houses. The second application was in respect of a small block of concrete cottages proposed to be erected on a site in Eldon Street, the land which had been acquired and paid for under the local Act, 1864. These concrete dwellings had passed the element stage, because the surveyor had already erected a similar cottage at Cobb's Quarry.

Mr. F. T. Turton, deputy surveyor, explained that the land in the first application was comprised in eight blocks. The estimate for acquiring the land was 64,840*l.*, and for the buildings 84,799*l.* The number of dwellings proposed to be erected was 444, containing 1,218 rooms, and providing accommodation for 2,446 persons. In addition there was a keeper's five-room house. All the obligations upon the Council under the provisional order had been complied with. By obtaining possession of a number of pieces of vacant land they had been enabled to get all these dwellings three storeys in height, which was an object to be aimed at. They considered that the houses they proposed to erect were an improvement upon what they had already put up. The land had been adapted for laying out for this class of property.

The Inspector said he thought they were very nice houses and wonderful for their money.

Mr. Turton, on the question of the rents to be charged, said he could not commit the committee at the present time because they had not considered the question.

Dr. Hope, medical officer of health, gave evidence as to the insanitary nature of the property existing on the site.

Mr. J. A. Brodie, the city engineer, was afterwards called to speak to the proposed erection of concrete cottages in Eldon Street. There were, he stated, twelve dwellings and thirty rooms. The cost was put down at 3½*d.* per cubic foot, estimated on the basis of the building experimentally erected. Concrete would last quite as long as brick or stone, and it was now being much used in the construction of large buildings.

Mr. Austin Harford urged that in view of the difficulties rehousing the people, fifty houses were quite sufficient to demolish at one time, instead of 150 as proposed.

At the close of the inquiry the inspector was thanked for his courtesy on the proposition of Mr. Colton, seconded by Austin Harford.

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THE WEEK.

IT is understood that the King of the Belgians has determined to use his influence for the erection of a great church in Brussels which will correspond with the edifice crowning Montmartre, in Paris. The King has promised a first subscription of 4,000*l*. The State, it is expected, will vote a part of the cost, and the remainder will be obtained by public subscription. The Belgian Minister of Cults has visited Paris, and has confirmed the King's resolution. The site selected is on the plateau of Kockelbergh. As it is said the same religious organisation that carried through the arrangements for the immense building at Montmartre will have charge of the King's project, it is possible the church will dominate the city. At the present time the Palais de Justice holds that position, and is suggestive of the supremacy of law. It is therefore likely that, when the plans appear, opposition will be aroused.

THE account which Mr. ARTHUR EVANS gives of his recent discoveries at Knossos raises expectations that much else of value can be obtained if adequate funds were at his disposal. On Friday last he sent a telegram in which he spoke of finding two depositories in which votive offerings and other things relating to a sanctuary were preserved. There are several statuettes, one being a goddess having snakes coiled about her hair and forming her zone. The treasurer to the Cretan Exploration Fund two months ago said that 2,000*l*. would be required. About half that sum has been subscribed or promised, but each new development involves additional expense. Other countries which are poorer than England are giving liberally in order to uphold their reputation, and it will not be creditable if an enthusiast like Mr. EVANS is compelled to hand over his work to a foreigner in order that it may be completed. The place of operations is fruitful, showing that judgment was exercised in its selection, and an increase of knowledge must follow the continuance of the exploration.

THE old cathedral of Berlin was removed ten years ago and was succeeded by a new one, designed by Professor RASCHDORFF, with a dome 380 feet high. The style is Italian Renaissance. In Berlin sculpture must be largely employed or a building is not considered important. In the new cathedral the endeavour will be to suggest the history of the Reformation. People believed there was to be some lack of unity in the figures, as CHARLES V. would be seen near LUTHER and MELANCHTHON. But the Statues Commission do not support that view. CALVIN is, however, to be introduced. Most of the figures will represent princes whose protection was accorded to the reformers. Among them are FREDERICK the Wise, JOACHIM III., PHILIP the Courageous, ALBERT of Prussia. The statues are of heroic size, and will stand upon massive columns.

THE Palais Bourbon in Paris is generally considered by visitors from other capitals to be remarkably small for a legislative palace. This arises, no doubt, from the façade suggesting no more than a single storey. The history of the building is curious. The site belonged to the abbey of Saint-Germain de Prés, and it was acquired in order to erect barracks for the musketeers; but as there was not enough money the project was abandoned. A Dowager-Duchess of BOURBON obtained the ground and erected a mansion on it from the designs of an Italian architect, GIRARDINI. Her grandson, when he obtained the property, enlarged the palace by the amalgamation of other buildings. At the time of the Revolution it was arranged for the meetings of the Council of Five Hundred. Then under NAPOLEON the familiar peristyle was constructed by POYET. Amidst so many changes it would be strange if there was much unity in the buildings. The salle where the Legislature meets was constructed in 1832. Of late years the accommodation has proved to be insufficient, and various projects for a transformation have been prepared. A plan by M. BUQUET, the architect

in charge of the palace, has received approval and a model has been prepared of the proposed hall for the Assembly. Provision will be made for 622 members, and around the amphitheatre there will be twenty-one doors. Two galleries will be introduced, arranged in tribunes. It is proposed to occupy the wall behind the chair for the president and the tribune from which the members speak with three large paintings for which it is expected the commissions will be offered to M. BONNAT, M. JEAN-PAUL LAURENS and M. CORMON. Prior to 1848, when the Government of LOUIS-PHILIPPE was overthrown, the hall was found to be too small to contain the members who considered it to be their duty to take part in the historic events. It was necessary to set up a supplementary structure of wood and painted canvas. By M. BUQUET's arrangements a course of that kind will be unnecessary unless the number of representatives is increased.

THE city of Carlisle having obtained an Act in 1898 authorising the construction of works for a supply of water to be derived from Geltsdale, the committee have entered into arrangements with the firm of Messrs. JAMES MANSERGH & SONS for preparing the plans and superintending the works. The following are the terms of their engagement:—"We shall, of course, take no cognisance whatever of the plans, sections, drawings, specifications and bills of quantities prepared by your late gas and water manager, but make our own independent surveys and design the works just as if nothing had previously been done, being bound only by the provisions of the Carlisle Corporation (Water) Act, 1898. (1) Preliminary surveys, reports, interviews, consultations and correspondence, and all other work which may be done antecedent to the actual working plans and drawings, and which are not chargeable to commission, to be paid for at our usual time rates for ourselves and assistants, with all out-of-pocket expenses. (2) Commission work we divide under two heads, viz.:—Surveyor's Work.—Taking out quantities, printing bills of quantities and supplying one copy of the drawings to contractors. One per cent. on amount of accepted tenders. Engineer's Work.—Preparing designs, plans, sections and working drawings, specifications, making periodical inspections of the works in progress, examining, monthly, all statements of work done, made out by the resident engineer in charge, and certifying for payments on account and final. Five per cent. on the actual cost of all the works. Resident engineer, his assistants and inspectors, to be appointed by us and to be paid by the Corporation." The 5 per cent. commission, it will be seen, is exclusive of many charges which correspond with those that would be supposed to be included in an architect's commission. Civil engineers are realising that expenses are increasing, and they are justified in making larger demands for their work.

WHEREVER sailors congregate there are sure to be sanitary defects. There seems to exist a belief that anything will serve for them; and as a ship was defined to be a prison with a chance of being drowned, seafaring men are supposed to be content on land with accommodation which prisoners would reject. A deputation on Tuesday waited on the Portsmouth Town Council to represent the condition of the Portsea Ward, and made statements which should not be ignored by any authority having charge of public health in this country. A great many of the houses have been closed, but as they are used to deposit garbage and filth there is no improvement in the sanitary condition of the borough. One street was described of which the average width is 7 feet, while in a part it is limited to 3 feet. Another street has a width of 15 feet. In the area which was brought under notice it was calculated that 109 houses and stores should be removed. It has been found from an examination of the police court records that at least 90 per cent. of the cases heard by the magistrates come from that limited district. The workmen in the dockyard have to go a mile or two in order to find a shelter. All the Town Council could do was to refer the memorial to the health committee. But the deputation was reminded that there were other parts of the borough which were equally discreditable, and whenever a removal was effected it was necessary to pay six times the value of the property.

MASTERS OF ART: PAINTING.*

IT is easier to attain excellence in painting than in the other arts. This fact, which is almost self-evident, is demonstrated by the numbers of successful painters in comparison with sculptors and architects. We have only to look around and we observe painters, women as well as men, who have gained reputation, although they are still young. The readiness with which a mastery of the art is acquired has its counterpart in the knowledge of admirers. A man who has seen a picture for the first time is able to express an opinion upon it. He must have more or less acquaintance with the objects shown or with those which to some degree resemble them. He can at least judge of the correctness of the representation. But it requires education before anyone can understand the principles exemplified in the production of a work of sculpture or of architecture. Hence it is that in all ages painting has been the most popular of arts, for it appeals to the uninstructed as well as to those who have a right to be considered as connoisseurs.

This peculiarity has been exemplified in that part of the podium of the Albert Memorial which was assigned to painters. There were so many artists of that class in all times, the four sides would hardly be sufficient for their representation. It was therefore necessary to make a selection of a severe kind. The history of ancient art was ignored. There were able painters in Egypt, Greece, Rome, but space was not available to allow of the introduction of any figure to recall them. The painter's art might be supposed from the panelling to have had no existence until the thirteenth century. The figures chosen have, moreover, the effect of recalling artists connected with them. The three representatives of the English School make us wonder why so unique a genius as TURNER could not find a place, especially as the presence of the Frenchman CLAUDE calls for a rival landscapist. All such assemblies of artists as Mr. ARMSTEAD has brought together are suggestive of Elysium, and seeing GAINSBOROUGH we must conclude he would be unhappy to be in any distinguished company of which VANDYKE was not a member. REMBRANDT was undoubtedly a great genius, but he cannot be said to possess the accepted characteristics of the Dutch School in a sufficient degree to stand for it without a companion. FRA ANGELICO reminds us of another Dominican, FRA BARTOLOMEO, who was more closely related with mundane life. It is possible that much of the reputation of LEONARDO DA VINCI rests on works by his disciple LUINI. JOHN BELLINI and TITIAN seem to be incomplete in the absence of GIORGIONE, and CARPACCIO was also an influence in Venice. Of the three CARRACCI, AGOSTINO was the ablest, yet he is invisible. In the French School there was some continuity between POUSSIN and painters like DAVID, but the links were formed by such absentees as LE SUEUR, LE BRUN, WATTEAU and GREUZE. The names we have mentioned are, however, only a few of those which had to be sacrificed through want of room. The sculptor is not to be blamed for their absence, for if all the painters whose pictures have survived and find a place in public galleries were to be presented within the stipulated limits, the relief would cease to have the qualities of a work of art.

When describing the panels relating to architecture and sculpture we endeavoured to point out the difficulties besetting an artist who attempts to combine chronological succession with the progress of the art. Mr. ARMSTEAD has skilfully devoted the central part of his relief to the Italian School, which unquestionably merits so much prominence. With that part, by following the figures from left to right we have a suggestion of the history of the School. Beginning with a seated figure of CIMABUE at one end we pass on to the climax in RAPHAEL, who fills the throne, and then onwards to the relative decadence of the CARRACCI and the seated CORREGGIO. There is a figure or two on the right more than on the left, but the space is equivalent on both sides of RAPHAEL. We have consequently that symmetry which is desirable in all works of art, and especially in sculpture. The seated figure of RUBENS is balanced by another of POUSSIN, and the presidential robe of REYNOLDS at one extremity has a

counterpoise in the heavy cloak which enwraps the valedudinarian DELACROIX.

The emancipation of painting from Byzantine fetters is generally ascribed to CIMABUE. He was not the earliest pioneer. Sculpture, by an adaptation of Classic forms, was likely to have suggested that a prescribed system of proportions, colours and expression was out of keeping with nature. ANDREA TAFI may have been as serviceable as CIMABUE, but his name is almost unknown. CIMABUE had not the courage to abandon himself to nature, but there can be no doubt he was an observer rather than a repeater of stereotyped expressions. If he failed to accomplish the revolution fully, he discovered an artist adapted to that purpose in the shepherd boy GIOTTO. We can hardly imagine Ghiberti as being generous towards another artist, but he acknowledged that GIOTTO transformed art from bottom to top, and, as it were, translated it from Greek into Latin. GIOTTO abandoned Byzantine types not only in form but in costume. His success is suggested by the vast number of his imitators, who became known as the GIOTTINI. ORCAGNA went a step further, for he manifested the possibility of displaying a sense of force in action. He endeavoured to illustrate and, it may be, to compete with DANTE in exciting terror by the *Triumph of Death*, the *Judgment* and *Hell*. Pictures were then mostly demanded for the adornment of churches, and those by ORCAGNA were supposed to supplement sermons; but the versions of later painters were not always satisfactory, for they were deprived of his *naïveté*.

In the next group FRA ANGELICO is seen. He belonged to an Order that strove to strike terror into the souls of sinners by the sight of the severest punishments. But Brother JOHN of Fiesole must have had a disposition which shrank from such an exercise of power, and indeed he seemed to live in Paradise rather than in Foligno, Florence or Rome. His figures are not of this earth, but he used earthy materials in his colours in a manner which time has respected. If St. LUKE the evangelist was, as ROSSETTI said, the first who taught art to fold its hands and pray, FRA ANGELICO was one of the men who seemed to have inherited the spirit of the evangelist. GHIRLANDAJO was, like BOTTICELLI, the pupil of a goldsmith. His name is said to have been derived from a piece of jewellery he invented in the form of a garland. VASARI tells us he was not only the first frescoist of his time, but the delight of the Florentines. He must have possessed marvellous productivity, for one of his regrets was that instead of being employed in painting church walls he had not been commissioned to cover the entire walls of Florence with historical paintings. He was probably the earliest of the Renaissance artists to go to nature for the materials of a landscape background. About MASACCIO's greatness there can be no question, for the giant who stands next him honoured him by a testimony which all ages are likely to respect. "After the time of GIOTTO," says DA VINCI, "the art of painting declined again, because everyone imitated the pictures that were already done. Thus it went on until TOMASO of Florence, nicknamed MASACCIO, showed by his perfect works how those who take for their standard anyone but nature—the mistress of all masters—wear themselves in vain." It should be remembered that MASACCIO died at the age of twenty-seven and that his life was a struggle for bread. Yet in spite of his condition painting owed much to him. He went beyond his master, MASOLINO, in the display of the nude, and he was the first apparently to look on time as the Everlasting Now, for disregarding all imputations of anachronism, he represented Scriptural scenes as if they took place a few months before in Florence.

Who can say anything new about LEONARDO, RAPHAEL or ANGELO? As a painter, the greatest of the three would have been DA VINCI, if nature had not handicapped him with a morbid fastidiousness which deprived him of all satisfaction in his own work. What he must have suffered no pen can describe. He set himself tasks which even he could never accomplish, and we suppose there was not one of his works which corresponded with his intention in commencing it. RAPHAEL's receptivity is perhaps his most wonderful characteristic. He seemed to require a precedent for every one of his forms. When he says that his *Galatea* was derived from an ideal in his own mind, he gave

* See Illustration.

a revelation of the system he followed in the majority of his works. He could utilise and surpass every painter's style he came in contact with. It thus happens that by some critics he is considered seraphic, and by others the reverse. There is so much of a Greek character in certain of his paintings, it has been assumed that he must have had an agent in Athens who made elaborate drawings of the Parthenon sculpture for his use. It has even been insinuated the ornament found in the Baths of Titus was destroyed by his command in order that his indebtedness to it might remain unknown. All that has been recorded simply means that he was a many-sided man in all that relates to art, and that he possessed a confidence in his own powers of assimilation which nothing could daunt. As a consequence of what was said by the first President of the Royal Academy, it seems to be incumbent on every Englishman to be as reverential to MICHEL ANGELO as if we owed to him the Magna Charta of art. His works may express strength, terror, anatomical knowledge and many other qualities, but they do not affect us in the same way as pictures by inferior painters of the Italian School. He was indifferent to colour, and without it painting loses what is most essential to its success. He was discontented and unhappy, for, like FAUST, he could say to himself:—

From living nature thou hast fled
To dwell 'mong fragments of the dead,
And for the lovely scenes which Heaven
Hath made man for, to man hath given,
Hath chosen to pore o'er mouldering bones
Of brute and human skeletons.

It is easy to understand how a man like MICHEL ANGELO would condemn TITIAN and the Venetians because they were not better draughtsmen, or, in other words, had shown more acquaintance with the skeleton. TITIAN's defence is unrecorded, but Mr. ARMSTEAD suggests by the glaring look of the great Venetian and the restraining action of his master, GIOVANNI BELLINI, that one could be given which could sting the Florentine's pride. What critic would venture before one of TITIAN's masterpieces to suggest there was any shortcoming of the muscles? For physiology we can go to marble, bronze or clay figures, but colour is the life and soul of a painting. That quality TITIAN has given us, and consequently there is more enjoyment before one of his canvases in the National Gallery—without going further—than if we spent a season before works resembling the three by MICHEL ANGELO which are in the same building. MICHEL ANGELO is unapproachable in some things, but it is only cant and affectation which would make him supreme in all branches of art. With no man is he so little able to compete as with TITIAN. GIOVANNI BELLINI has a claim to immortality from being the master of TITIAN, although probably it was the influence of GIORGIONE and the "floating knowledge" of the *atelier* which were the true influences on the pupil. But the portrait of *Loredano*, the Doge, in the National Gallery, is by itself enough to suggest his power in painting. MANTEGNA was not by birth a Venetian, although he was connected by marriage with JACOPO BELLINI. He was a great artist, and one of the first to endeavour to be archaeologically true in his Classic scenes, but he is out of place in the company of TITIAN, VERONESE and TINTORETTO. The pageants of the Venetian painters do not reveal any indebtedness to the Paduan master.

The CARRACCI were introduced to students in the early days of the Academy by the discourses of REYNOLDS. In theory it may sound well to take a hint from the cookery books, and recommend everyone who wishes to become a good painter to combine "the design of Rome, Venetian action and Venetian management of shade, the dignified colour of Lombardy; the terrible manner of MICHEL ANGELO, TITIAN's truth and nature, the sovereign purity of CORREGGIO's style and the just symmetry of a RAPHAEL; the decorum and well-grounded study of TIBALDI, the invention of the learned PRIMATICCIO and a little of PARMIGIANO's grace," as if a painting were a pudding. But in art what is desired is individuality, and REYNOLDS in his own practice was not an eclectic. The influence of the CARRACCI was not beneficial. CORREGGIO never posed as a teacher, but his paintings, with their exaggerated foreshortening, were so much admired, they became more

dangerous than any lectures. Mr. ARMSTEAD evidently accepts the legend of the painter's ill-treatment, for he represents him as prematurely aged.

VELASQUEZ is now the most prized of Spanish painters. But when the French cleared Spain of masterpieces in the Peninsular War they declined to encumber themselves with his works. The reasons are not difficult to discover. The majority of his paintings were portraits, and the subjects were not beautiful, for VELASQUEZ could not flatter. It was not anticipated that realism was destined to have its turn, and the Spaniard was to become its expounder. One of the first painters to recognise the worth of VELASQUEZ was REYNOLDS, who said, "What we all do with labour he does with ease." Sixty years ago his qualities were assessed by RICHARD FORD as follows:—"In things mortal and touching man VELASQUEZ was more than mortal; he is perfect throughout, whether painting high or low, rich or poor, young or old, human, animal or natural objects. His dogs are equal to SNYDER'S; his chargers to RUBENS'S—they know their rider. When VELASQUEZ descended from heroes his beggars and urchins rivalled MURILLO: no TENIERS or HOGARTH ever came up to the waggish wassail of his drunkards. He is by far the first landscape-painter of Spain; his scenes are full of local colour, freshness and daylight, whether verdurous court-like avenues or wild rocky solitudes: his historical pictures are pearls of great price; never were knights and soldiers so painted as in his *Surrender of Breda*."

MURILLO is now in less favour than his friend, but the home-keeping painter who could produce beggar-boys and glorified saints with equal facility, and whose works are remarkable for harmony of colour, animation, truth to nature and a homely feeling can never be entirely neglected.

NICHOLAS POUSSIN can always be taken as an example by French students in Rome. With so much sculpture around him his impressible nature compelled him to believe that what was desirable was to impart to pictures some of the qualities found in bas-reliefs. It requires a knowledge of the art of the seventeenth century in order to appreciate his aims. Then it would be perceived that few painters were inspired by loftier motives. CLAUDE was one of his friends. His landscapes were always admired by English amateurs, and it cannot be said that in the competition between his works and those of TURNER the Lorraine painter is considered to have been defeated. CLAUDE died in 1682 and JACQUES LOUIS DAVID was not born until 1748. There was accordingly an interval between the two to which we have already alluded. DAVID's Classic paintings have been much abused, and they certainly are colder and stiffer than those of POUSSIN. But some of his portraits are remarkable for their realism. He helped in leading the Revolution onwards to Imperialism, and he deserved the recognition which NAPOLEON gave him. But on the Restoration he was forced into exile, and he died in Brussels in 1825. The Baron GERARD was one of DAVID's pupils. At the time of the Revolution DAVID saved him from the guillotine. He gained success as a portrait-painter, and, unlike his master, the Restoration brought him a peerage. There are some of his paintings in the Louvre and at Versailles. In the history of French art he holds an inferior position if compared with GERICAULT's, who lived for only thirty-three years, and yet in that time produced striking works. By accident he discovered his power as an animal painter, and he came to England in order to study horses of different types. But it was his *Raft of the "Medusa"* which gave the *coup de grâce* to French classicism. It may be said to have originated the modern School. EUGÈNE DELACROIX posed as one of the models of the crew, and the scene was in keeping with his own pessimism. He was also the successor of GERICAULT as the head of the mutineers against Academicism. He was partial to gloomy and tragic scenes, but he was one of the Frenchmen who preferred SHAKESPEARE to their own Classic dramatists, and his illustrations of "Hamlet" show an earnest desire to pluck out the heart of the mystery.

If we turn now to the left side of the panel we meet with representatives of the Northern Schools. Master

STEPHEN is assumed to have been the second chief of the Cologne School, and was probably the pupil of his predecessor, Master WILLIAM. There are some altar-pieces ascribed to him, among others the renowned painting of the *Madonna and Child* in Cologne Cathedral, which is supposed to date from 1410. Whether there was any connection between the School and the VAN EYCKS is uncertain, but the belief is sufficient to warrant the friendly action shown in the relief. DÜRER was separated from the brothers by nearly a century. He travelled in Italy, but his paintings do not display any Southern power. HOLBEIN might be claimed as an English artist. HENRY VIII. said he could make seven peers out of seven peasants, but not one HOLBEIN. English character was never more truly revealed than in his drawings. Wife and children and an increase of salary failed to attract him back to Basle. He preferred English freedom. He died somewhere in London, and was buried in the church of St. Catherine Cree. RUBENS also benefited by residing in England, and in the Record Office are many documents relating to him. REMBRANDT was no traveller, or we might have had a visit from him, and he would not have fared worse than HOLBEIN, RUBENS, VANDYKE and many other alien painters.

Foreigners must allow that Englishmen have not monopolised a large part of the podium. In that way the work differs from foreign examples in which artists are brought together. HOGARTH is the type of the English artist who can manage to dispense with Old Masters, GAINSBOROUGH'S indebtedness to them was limited, REYNOLDS perhaps overrated his obligation, and was more grateful than was necessary.

GERMAN TECHNICAL SCHOOLS.

IN the contrast between the ancient and the Baconian philosophy which MACAULAY drew it was pointed out that the former "could not condescend to the humble office of ministering to the comfort of human beings." It was considered an affront to mention the principle of the arch and the use of metals as among the blessings of philosophy, for the true philosopher does not care whether he has an arched roof or any roof. According to SENECA, the invention of transparent windows or of pipes for heating buildings was no more than drudgery for the lowest slaves, and "he labours to clear DEMOCRITUS from the disgraceful imputation of having made the first arch." We must not presume that such notions came to an end with the Dark Ages. They still survive in our universities. As late as Friday the Savilian Professor of Astronomy at Oxford informed an assembly at the Royal Institution that all who attempted to apply science to ordinary use were suffering from "vulgarity of mind." Anyone who is acquainted with the views which are current not only in Oxford but in the majority of European universities would not be surprised at the words. Outside college circles where certain books are supposed to be mirrors of life as it should be followed, there is believed to be a region of barbarism. With such authorities what chance is there for obtaining that technical education on which our existence as a nation may be said to depend?

In Germany there was similar scorn of all knowledge but that which makes of every old-fashioned college "a little academe still and contemplative." But there is a resolute ruler who can realise that what served for instruction in Athens and Rome does not correspond with the needs of our time. The EMPEROR believes there should be Doctors of Engineering as well as Doctors of Philosophy, and, regardless of antiquated privileges, he has given the right of conferring the degrees to the Berlin Technical High School, and in that way puts the institution on a level with the old classical universities. The director of the High School is also to have a title corresponding with the "Rector Magnificus" of a university. All this to busy men may seem to be only a childish settlement of a difficulty, but they can hardly realise how much depends on titles in all universities. Not only in Prussia, but the other German States, an educational revolution is in course of accomplishment. Indeed, there is now a misgiving of the universities having to hold a secondary position, for the success of technical education can be measured by the new

position acquired by Germany. Once it was supposed the Germans, by means of their university training, had obtained dominion of the abstract alone. GOETHE describes the shortsighted, pale, flat-chested students of his time as over head and ears in the Idea, and as having no interest in anything but the remotest problems of speculation. Now their successors are in the front rank of practical affairs, and it is the endeavour of the men of other nations to keep in line with them. Their chemical industries alone bring in about 50,000,000*l.* a year, and this large sum is "considered as the interest accruing from the capital invested by the German States in chemical instruction."

At such a time as the present, when what is called technical education is in a chaotic condition in this country—for it consists in the creation of appointments rather than in the development of a system of training—it is an advantage to have a description of what is in progress in Germany. It will be found in a report by Dr. FREDERICK ROSE, the British consul at Stuttgart. It shows in the first place that vested interests have to give way to the public good. For example, agriculture was at one time supposed to be the staple industry of the country. By means of it a race of proprietors well adapted to be officers in the army, and another with hardy frames, born to subjection and therefore fit for soldiers, were preserved. In 1871, after the war with France was over, 60 per cent. of the inhabitants were engaged in agriculture. A new policy was adopted. By 1900 the population had increased 50 per cent., but the percentage for agriculture had fallen to 35 per cent., while industries and trade employed 65 per cent. of the people. Between 1880 and 1895 there was an increase of 17·8 per cent., but the gain to agriculture was no more than 0·7 per cent. So remarkable a diversion of human power is comparable to some of the great strategical movements which occurred in the late wars of Germany, and through which armies were as easily moved in new directions as any company of infantry.

There is in truth an analogy between the modern industrial competition of the Germans and their military method. To impart the utmost efficiency to the people engaged in trades is the object to which school education is now being directed; to provide captains of industry is the work of the technical high schools. All are subjected to the various ministers of education. The first necessity is to provide qualified teachers. They are not paid extravagant salaries. There may be differences here and there, but at Stuttgart an ordinary professor has a salary of 200*l.* to 300*l.* paid by the State. He occupies sixth rank amongst State officials, and is pensioned after service by the State according to the following scale:—After ten years' service, 40 per cent.; after twenty years, 60 per cent.; after forty years, 90 per cent. of the total salary drawn during service. Then there are extraordinary professors, lecturers, private lecturers and assistants. The Berlin School, for instance, has thirty-six professors, besides directors of testing departments, assistants, clerks and servants.

It would take us into too much detail if we were to describe the extent of the various courses. It may, however, be stated that in the majority of schools a course in architecture, civil engineering or mechanical engineering occupies at least four years. There is a good deal of similarity between most of them. A mining engineer or electrical engineer, as well as a civil engineer, will have to learn the principles of building, and the same subject is included as parts of courses of metallurgy. The following programme of the department of architecture will suggest the extent of the instruction:—

First Year.—For students from real-gymnasium and upper real school:—Technical mechanics, light and shade illumination, perspective, mineralogy and geology, elements of architecture, building construction, freehand drawing, drawing of ornament, history of art. For students from classical gymnasium:—Analysis, trigonometry, differential and integral calculus, practical geometry, analytical geometry, experimental physics, experimental chemistry, freehand drawing, building construction, history of art. *Second Year.*—Practical geometry, geological excursions, advanced building construction, history of architecture, architecture, plan drawing, applied perspective, freehand drawing, drawing of ornament, styles of ornament. *Third Year.*—Architecture, history of building, architecture of Middle Ages, plan drawing, estimates, materials, freehand drawing, forms of ornament modelling, decorative design.

Term VII. (*half of fourth year*).—History of building, architecture of Middle Ages, plan drawing, water-colour drawing, modelling, decorative design, machinery, elements of physics, political economy.

A student, if he has time, can attend lectures in the general departments of the school. Thus, at Stuttgart the supplementary subjects are German literature, pedagogic methods, elocution, French, German, English and Italian, history of art, history of civilisation, philosophy, æsthetics, geography. There is some elasticity recognised in following out the system, and the normal plan of instruction can be modified to suit individual requirements or qualifications. It is expected that the students have acquired the best kind of preliminary knowledge by some experience of practical work. In mechanical and electrical engineering there must be at least a year spent in workshops before joining the classes. Students of civil engineering and architecture are also required to undergo a period of practical work before commencing their studies in the technical school, but the time exacted is less than for mechanical and electrical engineering.

The fees are fixed sufficiently low to allow a great many students who are not wealthy to take advantage of the courses. Dr. ROSE says it may be assumed that they range from 12*l.* to 16*l.* annually for lectures on practical work, and seldom exceed the upper limit. The Berlin fees are considered to be rather higher than elsewhere, and they may be judged from the following statement:—

Lectures: 4*s.* per term for each lecture of an hour per week. Thus five lectures of one hour per week cost 1*l.* per term; eight of one hour per week cost 1*l.* 12*s.* per term, and so forth. The Berlin fees for the organic, inorganic, technical, metallurgical and electro-chemical laboratories are somewhat higher than at other schools, namely, 4*l.* 5*s.* per term, electro-technical laboratory 2*l.* 10*s.* The engineering laboratories cost less, and the physical and remaining laboratories and practical work from 10*s.* to 1*l.* 10*s.* per term. Students engaged in laboratory work during the whole day seldom attend more than one or two lectures on different days of the week. Not fully qualified students pay higher fees. Entrance fee, 1*l.* 10*s.*; examination fees, 2*l.* and 3*l.* Degree of doctor of engineering, about 12*l.*

It would be impossible with fees so low to make the schools self-supporting. The Governments of the various States, therefore, have to meet annual deficits. Thus in Dantzic, when the school is complete, it is proposed to contribute 18,500*l.* a year. Berlin in 1899 received 33,675*l.* from the State, Hanover 15,094*l.*, Aix 16,581*l.* The building in Berlin cost 485,000*l.*, one at Hanover 79,000*l.*, and one at Aix 137,500*l.* It is of course to be understood that the above expenditure relates to the technical high schools alone, of which nine now exist, and is altogether independent of the large amounts devoted to technical education in other forms. In 1902 there were 14,986 students attending these schools. No less than 2,489 were foreigners. In the department of architecture in the nine schools 2,462 students attended, in civil engineering 2,672, and in mechanical engineering 5,830. Among the foreign States who take advantage of the teaching Russia is most prominent. In Berlin, by the last return, there were 126 Russian students, 152 in Darmstadt, 16 in Hanover, and 53 in Brunswick. Austria-Hungary stands in the second place. Dr. ROSE estimates the entire expenditure of a student at from 90*l.* to 100*l.* per annum, the amount being divided among the following items:—Lectures, 5*l.* 10*s.*; laboratory work, 9*l.* 10*s.*; books, 2*l.*; board and lodgings, 60*l.*; miscellaneous, 20*l.*

As each student costs the State about 12*l.* a year, there has been some discussion on the subject of foreign students. In 1900 they cost Germany 24,204*l.* Besides, they increase the duties of the professors, and what is done ends in creating a large number of competitors thoroughly familiar with German methods. On the other hand, it is considered that in that way new markets for German industries may be opened. It is not, however, the high schools alone which are sought by strangers. In 1902 there were in German technical institutions no less than 6,145 foreigners, or nearly 10 per cent. of the total number.

Whatever some discontented people may say, it is never likely that any German Government will prohibit the admission of foreigners to their schools. The least objection would

be a confession of fear. It would also be a departure from one of the grand traditions of civilisation. In Athens strangers were welcome, and when the Mediæval universities were established they were supposed to realise their title by teaching all subjects to people who came from all parts. The Germans are too proud of their own intellectual strength to be afraid of competition in classrooms. English students should attend in far larger numbers. According to the last return there were only 8 in Berlin, 6 in Darmstadt, 1 in Hanover and 1 in Brunswick. They have the strongest interest for mastering the German system, and they labour under the disadvantage of having no technical institutions which will bear comparison with those of Germany. The course of training is no doubt more rigorous than that practised in England, but, on the other hand, an efficiency can be attained which is remarkable.

WATER SUPPLIES FROM DEEP WELLS.

By F. J. WARDEN-STEVENS, A.M.I.M.E., &c.
(Consulting Engineer.)

THE supply of pure water requires most careful consideration for the purposes of fulfilling the demand of country estates, villages, public institutions, schools, &c., also for manufacturing purposes, and more particularly where a large town's supply is not available or where considerable quantities are necessary. The considerations affecting this question are of the utmost consequence to owners and officials concerned.

There are cases where a general supply from a river or stream may be reliable from the point of view of purity, but it must be borne in mind that in such a case the intake should be at a position above which there are practically no habitations. It is to be regretted that sewage is frequently deposited in a river or stream and often in an unpurified state, although it is a fairly ascertained fact that organic impurities cannot be destroyed except by the application of heat or by the addition of chemicals.

Usually in this country the varying amount of water available from a river or stream, and the liability to flood or drought, renders it necessary to provide a large storage capacity to insure a sufficient supply over those periods when the full quantity of water is not allowed to be drawn. Again, filter beds are necessary for removing the suspended matter and bacteria in all cases where water is taken from a river. It is also necessary for the intake to be so arranged that the water is free from floating matter—that is, it must face down the stream.

It is, however, the intention to refer here more particularly to deep wells rather than rivers or streams, as the latter are open to objection in most instances, and in any case are not very suitable for the supply of an estate, institution or village.

It is a question if sufficient purity is insured with ordinary or shallow wells; the supply should be obtained from a strata which is protected from the percolation of surface water or where such surface water cannot be contaminated, and preferably where the source of the water is at a considerable distance from the well and has to pass through a porous stratum. As an example of this latter instance the strata known as the London basin may be considered. In this case all surface water, including that from the Thames, is above the London blue clay, and below this stratum of clay, chalk is found. The water in this chalk is naturally supplied from the districts outside the outcrop of the clay, which may be taken to be the chalk hills north and south of the lower Thames Valley. The rainfall here soaks into the chalk, and finds its way to the whole of the chalk strata under London. Fortunately the hilly districts, where the chalk appears on the surface, are sparsely populated, and the water passes a considerable distance before it reaches London. It is therefore aerated and partially filtered during its progress, and in consequence is fairly pure and quite suitable for domestic use. London is thus satisfactorily situated with regard to a source of pure deep well water supply, free from serious risk of contamination. The same cannot, however, be said of the river supplies obtained from the Thames and the Lea, as these rivers receive the sewage of many towns above London.

There are of course places where deep wells are an impossibility, and when a town is built on the granite there is little hope of a deep well proving successful. It is in the deposited strata such as sand, clay, chalk, &c., that success with a deep well may be anticipated. There are, however, very few places where the under strata do not contain water, and these situations may be decided upon by reference to the geological formation of the district. It is far safer to trust to this guide than to water diviners.

It is, as before referred to, advisable to seal out from a well all water the source of which is in the vicinity of a town. An expert can most generally advise by reference to the geological and physical formation of, say, twenty miles radius of the district whether a good supply can be met with and at what depth, but the conditions cannot be here discussed in detail because they vary so greatly.

Referring to the general order of the strata, the following may be stated:—In the upper formation above the chalk (where this is found) are the alternate layers of gravel, sand and clay. In these are the surface waters, which, speaking generally, are impure except when below several beds of clay. The chalk usually contains a very large quantity of water, as also does the green sand underlying it. The reason for this is its porous structure and the fact that it is always on a bed of clay which retains the water. Underlying this stratum of clay is found ironstone, sandstone and hardstone, such as Portland stone. This must be pierced before further water-bearing strata are reached, when chalky sands and clays are met with containing quantities of water. Again, below the clay is found limestone, marble and freestone, also intermixed with clay seams, where water is plentiful if the boring is continued to a clay seam but not through it. The lias limestone beds also contain supplies of water, below which again are found the sandstones, consisting of layers of clay, gypsum, rock salt, limestone, &c. After this the coal measures are met with, and underlying them clay, shells, ironstone, grit, magnesite and other stratified rocks, where great quantities of water are found. The old red sandstone underlies these, and as it is stratified and traversed by impervious seams, there is an ample water supply retained in the strata. Yet again lower, limestones are found with layers of sandstone; then come the slate, mica and dark limestones, which are all water-bearing, and these rest on the Plutonic rocks, such as granite, which are not water-bearing, except where there are fissures. Of course, all these strata do not occur at any one place, but when they exist they are in this order, excepting for volcanic upheavals. Usually the upper layers are missing—that is where, say, Portland stone is on the surface, none of the strata mentioned previously need be looked for.

It is a matter of satisfaction that the methods of boring deep wells have been so improved and the cost reduced that a trial boring of reasonable depth can be made at comparatively slight cost and with rapidity, at once settling the question of the actual strata. It should be here mentioned that, owing to the dipping of the strata, the level of water may, of course, be very much higher than the point of entry into the water-bearing stratum, due to the relative level of the stratum at the point of boring and at the points where it receives its supply. In the London basin, for instance, near the centre the chalk is met with at, say, 150 feet, yet the water rises in a deep well to within about 30 feet of the surface. The usual conception of an "artesian well" is where the water actually rises above ground level. Such artesian wells are very seldom met with in practice, and it is perhaps best that this is the case, as a large amount of waste is usually permitted when an overflowing supply is available. It may be of interest to refer here to the methods of well construction which have been adopted.

The original method was the dug well of various depths, lined originally with brick and latterly with iron cylinders. This method is still carried out to an extent with wells of large diameter, and where the upper strata are fairly easy to work in. In other cases it is usual to dig within a few feet of the water-level, keeping the well dry, so that the pumps may be placed within the ordinary suction limits and still be accessible. The well is then usually continued by boring into the water-bearing strata. The dug well proper, however, has no such extension, and reaches direct

into the water-bearing stratum. Of course, if the supply is plentiful there is considerable difficulty in digging the last few feet, but if a large pump is used to keep the bottom dry (a pump of double the capacity to that which will afterwards be used) the well may be sunk to as low a point as will ever be required. A brick lining is naturally quite unsuitable where impure water-bearing strata have to be passed through, and the use of large iron cylinders is a matter of great expense.

The driven tube well is, perhaps, the simplest method of obtaining a water-supply. Steel tubes fixed to a perforated shoe are driven into the ground and passing through the upper strata to the water-bearing stratum, the tube itself is used as the suction-pipe, and the water drawn through the perforations in the shoe or lower portion of the tube. Where the water attains a level of, say, 20 to 25 feet from the surface this method is quite convenient, also where the water is at a lower level if the surface excavation is through comparatively soft and dry ground. The driven tube well is, of course, practically impossible in rocky or other hard soils.

The bored and tube-lined well is the form of deep-well construction most generally adopted. In this system the boring is followed by a tube lining as the descent progresses. The method of boring usual in this country is a combination of rotation and percussion. Where the stratum is soft the rotation alone is sufficient with the weight of the rods to carry the boring down. It is not here necessary to go into the details of boring, but it may be said that for large borings machines are used by which the rotation is kept continuous by means of gearing, and the percussion is also produced automatically. With such machines, however, it is difficult to obtain the same degree of judgment as to the strata being passed through as that obtainable by hand; this involves an increased risk of broken rods and drills. The difficulties met with in ordinary boring are chiefly due to broken drills in the bore, and many ingenious tools have been devised for extracting them, being usually various kinds of automatic grips. With very deep borings means have to be taken to reduce the weight of the rods coming on to the tool in the percussive action. This is usually accomplished (when more than, say, 500 feet long) by providing a telescopic joint in the rods, this joint being about 400 feet from the tool. The weight acting on the tool is thus limited to about 400 feet of rods, and by this means the risk of breakage is minimised. Another source of trouble is unsoundness of joints in lining tubes; the very best are the cheapest in the end, as a split tube or socket may mean a large expenditure, or even the entire abandonment of the well. A further cause of trouble is the difficulty of making the sump tight where the boring ceases and merges into it. It is usual to embed the end of the tube in a deep layer of concrete, but in some cases this does not suffice, and the seal if once broken is very troublesome. Where there is a chance of surface water leaking through, it is advisable to have the sump lined with iron cylinders, and the bottom made of cast-iron segments bolted together and to the lining and the bore, and caulked with lead. The tubes are usually wrought-iron or mild steel provided with flush sockets and threaded, the threads being very carefully cut, and the ends faced so that they butt; this provides stronger work than if the thread is taper. In some cases the tubes are merely brazed and banded, but these are not suitable for wells of considerable depth. Owing to its superior lasting quality cast-iron is preferable in sandy soils, where the weight alone is almost sufficient to drive the tube, and where the tube is of large diameter.

In cases where very hard rocks have to be penetrated, machine boring, using special cutters, is resorted to, but it is a somewhat exceptional occurrence that such rocks exist between the surface and the water-bearing stratum, as the strata can hardly be covered by other than deposited beds, such as clay, sandstone, gravel, flints, &c., all of which are comparatively easy to penetrate. As an illustration of the strata met with in the east of London the following particulars of a deep well may be of interest. These particulars relate to one of two deep wells constructed under the writer's supervision in connection with an independent water supply:—Made-up ground 5 feet, blue clay 2 feet, black fen peat 2 feet, soft blue clay 5 feet, live grey sand

3 feet, hard ballast 3 feet, London blue clay 10 feet 6 inches, large black pebbles and water 3 feet 6 inches, dark green sand 7 feet, mottled clay 6 feet, dark brown sand 5 feet, blue clay 2 feet, blue clay and shell 8 feet, hard shell bed 4 feet, congealed black pebbles 6 feet, green sand and small black pebbles 9 feet, dark green sand 3 feet, green sand and hard blue pebbles 11 feet, dark grey hard sand 9 feet, blowing grey sand 7 feet, hard grey sand 20 feet, grey chalk 30 feet, chalk and flints 65 feet, very hard chalk 48 feet; the depth of the boring being 285 feet, and the internal diameter of the lining tubes $8\frac{1}{2}$ inches. The water rises to within 30 feet of the surface, and the suction of the pump is 120 feet from the surface. The pump plunger is 6 inches in diameter and has a stroke of 3 feet. The pump works at nineteen revolutions per minute, and lifts 4,000 to 5,000 gallons per hour.

The size of a deep well boring is a question which can only be discussed with certainty after consideration of the particular case, but where a stratum such as the chalk under London is being dealt with the output of a deep well is limited entirely by the pumping capacity. If the pump barrel is to be lowered into the boring this is certainly the case. The boring must be made large enough to contain the pump necessary to raise the desired quantity of water, and there is a certainty that the boring, if carried down sufficiently into the chalk (say 100 feet beyond the tube lining), will supply more water than the pump can lift. In connection with this question of the capacity of a boring, it is to be remembered that with a deep well there is always an uncertainty—that is, there are certain risks which must be taken, and unless great care is exercised and accurate local knowledge obtained, there is always a chance that, though water may be found, the quantity may be deficient; and there is in some cases a risk that adjoining owners may construct deep wells near by and so reduce the level that the supply falls off. In the event of a decreased supply due to this cause, it has often been found beneficial to explode a dynamite cartridge in the boring.

The supply from such strata as chalk is almost always obtained not by direct percolation into the boring, but by collection from fissures cut by the boring. In this case the action of the explosion is to open these fissures, which has the effect of increasing the supply. In some instances the supply falls off, due to the boring becoming choked with sand or chalk, and then of course the only remedy is to shell the sediment out. This is, however, not a difficult or very expensive matter.

It is to be remembered that there are no special consents necessary in obtaining water from a deep well, notwithstanding the fact that the water level in other wells may be reduced. If, however, the source of supply to a stream should be tapped by the well and water is pumped to such an extent from the well as to considerably reduce the water level of the stream, then it is probable that the owners of the well can be restrained from pumping to such an extent as to reduce the level of the stream below a certain limit.

It is advisable to have a test made occasionally of the available supply from a deep well, say twice a year, in the summer and in the winter. Also an analysis of the water should be made at not less frequent intervals than six months.

The consumption of water per person per day varies considerably, from as low as five to as much as fifty gallons or even more; it also varies, of course, according to the season of the year. About thirty gallons per day per person may be taken as a fair average of general requirements, but, of course, local considerations largely affect the demand. Besides the private or personal demand there must also be considered the demand for other purposes—steam raising, manufacturing purposes, flushing, &c.

In the area known as the London basin the cost of boring and lining a deep well, together with the provision of pumping gear, may be taken at from 2*l.* to 3*l.* per foot for, say, 300 feet boring into the chalk with 8-inch diameter tubes. The cost of boring is about from 1*l.* per foot and the lining about 15*s.*, while the pumping gear absorbs the balance. Taking everything into consideration, the whole cost of such a deep well with a 6-inch pump and all accessories, including the motive power, may be stated to be about 1,000*l.*, but of course conditions

must be considered in each case. Such a well should insure a supply of 4,000 gallons an hour, and motive power equivalent to about 10 horse-power must be provided, 6 horse-power being used continuously when working, assuming 60 feet lift and 60 feet delivery. Allowing 1 horse-power to cost 1*d.*, the cost of power for pumping is thus 1*½d.* per 1,000 gallons. It may be taken that where 4,000 gallons per hour will meet the demand working twelve hours a day, the consumption will be, say, 17½ million gallons in a year. In this case the cost of pumping will be about 110*l.* A fair figure for interest and depreciation would be 10 per cent., that is, 100*l.*; 25*l.* should cover all ordinary repairs, and a further 25*l.* for labour, making 260*l.* in all, or just over 3½*d.* per 1,000 gallons. If a satisfactory water supply is not already available at 4*d.* per 1,000 gallons, it should then more than repay the expense to adopt a deep well. Smaller wells are, in proportion, more expensive in capital charges, and large wells are more favourable both as to working expenses and capital in proportion. Where a deep well supply has to be depended upon entirely two wells should be adopted, and in that case the cost would be about:—Pumping 110*l.*, capital charges 175*l.*, attendance and repairs 50*l.*, making a total of 335*l.*, and in this case the cost per 1,000 gallons is about 4½*d.* under these conditions. It must be remembered, however, that if the demand for water rises to above an average of 12 hours working per day, the cost of the extra water is only about 2*d.* per 1,000 gallons. Reliability can be assured as regards the pumping at little extra cost by duplication, but on the question of failure of the supply, of course this is to an extent beyond control. It is, however, well known that the supply if the level falls can be increased in some cases by use of dynamite, as mentioned, and by deepening the bore. The chance of pollution of the supply depends greatly upon the workmanship, but, unfortunately, not only on the particular well but on others in the neighbourhood.

ST. STEPHEN'S, CAEN.

NO one ever doubted that in the nave of St. Stephen's there were two Romanesque dates, that the clerestory had been recast, and that the vault was an addition to the work of William and Lanfranc. The question was whether there were three Romanesque dates. Some people, we need hardly say, think it almost as impossible that anything now standing should be the work of William as that it should be the work of Harold. We believe that this is part of the old "Saxon" confusion. William of Normandy was not indeed exactly a "Saxon," but thirty-eight years of his life was spent in "the Saxon period," and he had so much to do with "Saxons" in one way and another, that some portion of "Saxon" incapacity for building might well have been communicated to him. We were therefore told at one time that there was really little or nothing of William's work at St. Stephen's, that if he and Lanfranc did contrive to put a few rough stones together they had all been cased and put out of sight, even before the late Romanesque additions, which nobody doubted to have been made towards the end of the twelfth century. M. Bouet, on the other hand, shows plainly enough that, except of course the choir, which was rebuilt on a larger scale in the thirteenth century, the church of William and Lanfranc is there still. There can be no doubt that of the three dates given for the consecration, 1077 is the right one. The other two, in 1081 and 1086, mark, according to M. Bouet, the completion of the building by the addition of the western towers; towers were sometimes specially consecrated. "On pisan gere was se stypel gehalgad æt Burh," says the Worcester Chronicle, under the year 1059. The relation of these towers to the church is very remarkable. The towers were contemplated from the beginning, and their foundations were laid at the same time as the foundation of the nave, but they were not carried up till after the nave was finished. That is to say, the lowest part of their masonry is continuous with that of the nave, while a vertical seam separates the upper part. The towers are thus in a certain sense an addition, but an addition made only a very short time after the original building. There is no change in style; if there is any difference, the later work is rather the plainer of the two. Of course, in speaking of the towers, we mean only that part which can be reasonably assigned to the eleventh century, not the upper stages, which were clearly added when the clerestory and vault were made, still less the spires, the types of so many others in Caen and its neighbourhood, which are later still.

NOTES AND COMMENTS.

THE two buildings in New York for the erection of which Mr. ANDREW CARNEGIE will give a million of dollars will stand on sites on the north side of Thirty-ninth Street and south side of Fortieth Street, west of Fifth Avenue. The Societies to occupy them are the American Society of Civil Engineers, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers and the American Institute of Mining Engineers. The Engineers' Club will also find a habitation in one of the buildings. The arrangements are to be settled by a joint committee representing the different Societies. On the planning a resolution has been passed as follows:—"Said joint committee shall, by the affirmative vote of at least two-thirds of all the members thereof, select and employ an architect to prepare the plans and specifications for the building to be erected on the site on Thirty-ninth Street and for the club building to be erected on the site on Fortieth Street; and shall also obtain proposals for the erection of both of such buildings; and shall have power to make and enter into such contract or contracts as shall be approved and authorised by the affirmative vote of at least two-thirds of all the members of said joint committee for the erection of both of such buildings; and shall have charge of the erection of both of such buildings." It is satisfactory to know that no attempt is to be made to supersede architects by engineers. We may also assume that at present the intention is to obtain plans without employing the process of competition.

THE Emperor of GERMANY appears anxious to show his judgment in sculpture, especially when it is intended for public places. Already an avenue in the park of Berlin has been made to record the history of his race. For another open space in the neighbourhood he has decided to have groups of animals representing German hunting in various ages. Professor SCHAPER has modelled a prehistoric buffalo hunt. Professor BEGAS has been assigned a boar-hunt. There are also groups of fox-hunting, hare-hunting, &c. The old legend of St. HUBERT is to be treated by Professor VON UECHTRITZ. The figures will be in bronze, which is supposed to be best adapted for that class of work, above all when in a place like the Zoological Garden; where there may be a great many mischievous youngsters. The pedestals will, however, be of stone. It is feared that German sandstone will be used, which is easily scratched and injured. What is preferred is Italian, Silesian or Bavarian marble. It has been proposed to reduce the height of the pedestals from 8 feet to 6 feet, but the alteration, it is feared, will not add to the dignity of the groups. The Emperor is, however, more amenable to argument than the majority of the officials.

If all counties resemble East Sussex the new educational committees will have to face unanticipated difficulties in dealing with the school buildings. From a report prepared by a sub-committee it appears that out of 42 schools examined only four can be considered as in a good state, 21 are moderately good and 17 are distinctly bad. The sub-committee do not wish to excite alarm, and they propose to defer action in "good" and "moderately good" schools, and for the present to deal only with the "bad" buildings. In almost every case ventilation and water supply are neglected. In East Sussex there are 170 schools, but time did not allow of the examination of more than 42. It is not likely there will be much difference in the character of the other buildings. The explanation of the neglect is to be found in the desire to keep down expense, and buildings are easily imagined by amateurs as able to exist without repairs. Inspectors also make recommendations which are impracticable or could not be realised without a large expenditure. On the new committees an architect is rarely found, although the advice of one would often promote economy.

ALTHOUGH it is difficult for a visitor to Paris to avoid Passy, which is among the suburbs of the city, yet few strangers are aware that at one time the place gained considerable renown for its mineral waters. There were several sources, but one belonging to the Abbé LE RAGOIS was declared by the Faculty of Medicine to have special

qualities. J. J. ROUSSEAU went there in the hope of a cure, but without success. BENJAMIN FRANKLIN was also a resident during the time he was Ambassador in Paris. The Friends of Parisian Monuments organised an excursion to some of the sources a few days ago. The eighteenth-century buildings still exist. There is a small pavilion, a reading-room and a billiard-room. A few people continue to believe in the springs. The visit was directed by M. CHARLES NORMAND, the architect, who has done much to make the nooks and corners of Paris known to the inhabitants. Passy was at one period selected as a residence by many writers, musicians and artists. Among them were the Abbé PRÉVOST, the author of "Marian Lescaut;" ANDRÉ CHÉNIER, the poet, who was arrested there during the Revolution; BÉRANGER, the song writer; ROSSINI, the composer; LAMARTINE, JULES JANIN, PAUL DE KOCK and others.

THE library of the Patent Office, which is open on most week-days to the public, is becoming very valuable to all who have an interest in technical studies. A series of handy catalogues is in preparation, the latest of which relates to "Architecture and Building Construction." It is a model of its class. Although of small size and costing only 6d., it gives the full titles of over 3,000 volumes. The contents are also classified, and the works are not confined to those in English. Every architectural student will find it advantageous to possess a copy, although he may not be a visitor to Southampton Buildings.

THE variety of books which bear the name of Mr. PERCY FITZGERALD on the title-page testify to his versatility. He has also shown some skill as an artist. Some years ago he modelled a pulpit for a church, which had an imposing effect. His latest effort is a memorial of the late Cardinal MANNING, which can be seen on the left wall of the Catholic church in Maiden Lane. The building is very dark, but the work is visible on most days. The cardinal's head was well adapted for representation, and there were few figure-painters in London during his life who were without a photograph of it. Mr. FITZGERALD has modelled it in profile, and the gilt bronze does justice to it. It is about life-size. There is a wreath around the head. Above is a cross, and below the cardinal's seal. The slab is of red-veined marble, with a border of black marble. Altogether the memorial is effective, and should have for a companion a similar memorial of the cardinal's more learned, and in an artistic sense at least more able, predecessor.

As the American Institute of Architects has its central offices in Washington the members are justified in believing that the rights of the profession against the Government will be asserted whenever there is a necessity. It would not be wise to enter into a quarrel rashly, but it is supposed arrangements are nearly completed for testing the legality of some acts by officials against which architects are bound to rebel. For instance, several Government buildings are about to be erected which must necessarily cost large sums. There is a willingness on the part of the authorities to obtain designs and plans from architects, but their co-operation is expected to be limited to the production of drawings. The realisation of the designs is to be entrusted to agents of a different class, often military engineers. That is a new arrangement, which does not appear to be warranted by the history of architecture in the States. Americans are envious to have their buildings admired by European travellers, but the proposed division of labour will not give the qualities that are necessary to gain praise. It is no excuse if a building should present perverted detail to say the plan was prepared by an architect of reputation. The true amateur is indifferent to plans, and would be satisfied if one did not exist, so long as the actual building can afford him pleasure.

ILLUSTRATIONS.

THE MASTERS OF ART: PAINTERS.

UNIVERSITY COLLEGE HOSPITAL.

HOUSES, PRINCES STREET, W.

THE ZIMBABWE RUINS.

IT is a satisfaction to feel assured that the control of the British South Africa Company will prevent any danger arising to the mysterious remains which are found in their territory. All over Southern Rhodesia ruins of stone buildings or enclosures are to be seen. In the beginning of the sixteenth century some of them were noticed by Portuguese travellers. There are various native traditions about their origin. The most important are those of Zimbabwe. A special report on them has been prepared by Mr. F. P. Mennell, F.G.S., the curator of the Rhodesia Museum, Bulawayo, and we are indebted to the Company for a copy, from which the following extracts will be read with interest by all archaeologists:—

The first authentic account of the ruins was that of Karl Mauch (1874), who visited them in 1871. After the occupation of the country by the British South Africa Company, general attention was attracted to them, and Mr. Theodore Bent in 1890 made the first systematic excavations, which laid the foundations of our present knowledge of the ruins. The work which Mr. Hall is now carrying out on behalf of the British South Africa Company in removing debris and undergrowth has enabled me to gain a much better idea of the main ruins than has hitherto been possible for visitors. Previous excavators had little regard to those who might come after them, depositing their debris on the tops of walls, and in some cases completely concealing important features. Mr. Hall's work has been more carefully executed, and it is to be hoped that the Government will make some permanent arrangement of a similar character to insure the preservation of these unique structures, an archaeological heritage such as no other part of the British Empire can boast.

The ruins themselves are situated somewhat south-east of the intersection of the 20th parallel of south latitude and the 31st meridian east of Greenwich. They are about 16 miles from the town of Victoria, and 230 from Sofala, which is due east and the nearest point on the coast. The ruins are splendidly situated for purposes of defence. Those on the hill are practically impregnable and have been much strengthened artificially. They overlook an immense stretch of country, and care has been taken to erect what are evidently small forts on every eminence around, whilst chains of forts at intervals of 10 miles or so have been traced in many directions, and obviously served for the protection of the roads. The country around is very fertile, and it is probable that the unhealthy swamps to the south were rendered innocuous by drainage, as could easily be done at the present time. It is curious that though gold mining seems to have been the main object of the "ancients" and many gold ornaments have been found in the ruins, there are no old workings within a radius of about 20 miles. It is true that the buildings are on granite, but the metamorphic rocks of the gold belt approach within a few miles.

Zimbabwe is, of course, a native name, and according to several gentlemen who are well acquainted with the native language, it is derived from "zimba," a place, and "ibgwe," plural "mabgwe," a stone, so that it would mean place or building of stones. Others have suggested that it means place of the king, which would accord well with the idea that it was given to the residence of the Monomotopa, once the paramount chief of the country, to which his name was even applied by the Portuguese. They inform us that any place where the Monomotopa had his court was called Zimbabwe, while on the other hand they state that his kraal was a marvellous building of stones, ascribed by natives to the devil, as it was quite beyond their power to build.

The kopje on which one group of ruins is situated occupies a most commanding position. The north-east side is quite inaccessible, and from each end of the smooth face of rock which protects it a wall extends, which must originally have enclosed the main group of ruins on the plain and have been between two and three miles in circumference. The great care taken on the hill in strengthening an already almost inaccessible position seems to show that the builders (who may be termed "the ancients" for want of a better name) were menaced by a large hostile population, and there can be little doubt, as suggested by Bent, that the buildings below were not erected till they had made good their footing in the country. The great elliptical building on the plain is, however, so well preserved and of such importance that it is well to take it into consideration before referring to the other ruins.

The temple, as this remarkable structure has universally and correctly been termed, is undoubtedly the most interesting in many respects of all the Rhodesian monuments. Its external measurement is roughly about 300 by 230 feet, and its walls still rise in places to a height of 30 feet. It stands at the southern extremity of the complex of ruined walls and is constructed without mortar, but with great regularity and solidity. The part of the wall which extends without a break from the west to the north entrance varies in thickness from about 10 to 16 feet at the base and narrows to about 8 or 9 feet at the top. The dressed rectangular blocks of granite with which it is faced

probably average about 6 by 12 inches on the outside, being rather larger than those at most other ruins. The inside blocks are much more roughly trimmed, but the regularity of the courses is preserved throughout the thickness of the wall. A double row of chevron pattern extends for a considerable distance round the outside of the wall near the top, the central part facing about south-east. Monoliths of granite are fixed in the top of the wall, and if these originally projected at all it can never have been more than a few courses higher. The northerly walls are not so thick, but they are of similar construction, and there is no reason to suppose with Mr. Bent that they are of later date. If the southern portion has stood down to the present day, it is hardly conceivable that the original northern part should have required to be rebuilt at a remote period; it is much more reasonable to suppose that where the enclosure is joined by the walls of other ruins, so great a thickness was not considered necessary as on the south, where there are no outlying buildings. The ends of the walls are rounded off on either side of the three entrances, which lie north, north-west and nearly west of the centre of the building. The western entrance has two rounded buttresses of unequal size on the inside. These buttresses are simply built up against the main wall, and the blocks do not dovetail into those of the wall in any way. The same thing applies to all walls meeting at an angle—a fact which renders it very easy to suggest that any particular one may be of later date than some other. The interior of the temple is divided up into separate enclosures by numerous walls, some of which are straight and others curved. They vary greatly in thickness, and while some are as well constructed as the exterior walls, others are much more roughly built, but still essentially similar. The clearing away of the rubbish which formerly obscured all details has revealed a number of interesting features. The entrances to the various enclosures usually have the ends of the walls rounded off on either side; those of what was apparently the most important division (that termed by Willoughby No. 1) are both, however, rounded on the inside and square on the outside. Nearly all the entrances are built in such a way as to remind one of the stone stiles seen in England. The walls rise a foot or two above the floor-level, and there are steps on either side. The different enclosures were evidently at slightly different levels, those nearest the centre being the highest. Traces of cement flooring which has been disregarded by previous excavators are everywhere to be found. That this was part of the original plan is shown by another feature and itself throws light upon the latter. At intervals along the outer wall are square holes which penetrate it from side to side, and have caused much discussion as to their use. Bent came to the conclusion that they could not be drains, which they much resembled, no doubt from the fact that it was difficult to see how they could carry off the water. Willoughby concluded that they were drains, as he found they were flush with the floor. The recent clearing of the remarkable passage-way which leads from the north entrance to the cone leaves no room for doubt on the point. There is a well-made floor of cement running all along the passage, rising and falling slightly in places and with occasional steps. Wherever a hole occurs—and a number have now been found—it is exactly at the level of the floor, and, further, it has been found that similar holes open on to the passage through the inner wall. Similar drains have been discovered in places on the hill, and the fact that such careful provision was made for carrying off the rainfall is in itself sufficient to show that the builders possessed a considerable degree of civilisation.

The most remarkable feature of the temple is undoubtedly the great cone at its south-eastern end. This object, apparently unique in Rhodesia, is sufficient to show the religious character of the building, for here we have beyond question the symbol of nature worship, a cult which long flourished amongst the Phœnicians and other Semitic races, and which has survived down to the present day in a few obscure localities. It is frequently referred to in the Old Testament, and the orgies connected with its observance, associated with the worship of Venus, gave notoriety to the Isle of Cyprus. If further evidence is needed of the religion of the builders, we have it in the phalli which have been unearthed in the great passage almost under the shadow of the cone, as well as upon the hill. Like the walls around, the cone is built of granite blocks and is solid throughout, as has been proved by several investigators who have not hesitated to pull down portions of it for the purpose. It is much to be deplored that this remarkable structure should have been subjected to so much unnecessary vandalism. The destruction appears to have been commenced by Carl Mauch, who destroyed most of the dentelle pattern which ran round it a few feet below the original top and took out a number of stones from the west side. Bent, however, did much more serious harm, and the hole he made on the south side of the cone is likely to cause its collapse at no distant date unless steps are taken to rebuild

the damaged portion. The "smaller cone" which stands by the side of the large one, has already been almost demolished by the growth of a large tree close by. Is it possible that this object, of which only a few courses remain, is the altar?

The hill ruins are situated north of the temple, and the hill itself rises abruptly to over 200 feet above the plain. Two passages leading to the top have now been cleared out, and that on the southern side of the hill, where all the most important buildings appear to have been situated, is especially interesting. It leads in a zigzag course up an almost perpendicular face of rock, and its construction evinces considerable engineering skill in the way difficulties are surmounted; indeed, standing at the foot of the slope, it is difficult to believe that the ascent is practicable. It has (or had) walls on either side, and seems to have been paved with stone blocks, while it gives access to a number of enclosures on the way up. Near the top it traverses a cleft in the rock about 2 feet wide and some 50 feet in length, and is finally carried along the edge of the cliff, overlooked by a wall on which stand five monoliths, to the foot of the elevated platform at the north-east end of what has been termed the "Western Temple." The platform itself is reached by a narrow winding passage through two covered entrances, while on the other side of it a series of steps lead past a dentelle pattern into a more northerly enclosure. On the platform are two granite monoliths still in position, and one of schist which has fallen. The western wall of the enclosure is of special interest owing to its great thickness, careful construction and the unique decoration of round towers and monoliths placed alternately along the summit. It is from this part of the hill that the talc or "soapstone" birds were taken by Mr. Bent, and it is certainly regrettable that we have no records of their original situations. The one lately found by Mr. Hall had evidently fallen from the northern wall of the enclosure where only a single rough granite monolith is now in position.

One of the most easterly enclosures on the south side of the hill has been termed the "Eastern Temple" by Mr. Bent. It has a well-constructed curved wall with a dentelle pattern which probably extended all round the outside from south to east, though there is now a big gap on the south-east. A cemented floor rising to the north in terraces is still traceable, and the ground on which the lower part is laid has been rendered level by filling in with stones as far as the retaining wall. A rounded entrance gives access by a way carried across a cleft in the rock to what Mr. Bent has termed the gold furnace enclosure. I am inclined to agree with Mr. Hall that the so-called gold furnace was nothing more than a Makalanga iron furnace, and that the "rejected casings" of the reef ("banded ironstone") which Mr. Bent speaks of are in reality the leavings of the ore smelted, as they would yield an excellent quality of iron and are of the same nature as the natives smelted until the industry became practically extinct as it is at present. It is only right, however, to mention that Sir John Willoughby found in the cleft below "numerous fragments of clay crucibles containing small beads of gold," so that whatever the nature of the furnace, it is quite possible that gold smelting was here carried on. There were evidently other walls still further east, but only traces of them now remain.

On the north side of the "Eastern Temple" there are two passages between the clefts in the rock. One leads on to the north slope of the hill, while the other ascends to a kind of platform, the highest bit of building that remains, which commands an extensive view towards the north and the south-east. On the other side it is cut off by towering rocks. Round the west side of the "Temple" runs a passage which presents a feature of great interest in the shape of a curious recess. This is roughly rectangular in form with the rounded-off end of a wall at one side and a boulder at the other. A curious system of steps runs towards the wall at the back, but does not admit of its ascent. Just below there is an enclosure with a rounded exterior wall which has six spaces left, evidently for the insertion of posts. It is of interest to note that some excavations recently made at the Khami ruins near Bulawayo have revealed similar features. A passage-way leading up to the highest point of what has always been regarded as the main ruin has a similar stepped recess near the base, and there are post holes along the passage, in at least two of which were found vestiges of wooden posts. Mr. Franklin White found similar post holes at Dhlo-Dhlo and recently also at Regina ruins, and in each case remains of wooden posts were discovered. It has been suggested that these wooden posts were not original, but were inserted at a comparatively recent period in place of earlier stone ones. This is, however, mere conjecture, probably arising from doubts as to the probable antiquity of the wood, and even apart from the question as to the likelihood of any one undertaking repairs of the ruins, there is every indication that they have stood from the time the buildings were erected. It may also be mentioned that in the case

of many entrances there is a space left on either side for a post, and in some instances stone posts are still found in position. As there seems no reason why the posts, if of stone, should have vanished in other cases, it appears probable that wood was a material largely employed.

A detailed description of the remaining enclosures cannot be given here, and a few brief remarks must suffice. One striking feature of which mention must be made is the remarkable passage leading from one of the southern enclosures into an upper enclosure north-east of the platform. It is a narrow cleft in the rock, perhaps 3 feet wide, and for some reason it has angular buttresses built alternately on opposite sides which make the pathway barely admit of ascent. It is now impossible to actually get into the higher enclosure, but this appears to be due to the collapse of some of the masonry. The upper enclosure itself is notable for the great cleft rocks which bound it on most sides and the fine square entrance by which it is approached from the west. Inside this are round buttresses with spaces for posts on either side. The Kaffir occupation of the northern side of the hill has resulted in much destruction, though here and there interesting bits remain, such as the fine wall following the contour of some of the great boulders, and the cracks, sometimes only a few inches wide, carefully filled in with masonry. One passage-way has been cleared out for a considerable distance, and at the base of the hill where it originally ended there is the only example of "herring-bone" ornamentation yet found at Zimbabwe, where decorative patterns are remarkably rare. Extensive excavations would be necessary to gain an adequate idea of the original aspect of this side of the hill, and should yield much valuable information when they can be performed.

In descriptions of a number of ruins, and of Zimbabwe in particular, a great feature has been made by several writers of supposed systems of orientation which were said to be observable. In Mr. Bent's work there is a special chapter contributed by Mr. Robert Swan on orientation and measurements which has attracted considerable attention, and Mr. Swan subsequently extended his theories to other ruins in a paper read before the Anthropological Institute in 1896. Mr. Franklin White was the first to independently investigate the points on which stress was laid by Mr. Bent, and in his excellent description of the Dhlo-Dhlo ruins he showed that there at least none of the rules enunciated in Mr. Bent's book are found to apply. I accordingly paid special attention to the matter and carefully went into the facts on which Mr. Swan's theories are based. It is at once evident, as Mr. Swan himself admits, that "the plan of the great temple suggests that the architects had carelessly drawn a great ellipse on the ground and built round it, getting occasionally out of line and leaving occasional doorways;" but he nevertheless comes to the conclusion "that what were regarded as careless irregularities in construction are, in reality, carefully constructed architectural features," though it is obvious that he takes no account of them in many of his subsequent calculations. It would be waste of time to go into these in detail, but there are some points which cannot be passed over. It will be obvious from a mere inspection of Swan's plan that there is no apparent purpose in the direction of the long axis of the building or in the position of the cone or of the chevron pattern on the wall; they do not bear any definite relation to the rising or the setting of the sun or its greatest altitude. The only basis for assuming the ancients to have taken astronomical phenomena into consideration in their building operations is consequently the position of the altar, which according to the plan in Mr. Bent's book is situated on a line which if continued through the main entrance would point due north. There are, however, no signs of his having made any excavations at the spot indicated; indeed, much of his débris was deposited upon it. Now that this has been cleared away, it even appears that there is a wall running through the supposed site. The altar therefore seems to have no existence in point of fact, and all theories based on its assumed position consequently fall to the ground. The same thing applies to the hill, where there are no traces of an altar in the so-called "Eastern Temple" and where the supposed altar in the "Western Temple" is evidently, as Sir John Willoughby suggested, part of a ruined wall.

Another point on which stress was laid by Mr. Swan was an assumed standard of measurement adopted in the construction of walls both at Zimbabwe and other ruins. Thus, according to Mr. Swan, "the diameter of the great tower seems to have represented the unit of measure in the construction of the curves of the outer walls and all the regularly curved inner walls." He further states that the "diameter of the great tower at its base is 17.17 feet, or 10 cubits, and this is exactly equal to the circumference of the little tower." It is elsewhere stated by Mr. Bent that "by digging to their foundations" very accurate measurements of the cones were obtained. Personally, I am unable to see how the figures were arrived at. On the northern side of the large cone

there are cement steps abutting upon it which effectually prevent any measurements being taken for some distance above the base, so that it is evident that the circumference must have been computed by some indirect method, a fact which should have been stated. In any case the best measurements that could be obtained give the circumference as 57 feet about on a level with the floor, whence we arrive at a diameter of 18.13 feet, which scarcely accords with Mr. Swan's figure. The "smaller tower" has its foundations on the cement floor (the larger one goes down below), and as all débris has now been removed, measurements can be made with as great accuracy as the nature of the structure allows. The figure I arrived at for the circumference was 21 feet 3 inches, which can in no way be reconciled with Mr. Swan's deductions. Yet upon a basis which is now shown to be unsound, a theory has been founded which can only give rise to the gravest misconceptions, and some of its consequences are even more serious. In my opinion none of the walls are sufficiently regular to admit of any theoretical deductions being made from them. Yet when their radius of curvature (some, by the way, are portions of the ellipse) cannot be brought into supposed agreement with the system of measurement based on the diameter of the great tower, all discrepancies are removed by regarding any such parts of the buildings as "rough reconstructions of older walls." Among these "rough reconstructions," it may be stated, is the magnificent western wall on the hill with its unique decoration of monoliths and round towers.

Reference is also made in Mr. Bent's work to supposed observations of northern stars, though no evidence is adduced in support of the statement. If the ancients had any such observations in view when building their enclosures, they certainly selected a very unsuitable site. Most of the buildings on the hill have the view to the north entirely cut off by the great granite boulders, and the majority of monoliths supposed to have been utilised as gnomons are on the southern walls both there and in the temple. The remainder are to the west, and the only ones with a northern aspect are those which formerly stood on the divisional wall of the so-called "Western Temple" which is not an external wall as would be expected, and has a large part of the view interrupted by boulders. I have already referred to the platform overlooking this part of the hill. It has upon it two large monoliths, one upright and the other slanting, which is supposed to have been its original position. Here, if anywhere, one would be disposed to find evidences of astronomical observations being made, and it is remarkable that Mr. Swan has no definite suggestions to make on the point. I should not, indeed, like to say that observations of some kind were not made, but considering how elementary and empirical were ancient notions of astronomy, it is certainly remarkable that the relative positions of the monoliths do not immediately suggest their object. It is needless to discuss their relations to a possible altar, for here again, as I have stated, there is no evidence of such a structure having ever existed. I can only conclude that if the ancients had any system of orientation or measurement, we have not yet arrived at any reliable conclusion as to its nature.

Mr. Menell examines various theories of the origin of the buildings, and in conclusion says:—As to the Rhodesian ruins, there is no definite evidence to show that they were not the work of an indigenous race, and there are many difficulties to be explained away before any theory of their origin can be expected to meet with general acceptance. It certainly seems probable that Rhodesia was the source, or one of the sources, of the "Gold of Ophir," and that the gold was brought thence by the Sabæans. Whether the Sabæans themselves erected the remarkable structures under consideration is quite another matter, and no definite conclusion regarding it can be reached until further evidence is available.

ARBROATH ABBEY.*

THE abbey church of Arbroath was founded by King William the Lion in 1178, eight years after the murder of Thomas à Becket, and five years after his canonisation. The ceremony is said to have been performed on August 9. The foundation-stone seems to have been laid with great solemnity. There was a religious service at which King William, the Bishop of Brechin, the Bishop of Aberdeen and a number of other ecclesiastics were present. The exterior of the abbey church was completed in the year 1233, thus being fifty-five years in building, and it was dedicated in the same year. It is likely that the chancel and transept had been built first and brought into use before the nave was completed. Nothing is known of the designer of the building nor of its builders, but the appearance of the ruins after seven centuries is such that we need not doubt but that they did their work well. The

church, however, is the only part now standing. The other part of the buildings that have come down to our time is the abbot's house, and this building is further interesting as being almost the only abbot's house in Scotland still standing.

The church was in the form of a Latin cross. Its length from east to west within walls was 276 feet; width of nave, 35 feet; and of the side aisles each 16½ feet—making the whole width within walls 68 feet. The height of the walls of the nave was about 67 feet, and the walls of the side aisles were 30 feet high. The length of the transept from north to south was 132 feet. The church is Early Pointed, and shows a transition from the Norman to the Early English. The mouldings are very much decayed owing to the soft nature of the stone of which they are built. The church has been described as consisting of a presbytery, a choir of two bays with aisles and sacristy off the south-east aisle; transepts of two bays with eastern aisle, nave of eight bays with western porch between the two western towers, which are built within the external walls. The western doorway, the principal access to the church, has six columns and a round arch, but the mouldings are in the Early English style. Over this door, on the inside, is a gallery with a double row of pillars, those of the arcade next the nave being octagonal, with pointed arches over them, while those behind are round and carry lintels. Two tall and widely splayed lancet windows, with a round window in the gable, light the south transept. The round window is 12 feet in diameter, and is generally termed "the round O," and may have been filled with tracery in the form of a St. Catherine wheel. The altar of St. Catherine was placed in the south transept under this window. The pillars between the nave and aisles were clustered. Four of these placed at the junction of the nave and chancel and transepts supported the principal tower of the church. This tower was probably 140 to 150 feet high. Of the two western towers considerable portions still stand. The north-western tower, popularly known by the name of St. Thomas, is 103 feet high.

The building on the south side of the chancel was erected by Abbot Walter Paniter about two centuries after the dedication of the church. It was the vestry. The chapter-house was to the south of the church, but only a small fragment of it remains. Of the buildings to the west of the principal entrance to the church enough remains to give a good idea of their general character. These were the parts of the abbey devoted to the transaction of its civil business. They include the gatehouse or pend placed at right angles to the west front. The pend is 61 feet in length, and it had originally a vaulted roof. In it may still be seen the groove of the strong portcullis which defended the entrance to the abbey, and which has for centuries been the heraldic emblem of the corporation of Arbroath. Cardinal Beaton is credited with making some alterations on the pend gateway. To the west of the pend were the regality offices and the castle or donjon tower, now locally known as the Tower Nook. The tower is almost entire and is high-roofed, but the parapet is gone. It was in a ruinous state, and was taken down many years ago. The tower is a grim-looking building, and served the purpose of a fort. The building is 70 feet high, 24 feet square and walls 4½ feet thick. The abbot's house is of several periods. The abbey precinct was enclosed by a lofty stone wall, and extended along the east side of the High Street as far as the present parish church.

A very interesting description of the abbey, written in 1517, was found about thirty years ago in the Vatican Library, of which the following is a translation:—"The monastery is under the invocation of St. Thomas and of the rule of St. Benedict, situated in the county of Angus, distant one mile as the arrow flies from the German Ocean. Close by runs a stream, which in their language is called Brodet, whence the abbey takes its name. The town has about two hundred hearths, is under the regality of the abbot, and inhabited by husbandmen, labourers and a few merchants. The abbey was founded 350 years ago by William King of Scots, who was school companion of St. Thomas and a sharer of his tribulations in England. The form of the church is like that of S. Maria del Popolo, but nearly double in size. It is oblong, with a double line of pillars, almost all of square dark stones. The pavement is similar, and the church truly is a noble and royal work. It has four gates—the principal to the west, two to the south whereby one enters the cloisters, and a fourth to the north, which leads to the cemetery. It has three naves, the largest in the middle and the lesser on the sides, and these lesser ones are formed of the same square stones. But the centre nave is roofed with wood. It is covered in the main part with lead, and the rest of it with wooden shingles. It has a splendid tower with four sides, somewhat higher than the campanile of St. Peter's at Rome, and it has many most excellent bells. The high altar is situated at the top of the church, near the east, at a little distance from the wall, and on it daily two, and frequently three, masses are celebrated with the chant. On the altar for an ornament there is a wooden tabernacle, gilt, in which are these sculptured images: the Saviour, having the world in His hand; St. Mary, the Mother of God, with

* A paper read by Mr. A. Symon at the visit of the Dundee Institute of Architects.

the child Jesus in her bosom; St. Thomas the Martyr, and King William offering the church. Round the altar is an ancient wooden choir, with a double row of stalls. There are besides twelve altars, with three chapels, sufficiently decorated, at which daily masses are read. The sacristy at the south side of the choir possesses a silver cross, very many chalices, other vessels, and silver images of the saints. Also many suits of vestments of gold and silk. In it also are preserved a pastoral staff and a mitre. At the right side of the church is a large and most beautiful organ. Outside the church towards the north is a cemetery, enclosed by a low wall. On the opposite from the cemetery to the south is the cloister, the very ample habitation of the monks, square in form and surrounded by very high walls. In this are two refectories, one for the common days and one for feasts. There is also a dormitory. The chapter-house, the infirmary, the hospice for pilgrims and strangers are ample and well furnished. There is a library which contains 200 and more books. They have many gardens wide and fair. The house of the abbot, though in the same cloister, is separated from the habitation of the monks. The tables of the monks and the abbot are united, and the abbot freely administers ale. There are various parochial churches under the monastery to which the abbot has the right of presentation, and receives from them the tithes, &c. In the monastery there is wont to be an abbot, a prior of the cloister and a sub-prior, both removable at the will of the abbot, and besides that forty monks who live there in good report and most religiously worship God. They ring the nocturnes at midnight and chant the other canonical hours at the proper time. The revenues of the monastery may perhaps amount to 2,000 ducats or thereabout, and consist in the revenues and fruits of the churches and in those of their lands and possessions. Such is the evidence of Sir Arthur Boece, a priest of the diocese of Brechin, Master of Arts and licentiate in civil law, aged thirty-two, when on the 15th day of the month of October he appeared before James Collis, Canon of Glasgow, to whom the case was referred. The monks were Benedictines of the Tyronensian order, and the first colony came from Kelso."

FURTHER DISCOVERIES AT KNOSSOS.

IN a communication to the *Times* from Mr. Arthur J. Evans, he writes:—The fourth campaign of excavation in the great prehistoric palace of Knossos—"the House of Minos"—opened under exceptionally difficult conditions. Already before the work began in February there had been forty days' persistent rain, and for another forty it continued almost without a break. The pits were repeatedly swamped, and the extrication of every spadeful of the sodden earth involved about treble the normal amount of labour. It has needed the furnace blasts from Sahara that have swept over the site during the last few weeks to remind us of our proximity to Egypt. Happily, with this exception, the weather showed itself more favourable during April and May; for the work on this incalculable site has found a quite unlooked for extension, and, vast as the palace area was already ascertained to be, a large tract, including one of the most striking features of the building, has now to be added to it.

In the contemporary Cretan palace excavated by the Italian mission at Phaestos—another traditional foundation of Minos—nothing is more imposing than the broad flights of steps rising about the western court. Of these one forms the actual approach to the great hall, or megaron, but the broader flight, running up immediately from the court at right angles to the other, is backed at the top by a line of wall and is in no sense an approach. It is evident that the steps in this case served the purpose of low seats for spectators, and that in all probability at Phaestos some of the shows in which the lords of Minoan Crete delighted took place in the area below. A great deal of parallelism is observable in the two palaces of Knossos and Phaestos, but hitherto nothing at all answering to this theatral arrangement had come to light on the former site.

This has now been found. In the examination of the northern boundaries of the paved court that lies to the north-west of the palace a broad double flight of steps came into view, descending at right angles to one another, while between them, affording an exceptional point of vantage, is a square bastion with a paved floor at top. The higher of the two flights—that to the east—consists of eighteen steps, about 35 feet in breadth where complete. Unfortunately, owing to the made character of the ground, a large part of the limestone slabs had collapsed, and the whole of those belonging to the north-east corner were missing. Happily, however, not only did enough remain to give the complete height and breadth of the flight, but the lower courses of the supporting wall to the north were preserved throughout its length. In order to restore the original effect and to preserve what remained of this part of the monument from further ruin I have not hesitated to undertake a considerable work of restoration. The

supporting wall has been built up to its original height and the missing sections of the steps replaced.

The southern flight is broader and attained a width of about 50 feet. That it was not primarily an approach is here made clear by a small wall backing one section of it, while the real access to the court above from the region outside the palace is supplied by a raised causeway that cuts the stone tiers diagonally. The diagonal course of this paved path has the effect of diminishing the number of the rows of seats—for so we must call them—on one side so that they vary from six to three. In the middle here there are traces of an entrance from above standing in direct relation to another line of causeway leading to the state entrance of the palace that opens near its south-west angle.

The tiers of seats, rising as described to east and south look down on a square area, the rough paving of which seems to have been originally covered, as elsewhere, with a cement floor. Traces of its original boundary walls are seen to the north and west; and on the west side it is approached by another paved path which traverses the middle of the area and runs thus to the centre of the higher flight of steps. The broad steps at Phaestos are approached by a similar paved way; and this analogy makes it probable that the steps themselves in this case too simply led to a paved platform backed, as there, by a wall—in other words, that they served the purpose of seats rather than of an approach. It is certain from other evidence that they did not lead to any great hall or megaron on this side, and it is also clear that the direct line of access to the palace was not by either of these broad flights, but by the diagonal causeway already mentioned, which runs outside them. The principal function for which this stepped area was designed was certainly of a spectacular nature. The plan is not yet fully systematised, but we have here the germ of all future theatres. It seems to grow out of the informal use for sitting purposes of the spacious stepways in vogue in the Minoan palaces. But the initial stage of evolution is here already reached. The steps are here no longer directly connected with a line of approach, and the enclosed area beneath them serves an independent purpose.

Including the square paved platform—a kind of royal box—that rises between the two tiers of seats, this primitive theatre would have accommodated somewhat over 500 spectators. What shows were provided for them in the area below? It was hardly adapted for the Minoan bull-ring. That something like the sports of the Roman amphitheatre were already known here is shown by a boxing scene exhibited by a vase relief from the palace, and still more clearly by a similar design recently found by the Italian mission, in which the pugilists are seen equipped with the cestus and gladiatorial helmets. Still more do one's thoughts turn to that famous dancing scene of old Knossos, the "Choros of Ariadne," the subject of Daedalos's masterpiece, immortalised by Homer. Profiting by the occasion of the recent visit of a party of German and American archaeologists, conducted by Dr. Dörpfeld, I arranged for a dance of our Cretan workmen and their womenfolk to take place in this prehistoric orchestra. With the peasants seated tier above tier on the low seats on either side, and a more distinguished group (provided with chairs) on the intervening platform, the adaptability of the building to such a purpose received a living illustration. The dance, executed to the strains of the Cretan lyre, was itself a Choros of immemorial antiquity. As the leader, with slow or quickened step according to the measure, sometimes leaping high with an inarticulate cry, led the linked train of dancers round in a mazy course with tortuous turns and sinuous meanders reminiscent of the traditional labyrinth, the onlooker might well forget for a moment that over thirty centuries of ruin and desolation lay between this and the last performance of the kind in the court theatre of Minos.

Between this stepped area and the western court of the palace a conglomeration of irregular small-roomed buildings came to light, and it was hard to understand why such apparently unimportant structures should have been preserved so near the walls of the royal dwelling. The block, as was shown by the fine painted pottery of its lower floor-levels, was of great antiquity—its foundation going back to the Middle Minoan Period, before the date of the later palace—and the reason of its conservation is possibly explained by the occurrence of a miniature example in bronze of the sacred horns that characterise the old Cretan sanctuaries, and of painted pottery showing the same cult object placed before the fetish double-axe of the Cretan Zeus. Whether or not we have here represented an early shrine and its dependencies, it is certain that these irregular buildings contained some objects of exceptional beauty and value. Here were found two large jars of the best palace style—one with naturalistic figures of octopuses, the other showing a design composed of rockwork and Egyptianising plants. Still more important was the discovery of a whole deposit of bronze vessels wedged in between two walls. This consisted of an ewer with a bold embossed pattern and a group of four basins, the rims and broad handles

of which were chased with exquisite bands of relief severally representing a succession of lilies, ivy leaves and fern-like foliage. It is not too much to say that no metal objects of the kind found at Mycenæ itself can compare with these either in technique or in beauty of design. The vessels belong to the latest period of the palace—say to the sixteenth century B.C.—and serve to explain why the metal vases of the “people of the Isles of the Sea” were so highly prized at the Court of Thoëmes III.

Of the wealth of precious vessels once contained in the palace itself the wall-paintings exhibiting cup-bearers and, still more, a series of inscribed tablets containing inventories of metal vases accompanied by illustrations have already supplied sufficient indication. At the time of the final destruction of the building it is evident that objects of metal were very carefully searched for and carried away. There seemed strong reasons for supposing that the remarkable stone chests concealed beneath the floors of the magazines had once contained treasure in various forms. Traces of this had indeed been already found in these so-called “Kaselles” in the shape of abundant remains of gold foil. The renewed exploration of this part of the palace during the present season has now revealed a long line of some 30 additional cists beneath the pavement of the long gallery, and in one of these more distinct evidence of the former concealment of valuables in these receptacles than has yet come to light. The burnt remains of a wooden chest were here found which had been covered by a rich mosaic of porcelain and crystal plaques, forming a pattern largely composed of trefoils. The woodwork, and to a great extent the porcelain, had originally been coated with gold leaf. The chest has a large bronze handle, and other similar handles of bronze were found in neighbouring cists. It is probable that some of these receptacles contained bronze ingots of the kind carried by the Ægean tributaries on contemporary Egyptian monuments. A fragment of a large ingot of this kind was found near a magazine on the east side; and not only are there frequent references to such in the clay archives of the palace, but the Italian explorers have now brought to light a whole hoard in the royal villa at Hagia Triada, near Phaestos, weighing about 70 lbs. a piece.

A greater obscurity attaches to the deep walled chambers of the northern palace region, the exploration of which was already begun last season. A whole system of these, consisting sometimes of long rectangular rooms, sometimes of large square pits, has now, at the cost of much labour, been uncovered. The walls descend over 25 feet sheer below the upper floor level, and it is now clear that these dungeon-like structures belonged to the earlier palace, and were to a great extent filled in at a later date. Here and elsewhere the continued investigation of the earlier strata has produced a multiplicity of new evidence illustrative of the long course of civilised development which on this site preceded the “Late Minoan” stage represented by the palace in its present shape. This “Late Minoan” foundation—the history of which itself covers two distinct periods—cannot, as the Egyptian comparisons supplied by its latest relics show, be brought down beyond the sixteenth century before our era. The Hyksos and thirteenth dynasty objects found in it, but even more the considerable evolution of art perceptible in its different stages, take us back at least to the beginning of the second millennium. But in some respects, especially in the early ceramic fabrics (of which some of the finest examples have come to light within the last few days), the most brilliant days of this early Cretan civilisation lie well beyond this sufficiently remote date. It is satisfactory to be able to record that Egyptologists, including Professor Petrie, who have been recently able to inspect the early objects from this site, have unanimously confirmed the opinion that they point to the civilised intercourse between Crete and the Nile Valley extending back to the time of the earliest dynasties—in other words, at least to the middle of the fourth millennium B.C. And it must be remembered that below this early civilised stratum a vast neolithic layer some 25 feet in thickness, itself divisible into different periods, covers the whole surface of the hill. An entirely new perspective of antiquity has here opened, and the superposition of the successive strata is as clear as in any geological section.

The evidence supplied by the palace itself is confirmed and supplemented by that derived from the private houses of the extensive prehistoric city by which it was surrounded. Investigations carried out during the present season show that on the north-east side these extend to a distance of over a quarter of a mile from the palace walls. Of these by far the most remarkable was one brought to light somewhat below its north-eastern angle facing what seems to have been the former channel of the stream. This house is, in truth, a miniature palace, and from the fact that it is partly built over an area cut out of the rocky steep of the hill it has been preserved in a manner not less extraordinary than the domestic quarter of the palace itself. Here, as there, the whole upper-storey plan can be made out, and of the two staircases that it contains one has a double head above. Unlike the palace, however, which is

largely composed of earlier elements, this building shows a striking uniformity of structure, and exhibits the architectural style of the later palace period in its purest form. There is proportionately less rubblework here, many of the walls consisting entirely of fine gypsum blocks which had been covered by a thin coating of painted plaster. One room so constructed, with a monolithic pillar of the same material in its centre, is specially interesting from the fact that the sockets for the massive beams of the floor above are cut into the stonework, so that the whole can be reconstructed. Of the magnificent furniture once contained in this house the best idea is supplied by a tall painted jar found on the landing of the principal staircase adorned with rich papyrus sprays partly in relief—a hitherto unexampled ceramic technique. But the centre of interest in the house itself is the principal hall, or megaron. The body of this hall, with its light area, column bases and pillars, resembles the hall of the Double Axes of the palace itself on a smaller scale, but its inner end shows a wholly unique arrangement. It terminates here in a kind of cancellus, or raised balustrade, which originally supported two columns. Between these the balustrade is broken by a small ascending flight of three steps, on one of which stood a tall columnar lamp of porphyry-like stone in the position in which it had been originally set. This stepped central opening in the balustrade leads, after a narrow interval, to a square niche in the back wall of the room, lined with gypsum slabs, and containing the remains of a gypsum seat or throne—the occupant of which must have commanded the entire hall. It will be seen that the whole arrangement anticipates in an extraordinary manner that of the later basilica—the columnar nave, the cancellus and tribune. The throne and apse-like recess may all, in one way or other, be brought into the comparison. The very name, indeed, of “basilica,” or “royal hall,” seems here to have been applicable in its most literal sense. The exceptionally fine construction of the building makes it, indeed, natural to suppose that it was in reality, as well as appearance, a miniature palace or royal villa, and that a Minoan prince once filled the seat of honour in its principal hall. Placed as the house is near the stream, in a cool and leafy valley, outside the walls, but close at hand, it must have offered special attractions as a summer pleasurehouse.

CHESTER AND NORTH WALES ARCHÆOLOGICAL SOCIETY.

AT the annual meeting of members of the Chester and North Wales Archæological and Historic Society the Ven. Archdeacon Barber presided. The financial statement showed receipts amounting to 146*l.* 18*s.* 5*d.*, and expenses (including a deficiency of 49*l.*, brought forward from last account and 60*l.* contributed to the museum management committee), amounted to 204*l.* 6*s.* 8*d.*, leaving a balance against the Society of 57*l.* 8*s.* 3*d.*. The Council's annual report having recorded the lectures delivered during the past session, and referred to the visits paid under the guidance of Archdeacon Barber to the cathedral, stated:—“In consequence of the inconvenience occasioned by the subscriptions becoming due on January 1 in each year, and the usual session of the Society not commencing until October 1 following, it has been decided to alter the date upon which subscriptions shall become due from January 1 to April 1 in each year, thus permitting the first half of the Society's year to be set aside for summer excursions, and the latter half for winter evening meetings at the museum. The subscriptions will, therefore, be collected in the summer. During the year volume ix, new series, of the Society's journal was issued to the members, and the thanks of the Society are especially due to the Rev. F. Sanders (the hon. editorial secretary), and also to Mr. R. Newstead, for indexing it and providing most of the illustrations. The volume was of especial interest to the members and to citizens of Chester generally, containing as it did the papers, with illustrations, of the various visits to the cathedral. The hon. treasurer's statement of accounts is submitted, showing a deficit of 7*l.* 16*s.* 5*d.* for this year. It is the endeavour of the Council to issue every year a volume of the Society's transactions, but to do this more members are required. Eighteen new members were elected during the year, and it is hoped, now that the subscription is reduced to 10*s.* 6*d.* per annum, that members will induce their friends to join during the current year. We regret to announce that Mr. Edward Hodgkinson, who for many years has acted as hon. curator and librarian of the Society, has resigned his office in consequence of ill-health. Mr. Hodgkinson has not, however, severed his connection with the Society, having undertaken the duties of honorary secretary. Mr. Robert Newstead has been elected honorary curator and librarian in place of Mr. Hodgkinson. The following gentlemen have been elected to represent the Society upon the Grosvenor Museum management committee, viz.:—Ven. Archdeacon Barber, Mr. T. S. Gleadowe, Mr. Henry Taylor, Mr. Edward Hodgkinson, Dr. J. C. Bridge and Mr. W. W. Tasker.”

Archdeacon Barber, in moving the adoption of the accounts and report, said he thought the Society could congratulate itself upon having if not an eventful a successful year of the Society's work, and they could only hope that their numbers would go on increasing, and that the citizens of Chester and neighbourhood would take an even more lively and practical interest in the work of a Society which had a wonderful field for its operations in that ancient and historic city. It would be out of place for him to make any remarks on the recent journal, but he would call the attention of the public to one paragraph in the report, which said, "The volume is of special interest to the members and citizens of Chester generally, containing the papers of the various visits to the cathedral." He was sure they owed a great deal to Mr. Newstead's labours, and it would certainly fail utterly of its purpose and of the interest he was sure it would excite if Mr. Newstead had not embellished it and enriched it with those excellent illustrations he had supplied. The Archdeacon, after referring to a special donation by the Rev. H. Grantham, said it had been pointed out again and again that they also had to pay a large and heavy rent for their location in that building, hence the necessity of having a substantial income. He hoped they would grow in numbers to such an extent that they would not be faced with that serious difficulty of how to make both ends meet. He reminded the members that during the past year they had had to draw upon capital in order to put themselves straight and pay their proportion to the arrears of debt of that building.

MUD BRICKS IN EGYPT.

EVERYONE who has been to Egypt has at least a passing acquaintance with mud bricks; but when one has lived in a mud-brick hut, cooked food over a mud-brick fireplace, kept chickens in a mud-brick coop, fed one's horse out of a mud-brick trough, and used the same mud-bricks for tables, chairs and missiles, the acquaintance, says a correspondent of the *Manchester Guardian*, grows into something like friendship. One's first introduction to them in such a place as Alexandria is not a very great surprise, because the bricks used, at all events in the modern part of the town, are kiln-burnt like our own at home, and a beautiful rich terra-cotta red. But how a member of the union would scoff at the slow-drawn mule waggon with its scanty load of little irregular oblongs, and how he would fling down his trowel in disgust when they brought him water in an old petroleum tin with an improvised wooden or string handle. But these red bricks are, after all, the newest of new-fangled notions to Egypt, and so are the petroleum tins, for Egypt, as an architectural expression, despite Sphinx or Pyramids or the great halls of Karnak, is from the beginning sun-dried brick. This, of course, is the outcome of the climate, and the mud hut is as obviously Egyptian as the chalet is Swiss, the snow hut Eskimau, or the bamboo house Japanese. Look at its surroundings. On the one hand is the Nile, on the other the desert. The former with its yearly overflow and deposit of thick, rich mud from the equatorial lakes, the second with its barren, lifeless stretch of flint and sand stretching away from the river's flood limit to the massive cliffs of limestone east and west. Of wood there is practically none, save that provided by the tapering branches of the palms or in old age by their rugged, spongy stems, so that we are thrown back for building material upon the Nile mud or the desert limestone. Then the climate. Brilliant sun pours down day after day, and in Upper Egypt there is scarce a cloud in the sky from year's end to year's end; nothing from sunrise to night but dry, shrivelling heat—for baking bricks and never a drop of rain to spoil them. Now the average fellah cares little or nothing for the outer aspect of his house, nor does he wish to have the trouble of taking care of it. What he does want is a shelter warm by night and cool by day, something which it costs little to build, and which when a few years have passed over it he can afford to let fall in ruins, exchanging for another of the same kind.

Obviously, therefore, he does not go to the expense of quarrying limestone. What he does is to puddle some mud at the nearest pond, canal, cut or shadouf, mix with it a little sand to make it hard and prevent its cracking in the sun, press it in a wooden mould, and set the resulting cakes in the sun to dry. There you see them, row upon row, laid out like squares of oatmeal bread prepared for the baker's oven, basking in the sun week after week, or piled one against the other in rough criss-cross jumble, so that they may get well blown and aired in the dry breeze. By-and-by our brown labourer takes his bricks, piles them into four walls in rough regularity, treads down a mud or sand floor, thatches with a bundle or two of durra stalks, and the house is finished. Sometimes a few conical points of clay are added to a gateway or a fantastic pigeon-cote breaks the monotony of the square grey walls, or perhaps a circular granary resembling nothing so much as a

huge church font, in and out of the base of which chickens hop through a tiny opening, and in whose upper basin corn is stored or the householder sleeps in the summer nights. Sometimes the inside of the hut, sometimes the outside, is plastered with sandy mud or a row or two of bricks are laid so that their ends form a rough herring-bone pattern; sometimes a coat of whitewash is added to the interior; or, again, shelves or windows are formed in the walls. But these are superfluous ornaments merely, and the essentials for fellahen comfort remain four mud-brick walls and a cornstalk or palm thatch, as at any time these last 7,000 years.

The mud brick has from time to time been supplanted by stonework for buildings of importance, but there is no doubt that it reigned supreme in earlier ages, and I suppose no place in Egypt can so well prove this point as the old city of Abydos. Here all that is ancient (I speak from an Egyptologist's point of view), all the oldest structures, all buildings that have borne the brunt of time, are made of mud brick. Take, for instance, the Shuneh fort, which stands out alone upon the desert, gaunt and mighty yet, in spite of the thousands of years which have passed over it; there is not a stone used in the whole length and breadth of its massive walls. Or take the royal tombs of the kings, the Kom es Sultan, and the thousands of smaller tombs and ruined pyramids which cover some three or four square miles of desert upon which we are camped; they are built of brick without exception; and in the Temple of Osiris, which forms this winter the centre of Professor Flinders Petrie's work for the Egypt Exploration Fund, all the construction of the more ancient buildings is being traced through endless intricacies of mud-brick wall, and it is only here and there, where extra strength was required for pillars, door jambs, thresholds and pavements, that the old-time builders seem to have employed masonry at all. It is here, if anywhere, that one has the opportunity of learning something about bricks, and this for the very reason that every inch of the final plans of what is considered the most important temple site in Egypt depends upon the accuracy with which the walls of brickwork are disentangled from the rubbish which has filled and buried them.

In the actual practice of excavating in Egypt this is one of the most difficult bits of work. Had one to deal with walls of hard-baked brick nothing could be simpler than to clear rubbish from between them and trace them out to their furthest limits. It would be easy with a stroke of the pick to distinguish walls of that kind from the hardest bed of clay. But with unbaked bricks it is quite another matter. With bricks, which were in the first instance nothing but rectangular blocks of mud dried in the sunshine, and whose only practicability rests in the fact that the climate is almost rainless and the air always ready to absorb moisture, the tracing of ancient walls, in anything like damp ground is very much like looking for a bucketful of fresh water which has been thrown into the sea. In sand, of course, the heat which at a very short distance from the surface retains an average temperature of 80 degs. Fahr. throughout the year tends rather to bake and further harden them. Up to the surface of the sand too they remain perfect in a most wonderful way, and on very old buildings the line of the desert or the curve of any big sand drift can often be traced clearly along the brickwork, those parts which have been exposed being pitted and broken away, while the faces of the bricks below the sand line remain still firm and square. On the Shuneh fort there is an almost perfect arch traced in this way on the surface of the walls, both north and south, and looking as if this had been part of the original plan of the builders.

There could probably be no better example of the fact that the facility with which walls of this kind may be traced varies with their age and depth beneath the surface than that given by the excavations on the Temple of Osiris. Here the surface rubbish was composed almost entirely of limestone chips and dust. As this was cleared brick walls gradually appeared. They were bared without difficulty, and as they dried out in the hot sun it was easy to trace the divisions in the brickwork, and to measure the sizes of the bricks. But in the next clearance matters were not so simple. Below our first lot of walls were others which had borne not only the weight of the massive temple of the twenty-sixth dynasty, but for thousands of years previously the pressure of the other brick walls upon which these had been founded and the tons of rubbish which had accumulated between them. The result of the pressure, combined with the yearly soaking of the Nile water, had been to consolidate the rubbish until it was as hard and firm as any of the walls. In a case of this kind the feel of the pick ceased to be any guide, and it was necessary to have recourse to numerous sections and cross-sections. The faces of the cuttings were all carefully scraped with a knife or trowel, and where this was not sufficient to prove the existence of brickwork they were left to dry in the sun.

In theory wall hunting would appear to be the simplest thing in the world, and yet it must be admitted that there is no royal road to perfection in its practice. Experience and

constant careful attention alone can develop the excavator's skill. Theoretically, brickwork cuts uniformly with a knife, and where a few feet have been trimmed in this way the bricks, which were probably made in different batches and of slightly varying mixtures of clay, will show up as contrasted light and dark oblongs and squares. Where these lie in even horizontal lines they may be taken as showing untouched walling, where they are found lying at various angles surrounded by rubbish and of uneven shape they represent the ruin of a building and cease to be any guide to the size or direction of the walls they once belonged to. When the bricks are of such uniform composition that a section presents no differences of colour, a sufficient exposure to the sun will generally bring out the divisions between the bricks, since the brick surfaces themselves dry out more quickly than the clay with which they were mortared together. But, unfortunately, ancient brick-makers were not always so particular about the material they used; house refuse was often mixed with the clay they moulded, and the resulting brickwork shows in section almost as large a proportion of charcoal and broken pottery as the rubbish which surrounds it. In deep cuttings also weeks may elapse before the sun and wind can make any progress with the drying, during which the excavator is kept kicking his heels in suspense, unable to proceed with a portion of his work until he has puzzled out the meaning of what has already been brought to light.

It has always appeared to me that the Children of Israel must have been in very prosperous circumstances when they were driven to raise such a lamentation at their inability to make bricks without straw. Judging at least by what one finds among the older ruins of Egypt, straw was quite as frequently omitted, in the puddling of the brickmakers' clay, as it was used. In the construction of the Shuneh fort straw was used, and can still be seen, but in many walls quite as old no trace of it is found, and curiously enough those bricks in which some sand only has been mixed with the mud have lasted the best. There seems to have been no definite tradition on the subject. I have spent a whole day sitting on a rubbish heap breaking mud bricks, and I am convinced that as many were made without straw as were made with it.

Whatever may be their defects, it must be admitted that mud bricks have their uses. They cannot, it is true, withstand wet, nor are they calculated to inspire great architectural achievements, but in a climate like that of Egypt what does this matter? The last thing a fellah would think of is to keep in repair what he has built, and even if the wall of your bedroom does melt away (as mine has) under the too vigorous splashing from an early morning tub, this is of little consequence. The price of lunch at a West End London restaurant will build you another just as good. In a sling and for scaring sparrows there is nothing better, and for anyone who is pestered by Arab boys a prehistoric mud brick is probably the best remedy that can be devised. In this country they are always at hand, and the sight of a good shot bursting like a bomb about the offender's ears is a joyful remembrance for many a day.

THE SILCHESTER EXCAVATIONS.

WHILE the excavations at Silchester during the past year have yielded fewer objects than usual of a kind that appeal to the general public, valuable discoveries of a topographical nature have been made. Work was done in parts of four insulæ (28, 29, 30, 31), and in the eastern angle of the old town wall it was found that the main line of street through the city from west to east was deflected near its east end, so as to meet the gate in that quarter, which lay somewhat to the south. One part of the area appears to have been devoted to religious uses in pagan times and to have served as a temple enclosure. In 1890 two temples were found, partly in the churchyard and partly under farm buildings. Not far from the church another has been unearthed, thus illustrating the well-known principle of the continuity of religious sites. It is noteworthy that the axis of the parish church practically coincides with that of a temple a little to the west of it, and it may well be that the present twelfth-century church occupies the site of a temple. The excavations have also resulted in the discovery of several houses of considerable interest. These were originally of the corridor type, but four successive enlargements show a near approach to the courtyard type. Six other buildings were uncovered, and of these two are of a character unknown before. One has a gallery nearly 60 feet long, with a series of openings on one side, as if there had been a portico. To the south is a semicircular structure, which appears to have been entered by a wide arched opening. The long building is suggestive of a modern skittle-alley; and both not improbably stood in the pleasure garden of the small house hard by.

Owing to the circumscribed nature of the sites and the

number of buildings they carried fewer pits than usual were sunk, and consequently the relics found are less in number than in previous years. The principal finds are some fragments of marble, one bearing some letters, which may have come from a temple. These were built into the hypocaust of a house, proving that the temple was ruined before the dwelling was erected. Noteworthy also are some large trays of Kimmeridge shale; the exceptionally large upper stone of a quern of Andernach lava, still retaining the iron loops by which it was turned; and two pots of black Upchurch ware, both covered, one with a tile and the other with a piece of clay, but containing nothing of value. Among the smaller objects are the fragments of a large pane of window-glass, ornaments and toilet implements, a terra-cotta figure, probably a little household deity; a torque, apparently of some alloy of silver; and a silver ring and pin. It may be remarked that very few objects of any metal more precious than bronze have been found at Silchester. Mr. Clement Reid's work on the identification of seeds found in soil undoubtedly Roman has yielded important results. He has added from last year's excavations no less than twenty-four species to the plants already known to have flourished in this country in Roman times. Included in the list are the meadow buttercup, the carrot, knapweed, black nightshade, bugle, three species of bedstraw and two of goosefoot, dock and sedge. Clippings of box were also found, supposed to come from garlands. Some writers claim that this species is indigenous, but this find appears to be the first evidence that it grew in Britain in Roman times. Summarising the work of the committee, it may be said that between 1890 and 1902 inclusive the sum of 6,387*l.* has been spent in excavating about four-fifths of the area, and the cemeteries outside the walls are still to be dug over. The work entails an expenditure of about 500*l.* a year, entirely defrayed by subscriptions, which may be sent to Mr. W. H. St. John Hope, Burlington House, Piccadilly.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting was held on Monday. The following resolution was carried. "That, subject to the sanction of the Lords of the Privy Council, the words 'during the five years from the date of approval of this provision by the Privy Council' be omitted from the proviso of by-law 9."

The Hon. Sec. announced the decease of Valère Dumortier, president of the Société Centrale d'Architecture of Belgium, hon. corr. member. The Hon. Sec. also gave a description of some recent additions to the library.

The report of the scrutineers appointed to direct the election of the Council, standing committees, &c., for the year of office 1903-4 was read, and the following were declared elected:—

President.—Aston Webb, A.R.A., F.S.A.

Honorary Secretary.—Alexander Graham, F.S.A.

Vice-Presidents.—John Belcher, A.R.A., Thomas Edward Colcutt, Alfred Darbyshire, F.S.A. (Manchester), John Slater, B.A. Lond.

Members of Council.—Frank Thomas Baggallay, Charles Edward Bateman (Birmingham), George Frederick Bodley, R.A., F.S.A., John James Burnet, A.R.S.A. (Glasgow), Alfred William Stephens Cross, M.A. Cantab, Ernest George, James Sivewright Gibson, John Alfred Gotch, F.S.A. (Kettering), Edwin Thomas Hall, Charles Henry Heathcote (Manchester), Arnold Mitchell, Edward William Mountford, Professor Beresford Pite, George Halford Fellowes Prynne, Samuel Bridgman Russell, William Howard Seth-Smith, John William Simpson, Leonard Stokes.

Associate Members.—Robert Shekleton Balfour, Henry Vaughan Lanchester, Walter John Nash Millard, Edmund Walter Wimperis.

The unsuccessful candidates were Messrs. A. C. Blomfield, M.A., W. D. Caröe, M.A., H. O. Cresswell, F. R. Farrow, W. M. Fawcett, M.A., W. Flockhart, G. E. Grayson, E. A. Gruning, J. D. Mathews, F. L. Pearson, S. P. Peck, H. H. Statham, C. H. Townsend, S. Trevel, P. Waterhouse, M.A., R. S. Wornum, A. T. Bolton, H. M. Wills.

Representatives of Allied Societies.—George Cappinger Ashlin, R.H.A. (Royal Institute of the Architects of Ireland), James William Beaumont (Manchester Society of Architects), Arthur William Brewill (Nottingham Architectural Society), Horatio Kelson Bromhead (Glasgow Institute of Architects), Alexander Hunter Crawford (Edinburgh Architectural Association), Arthur Harrison (Birmingham Architectural Association), Butler Wood (Leeds and Yorkshire Architectural Society), Joseph Wilson (Bristol Society of Architects), John Woolfall (Liverpool Architectural Society).

Representative of the Architectural Association (London).—Henry Thomas Hare.

Auditors.—J. Ambler, W. A. Forsyth.

Art Standing Committee.—Fellows: J. M. Anderson, W. D. Caröe, M.A., T. E. Colcutt, Sir William Emerson, Ernest George, J. S. Gibson, H. T. Hare, E. W. Mountford,

J. W. Simpson, Leonard Stokes. Associates: R. S. Balfour, H. V. Lanchester, W. J. N. Millard, P. E. Nobbs, M.A., W. H. Romaine-Walker, E. W. Wimperis.

Literature Standing Committee.—Fellows: John Bilson, F.S.A., A. W. S. Cross, M.A., Francis Hooper, W. A. Pite, G. H. Fellowes Prynn, R. Phenè Spiers, Hugh Stannus, H. H. Statham, C. H. Townsend, Paul Waterhouse, M.A. Associates: A. S. Flower, M.A., C. H. Reilly, M.A., Professor R. Elsey Smith, Percy Leslie Waterhouse, M.A., A. M. Watson, B.A., P. S. Worthington, M.A.

Practice Standing Committee.—Fellows: Thomas Batterbury, S. Flint Clarkson, Ernest Flint, George Hubbard, F.S.A., A. Henry Kersey, J. D. Mathews, W. H. Nash, J. O. Smith, T. H. Watson, E. Woodthorpe, M.A. Associates: W. H. Atkin-Berry, C. H. Brodie, Max Clarke, H. H. Langston, A. W. Tanner, W. H. White.

Science Standing Committee.—Fellows: T. Blashill, E. Flint, J. S. Gibson, F. Hooper, George Hornblower, W. E. Riley, H. D. Searles-Wood, A. S. Snell, B. Tabberer, K. D. Young. Associates: H. W. Burrows, Max Clarke, B. J. Dicksee, E. R. Hewitt, G. Pearson, A. D. Watson.

The following candidates for membership were elected:—

As Fellows.—William H. A. Berry, B. W. H. Brameld (Manchester), W. J. Burrows, E. Guy Dawber, Horace Field, J. W. Fisher (Wellingborough), John Gibbons (Manchester), H. J. Lanchester, H. C. Pegg, Reginald Pope (Folkestone), Harry Redfern, H. W. Rising, A. H. Ryan-Tenison, F. W. Tasker, W. H. White.

As Associates.—C. H. Ballantyne (Melbourne), E. A. Jollye (Spalding), A. Woodroffe (Vancouver, B.C.).

As Honorary Associates.—Alfred East, A.R.A., T. H. Mawson, S. J. Solomon, A.R.A.

As Hon. Corresponding Members.—Jean Louis Pascal (Paris), Heino Schmieden (Berlin).

Conditions of Contract.—The Chairman moved with regard to the negotiations with the Institute of Builders in the matter of the "Schedules of Conditions of Contract," that Clause 1 of both documents be amended to read as follows:—1. The works shall be carried out in accordance with the directions and to the reasonable satisfaction of the architect, in accordance with the signed drawings and specification, and in accordance with such further drawings, details, instructions, directions and explanations as may from time to time be given by the architect. If the work shown on any such further drawings or details, or necessary to comply with any such instructions, directions or explanations be, in the opinion of the contractor, extra to that comprised in the contract, he shall, before proceeding with such work, give notice in writing to this effect to the architect. In the event of the architect and contractor failing to agree as to whether or not there is any extra, and of the architect deciding that the contractor is to carry out the said work, the contractor shall accordingly do so, and the question whether or not there is any extra, and if so the amount thereof shall, failing agreement, be settled by the arbitrator as provided in Clause 32, and the contractor shall be paid accordingly. The contract drawings and specification shall remain in the custody of the architect, and shall be produced by him at his office as and when required by the employer or by the contractor.

TESSERÆ.

Portrait Statues in Greece.

IN the early period of sculpture only statues of divinities were made, and up to a comparatively late time these archaic figures were copied for religious and superstitious reasons, and the old formal hieratic type was strictly observed. It was not until the fifty-eighth Olympiad that iconic statues began to be made in honour of the victors in the national games, and these for the greater part were rather portraits of the peculiarities of general physical developments than of the face. Portrait statues of distinguished men now began to be made, but they were very few in number and only exceptionally allowed by the State. The first iconic statues, representing Harmodius and Aristogeiton, were made in 509 B.C. by Antenor. Phidias followed (480 to 432 B.C.), and during his period the grand style was in its culmination, and for the most part divinities or demigods only were thought worthy subjects for a great sculptor. Iconic statues were, however, executed during this period, and among the legendary heroes and divinities which formed the subjects of the thirteen statues erected at Delphi and executed by Phidias out of the Persian spoils, the portrait of Miltiades was allowed. The erection of public portrait statues was, however, very rarely allowed, and the introduction by Phidias of his own portrait and that of Pericles among the combatants, wrought upon the shield of his ivory and gold statue of Athena occasioned a prosecution against him for impiety. It is said that Phidias, in his statue of a youth binding his hair with a fillet, made the portrait of Pantarces, an Elean who was enamoured of the great sculptor and who obtained the victory at the Olympian games in the eighty-sixth Olympiad (B.C. 435).

But this story which is given by Pausanias rests, even by his own account, purely on tradition, and was apparently founded upon a supposed resemblance between Pantarces and the statue. Portraiture in its true sense, however, now began, and soon after the death of Phidias, about the ninetieth Olympiad, Demetrius obtained celebrity as a portrait sculptor. He it was who first seems to have introduced the realistic school of portraiture, copying so carefully from life, particularly in his likenesses of old persons, that he was reproved for being too faithful to nature. Quintilian accuses him of being "nimius in veritate" (xii. 10), and Lucian in his "Philopseudes" calls him an anthropopoios, and describing a statue by him of Pelichus the Corinthian, says it was like the very man himself. Callimachus, also, at the same period obtained a nickname on account of the extreme detail and finish of his works. These artists flourished nearly a century before Lysistratus, and Pliny therefore is incorrect in his sweeping statement that before the time of Lysistratus sculptors had only endeavoured to make their statues as beautiful as possible, and not to give accurate portraits. Still, these men must be considered as exceptions to the general practice, and it was not until the time of Alexander that portrait-sculpture in the sense of accurate likeness was developed.

The High Cross of Bristol.

The history of the High Cross, the "Alta Crux," of Bristol, is curious enough. Built in 1373 on the site of an older one, it was adorned with statues of John, Henry III and the reigning king Edward III. John, be it observed, had, doubtless not without valuable consideration, granted various privileges to Bristol, as to many other towns. Edward IV. was afterwards added. In 1633 the structure was repaired, raised and received four new sovereigns, Henry VI, Elizabeth and the reigning King and his father. We do not hear what happened to the cross in the Civil Wars. It had a better chance of escape than most of its fellows, as at the very moment when most destruction was done in that way, Bristol was held for the king. In 1697 it was again repainted and gilded, and that in such a costly manner that no cross in the kingdom is said to have exceeded it. All this time it had stood in its natural place in the middle of the city. But in 1733 a silversmith, living hard by, was frightened lest the cross should fall and crush him. It was therefore taken down and "thrown by in the Guildhall as a thing of no value"—a process of "throwing by" which we do not quite understand when applied to a stone structure 39 feet 6 inches high. At some time between 1733 and 1763 it was moved from civic to ecclesiastical ground, and with the approbation of the Dean and Chapter re-erected in the centre of College Green. In 1763 it was again pulled down, on this occasion because it was considered an obstruction to the promenade, and deposited in a corner of the Cathedral. Again, we must remark that the deposition of so large an object in a corner of so small a cathedral as that of Bristol must have been a serious obstruction to something or other. At last, in 1766, it was rebuilt in Sir R. C. Hoare's grounds at Stourhead, and in 1851 the good people of Bristol built themselves a new cross.

GENERAL.

The Society of Architects have arranged to visit the International Building Trades Exhibition at the Royal Agricultural Hall, Islington, on Wednesday next, June 17, at 2.15 P.M.

The Annual Fête in honour of Corot, the landscapist, has been held at Ville d'Avray. Among the French artists who participated in it were MM. Gérôme, Carolus-Duran, Guillemet, André Brouillet, Bouché, Barrias. M. Harpignies acted as president.

Canon Routledge, one of the trustees of the ancient Roman remains of Richborough Castle, near Sandwich, is arranging to have excavations carried out of the great mass of concrete there, which has been the subject of much speculation amongst antiquarians. The opinion of Canon Routledge is that this is hollow, and, if this is the case, it is considered it might have been used for storage purposes by the Romans, and possibly for a treasure-house. Further explorations may bring to light all sorts of valuables deposited there by the Roman legionaries and auxiliaries.

The Technical Institute at Portsmouth will cost at least 69,976*l.* Messrs. Armitage & Hodgson's tender would amount to that sum by the omission of various items from the specification. The original amount was 83,583*l.*

The Cottage at Chalfont St. Giles, Buckinghamshire, in which Milton lived, is to be restored at a cost of 300*l.* The building is used as a public museum, and contains a first edition of "Paradise Regained," and some cannon balls fired into the church.

A New Monthly Magazine entitled *Pros and Cons*, and costing only 2*d.*, has appeared. It relates mainly to archaeology, and should help in popularising that and similar subjects. In the last number is one of Mr. S. W. Kershaw's articles on "Kent County Records." It deserves support.

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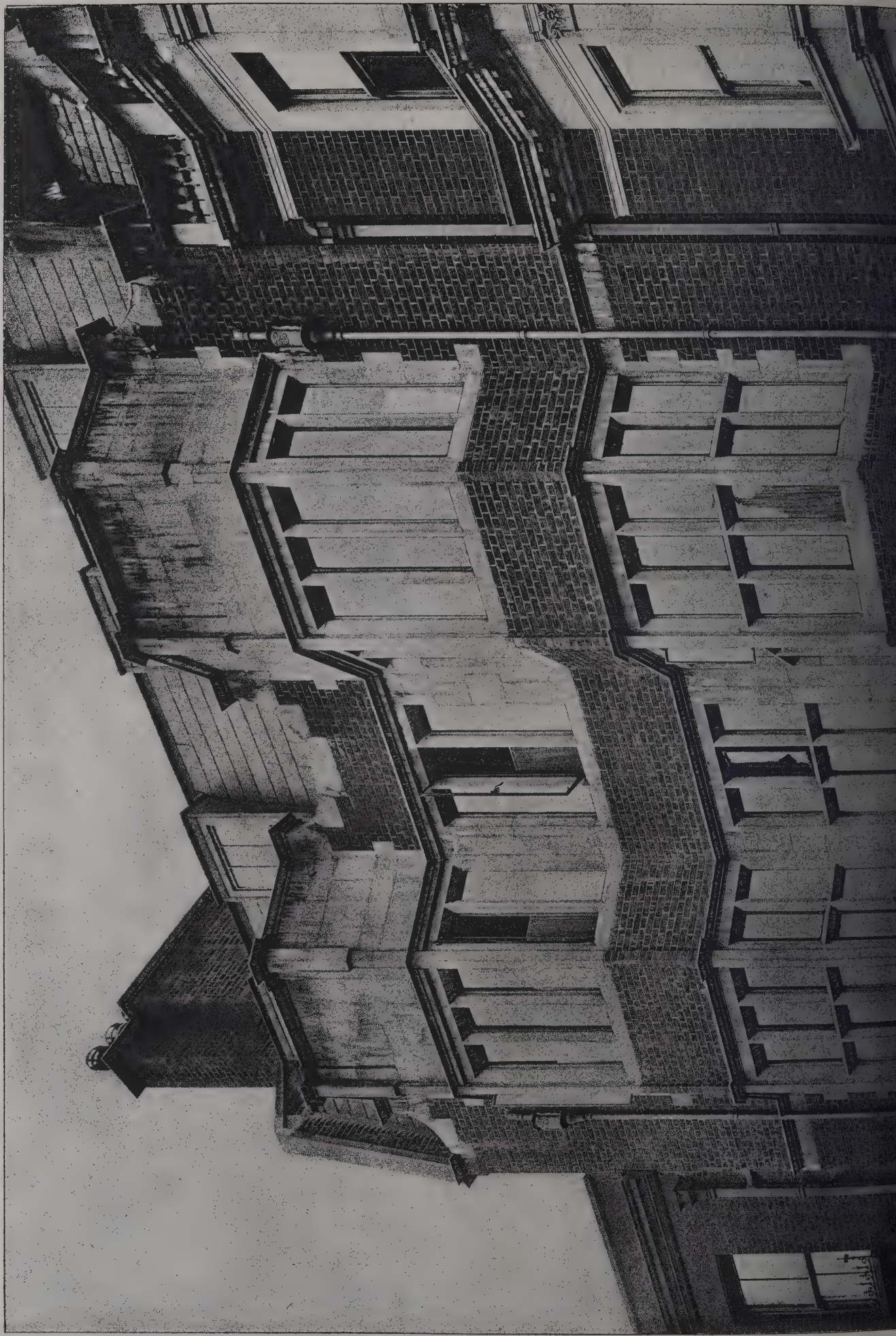
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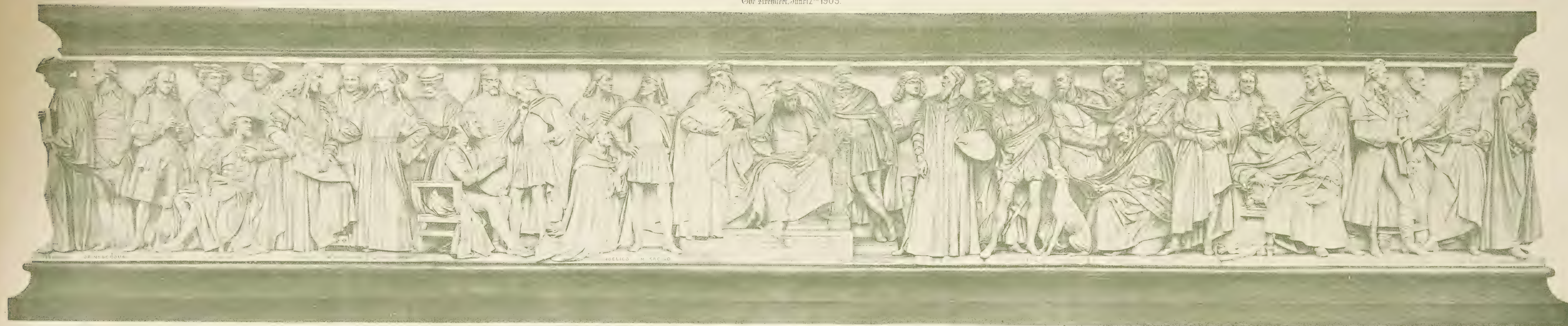
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The Architect, June 12th 1903.



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THE
Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

**** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

BRIDLINGTON.—June 19.—Schemes are invited for providing the village of Flamborough (1,000 inhabitants) with an efficient supply of water. Mr. John B. Simpson, clerk, Rural District Council, Bridlington.

IRELAND.—June 18.—The Trustees of the Limerick free library and museum invite designs from architects in independent practice for the proposed Carnegie library and museum to be built in the People's Park, Limerick. Prizes of 75*l.* and 25*l.* respectively will be awarded to the designs placed first and second in the competition. Mr. W. M. Nolan, town clerk, Town Hall, Limerick.

NEWARK-ON-TRENT.—Competitive designs are invited for Grammar School buildings, to accommodate not less than 150 boys, including 30 boarders, head-master's residence, &c. Premiums of 25*l.*, 15*l.* and 10*l.* are offered. Mr. Godfrey Tallents, clerk to the Governors.

POPLAR.—June 23.—Competitive designs are invited for a public library to be erected in Cubitt Town, Poplar, E. A premium of 75*l.* is offered for the design accepted by the Council, which will be deducted from the architect's com-

mission should he be employed as architect in the execution of the work. Mr. Leonard Potts, town clerk, High Street, Poplar.

TAUNTON.—July 20.—Competitive designs are invited for a library building to be erected in Corporation Street, at a cost not exceeding 5,000*l.* inclusive. Premiums of 30*l.*, 20*l.* and 10*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. George H. Kite, town clerk, Municipal Buildings, Taunton.

CONTRACTS OPEN.

ALLENDALE.—For additions to residence at Ashleigh, Allendale, Northumberland, for Mrs. Lee. Mr. A. B. Plummer, architect, Newcastle and Tynemouth.

ASHTON-IN-MAKERFIELD.—June 17.—For the construction of a boundary wall, about 120 yards long, at the gasworks, Princess Road. Mr. Albert Sykes, clerk, Council Offices, Ashton-in-Makerfield.

BATLEY.—For the erection of twenty new beehive coke ovens at West End Collieries, Batley. Mr. T. H. Brierley, manager.

BEDFONT.—June 22.—For the erection of a new chapel, being first portion of scheme known as Bedfont Tabernacle, near Feltham and Hounslow. Mr. Percy H. Grove, architect, Alma Road, Windsor.

BIRMINGHAM.—June 17.—For the construction of underground sanitary conveniences at Moseley village. Mr. Ambrose W. Cross, surveyor, 23 Valentine Road, King's Heath.

BISHOP AUCKLAND.—June 15.—For alterations and additions to York House, North Bondgate, Bishop Auckland. Mr. William Perkins, architect, Victoria Street, Bishop Auckland.

BRADFORD.—June 15.—For the erection of premises for special classes, with cookery and laundry over, in Usher Street, Bradford. Quantities and form of tender may be obtained at the office of the Architect to the School Board.

BRADFORD.—June 15.—For alterations to premises, 15 Bridge Street, for central tramway offices. Mr. F. E. P. Edwards, city architect, Whitaker Buildings, Brewery Street.

BRIXHAM.—June 16.—For rebuilding the Buller's Arms inn, at Brixham, Devon. Mr. Fred Wm. Vanstone, architect, Palace Chambers, Paignton.

BUCKFASTLEIGH.—July 21.—For pointing and rough-casting the Buckfastleigh parish church spire. Mr. Andrew Warren, surveyor, Buckfastleigh.

BURNLEY.—June 19.—For the erection of a western tower, at Worsthorne Church, near Burnley. Messrs. Austin & Paley, architects, Castle Park, Lancaster.

CANNOCK.—June 25.—For the construction of a road bridge over Goldie Brook, Saredon. Mr. Herbert M. Whitehead, surveyor, Penkridge, near Stafford.

CROYDON.—June 30.—For the erection of fifteen rows of cottage dwellings (146 cottages) for the working classes on the Norbury Estate, London Road, Croydon. Particulars may be obtained at the Housing Section of the Architect's Department, L.C.C., 19 Charing Cross Road, W.C.

DEWSBURY.—June 17.—For the erection of a choir vestry at St. John's Church, Boothroyd, Dewsbury. Messrs. John Kirk & Sons, architects, Dewsbury.

DEWSBURY.—June 25.—For the erection of a boiler-house at the electric-lighting station, Bradford Road. Mr. H. Ellis, town clerk, Town Hall, Dewsbury.

EALING.—June 25.—For the erection of stabling and cart-sheds at the central depôt, Longfield Avenue. Mr. Charles Jones, surveyor, Town Hall, Ealing, W.

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EAST DEREHAM.—June 20.—For the repair of the bridge at Worthing. Mr. Walter M. Barton, clerk, Guildhall, East Dereham.

HALIFAX.—June 17.—For the erection of two houses in Halifax. Mr. Lister Coates, architect, Yorkshire Bank Chambers, Waterhouse Street.

HALIFAX.—June 24.—For the erection of a pair of semi-detached villas and appurtenances on the Upper Greenroyd Estate, Shircoat, Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HELE.—June 19.—For the erection of sorting-room, dining-room, lavatories, &c., at the paper works, Hele, Devon. Mr. C. J. Bulgin, architect, City Chambers, Exeter.

HALEWOOD.—For additions to the Rectory, Halewood, near Liverpool. Mr. A. B. Plummer, architect, Newcastle and Tynemouth.

HEREFORD.—June 19.—For erection of proposed isolation hospital, caretaker's house and other works at Stretton Sugwas, in the county of Hereford. Mr. Ernest G. Davies, architect, 7 Bridge Street, Hereford.

HOUGHTON-LE-SPRING.—June 20.—For the erection of a Wesleyan minister's house, Houghton-le-Spring, Durham. Mr. J. P. Tulip, 6 William Street, Houghton-le-Spring, R S O.

HULL.—June 13.—For the erection of a new entrance and boundary walls in Durham Street, in connection with the Mersey Street Board school, Kingston-upon-Hull. Mr. D. J. O'Donoghue, clerk to the Board.

HULL.—June 16.—For alterations and additions to the Sir Henry Cooper Board school, Bean Street. Mr. D. J. O'Donoghue, clerk, School Board Offices, Albion Street, Hull.

ILFORD.—June 15.—For the erection of a boys and girls' school for 960 children, and an infants' school for 480 children, with latrines, play-sheds, fencing and schoolkeeper's house, on the Highlands site, Cranbrook Park, Ilford. Mr. C. J. Dawson, architect, 6 Cranbrook Road, Ilford.

ILFORD.—June 22.—For the erection of a lodge and convenience at the north-west entrance to the South Park, Green Lane, Ilford. Mr. John W. Benton, clerk, Town Hall, Ilford.

IPSWICH.—June 16.—For the erection of an infants' school and alterations to the existing buildings at Wherstead Road school. Mr. T. W. Cotman, architect, Northgate Street, Ipswich.

IRELAND.—June 15.—For the erection of a chapel of ease at Portadown. Mr. J. H. Chambers, Ulster Bank, Portadown.

IRELAND.—June 15.—For the erection of dwelling-house, shop and out-offices at Muckamore, Antrim. Mr. F. E. Lockwood, architect, 91 Victoria Street, Belfast.

IRELAND.—June 15.—For the erection of five shops at Cromac Square and Cromac Street, Belfast. Mr. Thomas Pentland, architect, 35 High Street, Belfast.

IRELAND.—June 15.—For (1) the erection of a cottage at Shannally, Lintathen; (2) addition to steading at Whitehillocks, Cortachy; (3) addition to steading at Shanzie, Alyth; (4) addition to steading at West Pitnacree, Alyth; (5) covered court at Cullow, Cortachy; (6) covered court at Glenmoy. Mr. John Black, factor, Cortachy.

IRELAND.—June 16.—For the erection of twelve cottages and the fencing of fourteen plots. Mr. Michael Flynn, acting clerk, Rural District Council, Dungarvan.

IRELAND.—June 16.—For the erection of sixteen labourers' cottages and the construction of a main sewer in the town of Carlow. Mr. James Kelly, town clerk, Town Hall, Carlow.

IRELAND.—June 17.—For the erection of three blocks of semi-detached houses on the Douglas Road. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—June 17.—For erection of eight cottages, with out-offices, piers and gates, and for the fencing of eleven 1-acre plots in various townlands, Kinsale, and for alterations, additions and repairs to two houses in the townland of Kilnaglery, including the erection of out-offices, piers and gates for each house. Mr. R. Evans, engineer, 53 South Mall, Cork.

IRELAND.—June 17.—For erection of two semi-detached residences at Tipperary. Messrs. W. H. Hill & Son, architects, 28 South Mall, Cork.

IRELAND.—June 18.—For the erection of a dispensary residence at Ballinvullen, Mitchelstown. Mr. T. A. O'Brien, clerk to the Guardians.

IRELAND.—June 27.—For the erection of a golf house off Hamilton Road, Bangor. Mr. F. C. Doran, hon. secretary, Bangor Golf Club, Ward Avenue, Bangor.

KENSINGTON.—June 18.—For the enlargement of the operating-room at the infirmary, Marloes Road. Mr. Jno. H. Rutherglen, clerk, Guardians' Offices, Marloes Road, W.

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KIRDFOURD.—June 30.—For removing and rebuilding the east wall, and the erection of a new wall in continuation of and in keeping with the present north wall at the churchyard, Kirdford, Sussex. The Vicar, Kirdford, Billingshurst.

LEVENSULME.—June 20.—For the erection of offices, boundary walls, reservoir, excavating and draining, and the construction of road to the refuse destructor, off Barlow Road, Levensulme, Lancs. Mr. James Jepson, surveyor, Guardian Chambers, Tiviot Dale, Stockport.

LINCOLN.—June 19.—For the erection of post office at Lincoln. Particulars and form of contract may be obtained at H.M. Office of Works, Storey's Gate, S.W.

LONDON.—June 22.—For the erection of a cartshed, office, bothy, &c., at Wandsworth Park, S.W. Particulars may be had at the General Section (Architect's) Department, London County Council, 18 Pall Mall East, S.W.

LONDON.—June 23.—For the erection of the second portion of the new car-sheds at Clapham, S.W., including about 400 tons of steel stanchions, girders and roofwork, for the London County Council. Particulars at the Architect's Department (Highways Section), 19 Charing Cross Road, W.C.

LONDON.—June 24.—For widening and enlargement of Victoria station, for the London, Brighton and South Coast Railway Company. Mr. J. J. Brewer, secretary, London Bridge Terminus, S.E.

LONDON, N.—June 25.—For work at the relief offices, Barnsbury Street, and the register office, Liverpool Road, Islington. Mr. William Smith, architect, 65 Chancery Lane, W.C.

LONDON.—July 4.—For the erection of an orphanage for the St. Pancras Female Orphanage and Charity School, 108 Hampstead Road, N.W. Mr. Goss, 3 Broad Street Buildings, Liverpool Street, E.C.

LOWER BEBINGTON.—June 16.—For the erection of a cart shelter and boundary wall in New Ferry, Lower Bebington, Cheshire. Plans may be seen and forms of tender obtained on application to the Surveyor, Council Offices.

MAIDENHEAD.—June 15.—For the erection of a public convenience at the eastern corner of the Moor, Bridge Road. Mr. Percy Johns, surveyor, Guildhall, Maidenhead.

MANCHESTER.—June 15.—For the erection of a medical superintendent's house at Monsall Hospital. Specification and bill of quantities at the office of the City Architect, Town Hall, Manchester.

MANCHESTER.—June 19.—For the erection of receiving and casual blocks at the Chorlton and Manchester joint workhouse. Mr. A. J. Murgatroyd, architect, 23 Strutt Street, Manchester.

MILLOM.—For the erection of four dwelling-houses in Settle Street, Millom.

NEW BROMPTON.—June 16.—For the erection of shop, stores, &c., at Byron Road, New Brompton, Kent. Messrs. J. W. Nash & Son, architects, 245 High Street, Rochester.

NEW MALDEN.—June 22.—For the erection of a small mission church in Burlington Road, New Malden. Mr. Vincent Davison, architect, Market Place, New Malden.

NORWICH.—For the erection of Burlington Buildings, Oxford Place, Norwich. Mr. Owen Bond, architect, 15 Upper King Street, Norwich.

NORWICH.—June 22.—For the erection of retort house, coal stores and other buildings at the gasworks. Mr. Thomas Glover, engineer and manager, Bishop Bridge, Norwich.

POLPERRO.—June 15.—For the erection of a Wesleyan church at Polperro, Cornwall. Mr. W. Marshall, Landividdy, Polperro.

ST. ALBANS.—June 17.—For an extension of the workhouse infirmary. Mr. Henry E. Hansell, architect, Station Buildings, St. Albans.

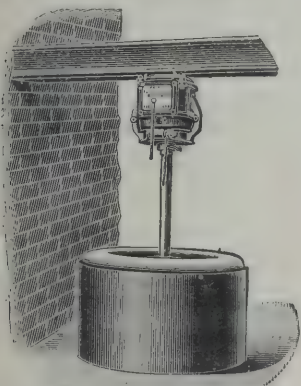
SALFORD.—June 25.—For the erection of retort-house at the Albion Street gas works. Mr. William W. Woodward, engineer, Gas Offices, Bloom Street, Salford.

SCOTLAND.—June 16.—For the erection of a post-office at Linlithgow. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, Edinburgh.

SCOTLAND.—June 16.—For addition to steading, Redbriggs, parish of Monquhitter, and steading, Oldyock, parish of Auchterless. Messrs. James Duncan & Son, architects, Turriff.

SCOTLAND.—June 23.—For the erection of piggery, loose boxes, &c., at Woodilee Asylum, Lenzie. Mr. James R. Motion, Parish Council Chambers, 266 George Street, Glasgow.

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SHEFFIELD.—June 23.—For the erection of University College, Sheffield. Messrs. Gibbs & Flockton, architects, 15 St. James Row, Sheffield.

SMALLBURGH.—June 20.—For the erection of a laundry, receiving wards, &c., at Smallburgh workhouse. Mr. John T. Lee, architect, 26 Great James Street, W.

STAVERTON.—June 15.—For repairs at Staverton Farm, near Trowbridge, and to shed. Messrs. Foley, Son & Mundy, surveyors, Trowbridge.

STOWMARKET.—June 16.—For alterations and additions to the union house and laundry and drainage scheme. Mr. John Corder, architect, Ipswich.

TAMWORTH.—June 27.—For the erection of stables, lofts, harness-room and mess-room in the Leys, and 5 Colehill, Tamworth. Mr. J. W. Godderidge, architect, 4 Bolebridge Street, Tamworth.

TOOTING.—June 17.—For providing and fixing certain joinery fittings at Tooting Bec asylum. Mr. T. Duncombe Mann, clerk, Metropolitan Asylums Board, Embankment, E.C.

TREDEGAR.—June 23.—For the erection of a house adjoining the Congregational church. Mr. T. Jones, secretary, 50 Commercial Road.

UPPER EDMONTON.—June 23.—For the erection of a sorting office. Form of contract may be seen on application to Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

WALES.—June 15.—For rebuilding the Waterloo hotel at the corner of Alexandra Road and Watch House Parade, Newport. Mr. R. J. Pottinger Hodge, architect, Prudential Buildings, Newport.

WALES.—June 15.—For the erection of sixteen or more houses at Pengam. Mr. P. Vivian-Jones, architect, Hengoed, Cardiff.

WALES.—June 15.—For the erection of a schoolroom for Bethel Baptist church, Georgetown, Tredegar. Mr. T. S. Jermin, secretary, 5 Bethel Terrace.

WALES.—June 15.—For the erection of showrooms and stockrooms, Market Square, Merthyr Tydfil. Mr. C. M. Davies, architect, 112 High Street, Merthyr.

WEST HAM.—June 15.—For the cleansing, repair and painting of schools during the summer vacation. Mr. William Jacques, architect, 2 Fen Court, E.C.

WALES.—June 19.—For the erection of eight houses and a lock-up shop at Lanelay Road, Talbot, Llantrisant. Plans may be seen at the Talbot Arms, Llantrisant.

WALES.—June 20.—For alterations and additions to Nazareth Welsh Calvinistic Methodist chapel, Aberdare. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—June 20.—For the erection of fifty-three houses at Aberaman. Mr. T. Roderick, architect, Ashbrook House, Clifton Street, Aberdare.

WALES.—June 20.—For the erection of eleven dwelling-houses at Pant-y-Bryngwyn, Llanrug. Mr. Rowland Lloyd Jones, architect, 14 Market Street, Carnarvon.

WALES.—June 20.—For the erection of a dwelling-house at Llantrisant. Mr. John Williams, 3 James Terrace, Cross Inn Road, Llantrisant.

WALES.—June 20.—For erection of an hotel at Trealew. Mr. A. O. Evans, architect, Pontypridd.

WALES.—June 20.—For rebuilding the Royal Oak, Troedyrhiw. Mr. T. Roderick, architect, Glebeland Street, Merthyr Tydfil.

WALES.—June 20.—For rebuilding 52 and 53 Glebeland Street, Merthyr. Mr. C. M. Davies, 112 High Street, Merthyr.

WALES.—June 20.—For rebuilding 105 and 106 High Street, Merthyr. Mr. C. M. Davies, 112 High Street, Merthyr.

WALES.—June 20.—For the erection of thirty-one cottages at Merthyr Vale. Mr. T. Roderick, architect, Glebeland Street, Merthyr Tydfil.

WALES.—June 22.—For the erection of a Presbyterian chapel and schoolroom, &c., at Beaufort. Mr. Hy. Waters, architect, Beaufort.

WALES.—June 22.—For alterations and additions to the Hengoed Board school, Gelligaer. Messrs. James & Morgan, architects, Charles Street Chambers, Cardiff.

WALES.—June 23.—For the erection of the superstructure and other works for the new lunatic asylum at Whitchurch, near Cardiff. Messrs. Oatley & Skinner, architects, Edinburgh Chambers, Baldwin Street, Bristol.

WALES.—June 24.—For additions, alterations and improvements to the Brynhyfryd Board school, Swansea. Mr.

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G. E. T. Laurence, architect, Chandos Chambers, 22 Buckingham Street, Adelphi, W.C.

WALES.—June 27.—For the erection of a chapel in Llewelyn Street, Pontygaith. Mr. R. S. Griffiths, architect, Tonypandy.

WALES.—June 30.—For the erection of a schoolroom and reseating and erecting new galleries at Bethany Baptist chapel, Pembroke Dock. Messrs. George Morgan & Sons, architects, 24 King Street, Carmarthen.

WEST HAM.—June 23.—For the construction of corrugated iron tramcar sheds, West Ham Lane. Mr. John G. Morley, borough engineer, Town Hall, West Ham.

WHITBY.—June 16.—For the erection of a farmhouse at Ward's Farm, The Grange, Egton Estate. Mr. Edward H. Smales, architect, 5 Flowergate, Whitby.

WOLVERHAMPTON.—For alterations and additions to the Guardians' offices, St Peter's Close, Wolverhampton. Mr. Frank Harrison, clerk, Union Offices, St. Peter's Close, Wolverhampton.

MR. R. A. FARRAR, on behalf of the Local Government Board, held an inquiry at Oswestry on the 5th inst. into the application of the Town Council for sanction to borrow £20,000 for the purchase of land for hospital purposes. The town clerk (Mr. S. Pryce Parry) gave evidence as to the Corporation's borrowing powers; as to the necessity for the provision of a site for dealing with any outbreak of contagious disease in a growing town like Oswestry, and as to the difficulty that had been experienced from time to time in dealing with properly isolating cases of infectious disorders. Dr. Aylmer Lewis, the chairman of the committee, said he considered the site well adapted for hospital purposes, being within easy reach of the borough and in a position well isolated. Evidence was also given by the mayor (Mr. Maclardy), Dr. Beresford (medical officer of health for the borough) and Dr. Wheatley (the county medical officer). There was no opposition, but Alderman Bremner Smith informed the commissioner that if there should be any reversal of policy on the part of the Council, and instead of holding the site in reserve for dealing with smallpox cases as they arose they put up a permanent infectious diseases hospital, he should at once petition the Board against it. A visit was afterwards paid to the site.

TENDERS.

BAILDON.

For street works in Otley Road, Baildon.

F. W. ROBINSON, Shipley (accepted) . . . £95 0 0

BALLIDON.

For the erection of farm buildings, &c., at Ballidon, Derbyshire. Messrs. WILLIAM SUGDEN & SON, architects, Leek.

C. Cornes & Sons . . . £2,385 0 0
T. Godwin . . . 2,332 18 1
W. Smith & Son . . . 1,921 13 0
W. Thorley . . . 1,870 12 1
B. BUXTON, Mayfield (accepted) . . . 1,833 16 0

BEDFORD.

For the erection of a water-tube boiler.

BABCOCK & WILCOX, LTD., Oriel House, Farringdon Street, London, E.C. (accepted) . £1,556 0 0

BEESTON.

For works in forming twenty-two streets at Cross Flatts, Beeston, Leeds. Messrs. JOHN KIRK & SONS, surveyors, Dewsbury.

P. RHODES, Skinner Lane, Leeds (accepted).

BLACKPOOL.

For sewerage works. Mr. ARTHUR HINDLE, engineer, 44 Abingdon Street, Blackpool.

G. FREEMAN & SONS, Hollinwood, Oldham (accepted).

BOSTON.

For alterations and additions to the Shodfriars school, Boston, Lincs. Mr. JAMES ROWELL, architect.

J. Lucas . . . £320 0 0
J. Richardson . . . 293 5 0
H. W. PARKER & SON, Wormgate, Boston (accepted) . . . 289 10 0

BRIGHTON.

For the supply of about 1,400 tons of cast-iron water pipes. Mr. F. J. C. MAY, surveyor.

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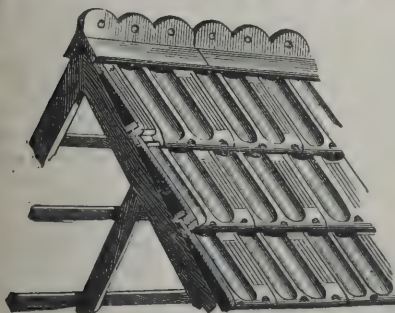
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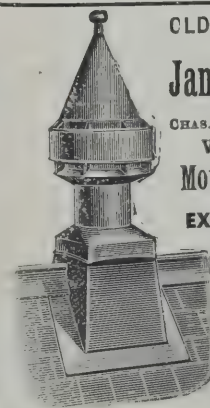
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 J. Longley & Co. 949 0 0
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 SATTIN & EVERSLED, Brighton (*accepted*) 880 0 0

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For sewerage works in Upper Green Lane, Hove Edge. Mr. S. S. HAYWOOD, borough surveyor.
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 W. Jowett 197 3 10
 Hill & White 188 13 6
 H. & W. Barraclough 177 9 0
 L. Cocksedge 167 9 4
 J. WELLS, Norwood Green, near Halifax (*accepted*) 147 11 0

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For the supply and erection of two galvanised iron sheds, each 72 by 18 feet by 16 feet to eaves. Mr. W. B. CHANCELLOR, town surveyor.
 WALKER BROS., Walsall (*accepted*) £124 0 0

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For street works in Cyprus Road, Burgess Hill, Sussex.
 W. Oram £998 13 0
 E. H. KING, Woodbine House, Tarring Road, Worthing (*accepted*) 805 0 0

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 J. BENTLEY, 45 Grange Road, Bradford (*accepted*).

CANTERBURY.

For alterations to premises in the Parade. Mr. ARTHUR C. TURLEY, city surveyor.
 Denne £80 0 0
 C. Mount 75 0 0
 Smith 64 0 0
 G. Browning 61 10 0
 HARRIS BROS., Canterbury (*accepted*) 59 10 0

CHORLEY.

For supply and erection of a steel plate-box girder bridge over the Leeds and Liverpool canal at Cowling, Chorley, Lancs. Mr. WILLIAM LEIGH, borough surveyor.
 BAXENDALE BROS., Kenyon Street Ironworks, Rochdale Road, Manchester (*accepted*).

DEWSBURY.

For heating and lighting the new chapel at the workhouse, Messrs. HOLTOM & FOX, architects.

Accepted tenders.

G. J. Hood, Dewsbury, electric lighting.
 Walslaw & Wood, Batley, heating.

For the erection of a warehouse in Webster Street. Messrs. JOHN KIRK & SONS, architects, Dewsbury.

Accepted tenders.

W. Scott & Sons, Leeds Road, Dewsbury, masonwork.
 J. M. Thornton's Sons, Heckmondwike, slater.
 F. Firth, Dewsbury, ironfounder.

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 R. Oliver 4,200 0 0
 G. T. Manners 4,198 0 0
 G. Bell 4,013 0 0
 J. G. Bradley 3,335 17 6
 J. CARRICK, Durham (*accepted*) 3,032 1 4

ECCLES.

For the erection of additional building at the electricity station, Cawdor Street, Patricroft, Lancs. Mr. N. H. HACKING, architect, 50 Blackfriars Street, Manchester.
 J. F. MOORE, Chadwick Road (*accepted*) £3,416 0 0

EGREMONT.

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 T. WADDINGTON, Scilly Banks, Whitehaven (*accepted*) £38 19 0

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For the erection of small house near Faygate, Surrey. Mr. K. D. S. ROBINSON, architect, 7 Carteret Street, Westminster.
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H. A. KING, Beccles (accepted) £737 0 0

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For the erection of new physical laboratory, &c, Royal Grammar school, Bucks. Mr. ARTHUR VERNON, architect, 29 Cockspur Street, London, S.W., and High Wycombe, Bucks.
G. H. HUNT & SON (including fittings) (accepted) £1,244 0 0

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For repair, decoration and drainage at the chapels and sexton's lodge at Hillingdon Cemetery, Uxbridge. Mr. WILLIAM L. EVES, architect, 54 High Street, Uxbridge.
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For the erection of four dwelling-houses at Close Hill. Mr. J. BERRY, architect, 3 Market Place, Huddersfield.
Accepted tenders.
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J. Sunderland & Sons, Lockwood, joiner.
D. Taylor & Sons, Lockwood, plumber.
T. Longbottom & Sons, Lockwood, plasterer and slater.
J. Crow, Lockwood, painter.
J. Cooke, Huddersfield, concreter.
For reseating the gallery of the Hinchcliffe Mill Wesleyan chapel. Mr. J. BERRY, architect, 3 Market Place, Huddersfield.
Accepted tenders.
J. Shaw, Son & Co., Holmfirth, joiner.
J. Bottomley, Holmfirth, plasterer
Lowton & Hogley, Holmfirth, painter.

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For the erection of additions to stables, Hughenden Manor, Bucks, for Mr. Coningsby Disraeli, M.P. Mr. ARTHUR VERNON, architect, 29 Cockspur Street, London, S.W., and High Wycombe, Bucks.
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F. Southern	1,940	17	8
J. R. Woods	1,894	9	0
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G. Jackson & Sons	1,868	11	0
F. SINGLETON, Witham (accepted)	1,825	0	0

IRELAND.

For the erection of two curates' houses at Bandon, Cork. Mr. M. A. HENNESSY, architect, Cork.			
J. Jones	£1,280	0	0
P. Murphy	1,235	0	0
D. Murphy	1,110	0	0
P. McCathy	940	0	0
J. Buckley	930	0	0
For improving the sewerage of the workhouse, Stranorlar.			
P. Diver	£193	0	0
D. McCaffrey, Strabane (accepted)	132	0	0
For supply and erection of a strong metal pillar pump, with all fittings complete, at the Barronsland well, Thomastown.			
J. KELLY & SON, Kilkenny (accepted)	£16	0	0

KEIGHLEY.

For the erection of combing works at Dalton Lane. Messrs. MOORE & CRABTREE, architects, York Chambers, Keighley.			
<i>Accepted tenders.</i>			
T. Moore, Keighley, contractor.			
J. Hartley, Keighley, joiner.			
Smith & Pickles, Silsden, plumber.			
J. Greenwood, Cross Hills, plasterer.			
W. Thornton, Bingley, slater.			
W. H. Heywood & Co., Huddersfield, glazier.			
Clapham Bros., Keighley, ironfounder.			

LEEDS.

For the erection of a dwarf stone boundary wall at the Lower Wortley recreation ground.			
J. PULLAN, Beeston, Leeds (accepted)	£71	10	6
For supply of cement up to April 1, 1904.			
BROOKS, LTD, Halifax, £1 1cs. per ton (accepted)			
For constructing and fixing an ornamental wrought-iron railing and entrance gates at Lower Wortley recreation ground.			
MOTLEY & GREEN, St. George's Works (accepted)	£71	10	6

LONDON.

For the erection of a sorting office at Kentish Town.

W. Hooper	£3,300	0	0	A.
General Builders' Co.	2,959	0	0	£20
Gould & Maud	2,897	0	0	10
C. Gray-Hill	2,795	0	0	25
Braid, Pater & Co.	2,747	0	0	25
J. F. Holliday	2,739	0	0	—
B. E. Nightingale	2,738	0	0	40
J. W. Jerram	2,723	0	0	—
E. Lawrence & Sons	2,721	0	0	30
G. Godson & Sons	2,669	0	0	15
C. Dearing & Son	2,635	0	0	63
W. H. Lorden & Son	2,588	0	0	—
H. Flint	2,587	0	0	22
Speechley & Smith	2,570	0	0	—
Treasure & Son	2,562	0	0	23
Spiers & Son	2,549	0	0	25
H. Watt & Co.	2,529	0	0	18
Edwards & Medway	2,527	0	0	13
Thompson & Co	2,500	0	0	20
F. Bull	2,498	0	0	—
Foster Bros.	2,496	0	0	—
L. F. Lamplough	2,471	0	0	10
W. Lawrence & Son	2,449	0	0	40
J. Shelbourne & Co.	2,434	0	0	25
E. BROWN & SON (accepted)	2,354	0	0	48

A.—Credit for old materials.

For limewhiting, cleaning and repairs, &c., at the casual wards in Macklin Street, Drury Lane.

W. HARRAP, 19 Torrington Mews, W.C. (accepted).

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14 King Street, Leeds.

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CONTRACTORS' YARDS,
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51 Queen Victoria Street, E.C.

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E. Bradshaw & Son,
322 Fawcett Road, SOUTHSEA,

BRISTOL:
C. Bradshaw & Son,
Chapel Street, St. Philip's Marsh.

LONG BENTON.

For supply, delivery and erection of steel rolled girder-bridge, &c, at the North Farm Burn, Long Benton, Northumberland. Mr. JOHN WALTERS, district surveyor, Long Benton, Newcastle-on-Tyne.
Sprar, Marley & Co £185 0 0
VAUGHAN & DYMOND, Cails Buildings, Quay-side, Newcastle-on-Tyne (accepted) 183 0 0

LYMINGTON.

For the supply of various pipes, valves, bends, castings, &c., in connection with alterations at the waterworks.
G. Napier & Sons, Ltd. £74 0 0
Whitehead & Poole 65 16 0
Hayward Tyler & Co 64 12 6
F. Reeks 59 0 0
Glenfield & Kennedy, Ltd. 58 17 5
J. Lees & Son 55 10 0
D. M. Stevenson & Co. 52 0 0
G. F. Saul 47 10 0
J. BLAKEBOROUGH & SONS, Brighthouse (accepted) 45 5 0

MACCLESFIELD.

For the erection of a laundry, chimney-shaft and lavatory accommodation at the workhouse. Messrs. WHITTAKER & BRADBURN, architects, 19 King Edward Street, Macclesfield.
CLAYTON BROS, Poynton, near Stockport (accepted) £1,898 10 0

MAIDSTONE.

For making-up Bell Lane, Ditton.
J. Coker £426 18 0
J. Ellis & Co. 386 9 6
Arnold & Son 382 10 1
Field & Sons 381 15 1
Chittenden & Simmonds 364 3 9
M. BATCHELOR (accepted). 347 14 11

MIDDLETON.

For erection of a large brick wall in Grimshaw Lane, Middleton Junction, Lancs. Mr. W. WELBURN, borough surveyor.
G. Read & Son £420 0 0
J. Shiel 415 0 0
Ogden & Holland 375 0 0
T. Jackson & Son 329 10 0
R. PARTINGTON & SON, Middleton (accepted) 304 0 0

NASEBY.

For the erection of a new schoolroom at Naseby. Mr. W. J. SMITH, architect, Market Harborough.
J. Hufford £279 10 0
A. T. CORT, Market Harborough (accepted) 273 0 0

NESTON.

For sewerage works at Neston, Cheshire Messrs. KNOWLES & RUSSELL, engineers, 5 Castle Street, Liverpool.
J. TAYLOR, 3 Long Lane, Garston, Liverpool (accepted).

NEWCASTLE.

For the erection of artisans' dwellings in Walker New Road and Albion Row
FRANKLIN BROS., Jesmond (accepted) £11,461 4 1

PICKERING.

For laying about 5½ miles of 4-inch and 3-inch cast-iron water-mains, the construction of impounding chambers, balancing-tanks and a service reservoir, the supply and delivery of 203 tons of cast-iron pipes and fittings, &c., for the Thornton Dale water supply. Mr J. E. PARKER, engineer, Post Office Chambers, Newcastle-on-Tyne.
J. H. Hampton-Matthews £3,906 14 4
R. A. Crowe 3,526 5 3
G. K. Waghorn 3,481 8 5
W. Carr 3,018 18 3
Hardy & Atkinson 2,996 8 7
T. Bell 2,979 19 9
H. Shardlow 2,953 14 7
W. Baker 2,926 17 1
C. BUSHBY & SON, Preston-Leyburn (accepted) 2,500 0 0
C. Birkill 2,351 0 6

Iron pipes only.

Birtley Iron Company 1,235 2 0
E. & W. H. Haley 1,223 0 0
A. S. Cloake 1,151 4 2
Acklam Foundry Company 1,150 13 2

Fittings only.

Blakebrough & Sons 220 10 0

PLYMOUTH.

For supplying and fixing cooking apparatus at the workhouse, Greenbank Road
LETHBRIDGE & CO, Old Town Street (accepted) £193 0 0

The ROMAN CATHOLIC CATHEDRAL,
WESTMINSTER, London, S.W.

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The BRITANNIA NAVAL COLLEGE,
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Bricks were used for the above impor-
tant public works.

THOMAS LAWRENCE & SONS, BRACKNELL, BERKS.

POOLE.

For sewerage works. Mr. JOHN ELFORD, borough surveyor.	
<i>Accepted tenders.</i>	
<i>Langley Road.</i>	
J. Gater, Upper Parkstone, Poole	£19 19 0
<i>Sandecote Road.</i>	
J. Gater, Upper Parkstone, Poole	60 1 0
<i>Pottery Road.</i>	
J. Gater, Upper Parkstone, Poole	22 7 6

PORTSMOUTH.

For decorating the large hall in the town hall.	
C. Grylls	£2,743 0 0
Smith	2,550 0 0
Waring & Gillows	2,073 0 0
Campbell, Smith & Co.	1,810 0 0
F. de Jong & Co.	1,780 0 0
E. Arthur	1,480 10 0
J. M. Boekbinder	1,433 10 6

RADCLIFFE.

For the supply and erection of a 10-ton travelling crane at the electricity works.	
J. SPENCER & CO., Chamber Ironworks, Hollinwood, near Manchester (<i>accepted</i>).	

RAMSGATE.

For sewerage works at Mill Cottages. Mr. T. G. TAYLOR, borough engineer.	
G. Griggs	£298 0 0
Newby & Sons	296 0 0
A. E. Goodbourn	275 0 0
G. HOME, Ramsgate (<i>accepted</i>)	259 0 6
For repairs and painting, &c., at the market Mr. T. G. TAYLOR, borough engineer.	
F. Court	£36 10 0
C. Stead	31 10 0
J. Bussey	30 16 0
J. Assiter	23 12 6
HUCKELL & GRIMBLV, Ramsgate (<i>accepted</i>)	19 0 0

SCOTLAND.

For the construction of footways in Prospecthill Street and Mill Street, Greenock. Mr. A. J. TURNBULL, burgh surveyor.	
A. A. R. Lang	£235 16 5
W. Kirkwood	231 13 8
J. S. Steel	207 16 7
D. K. McPherson	206 15 1
W. KIRKWOOD, 78 Holmscroft Street, Greenock (<i>accepted</i>)	205 0 0
For erecting railing and gates at Westburn Park, Aberdeen Mr. WILLIAM DYACK, burgh surveyor.	
W. MCKINNON & CO., Spring Garden Foundry (<i>accepted</i>)	£442 6 0
For the construction of a street on and through the lands of Lochlands, Arbroath. Mr. P. C. SMITH, surveyor.	
D. Horsburg	£196 10 4
A. Watterson & Sons	113 0 0
D. Dunbar	99 8 2
Brand & Son	90 9 8
CAIRRIE BROS, Arbroath (<i>accepted</i>)	88 9 0
For erection of a corn mill, Buckie Highland Railway station Mr. F. W. GRAY, architect, 14 Viewforth Square, Edinburgh.	

Accepted tenders.

J. Dawson, mason	£394 8 9
A. Murray, joiner	172 0 0
J. Barclay, slater	67 9 0
J & T. Campbell, plumber	31 10 0
W. Brown, Keith, machinist	—

SHEPshed.

For the erection of bank and house at Shepshed, near Loughborough. Mr. ALBERT E. KING, architect, Baxter Gate, Loughborough.	
J. Hutchinson & Son	£3,000 0 0
W. F. Harding	2,885 0 0
T. Barker & Son	2,860 0 0
E. Orton	2,854 0 0
W. Moss & Sons	2,850 0 0
W. Moss	2,753 0 0
A. FOULKS, Loughborough (<i>accepted</i>)	2,730 0 0

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SOUTHEND-ON-SEA.

For internal painting and decorative works at the Victoria Hospital. Messrs. BURLES & HARRISS, architects, Clarence Chambers, Southend-on-Sea.

Choat & Son	£249	0	0
Smith & Chambers	212	0	0
W. Dudley	195	0	0
Drew & Co.	179	15	0
Fuller & Co.	173	12	0
J. Westwood	165	0	0
COOMES (accepted)	152	8	0
Davis & Leaney	150	0	0
Wager & Blakett	143	0	0
T. Horswill	142	10	0

SOUTHAMPTON.

For erecting the superstructure of the new electricity supply station on the Western Shore. Mr. J. A. CROWTHER, borough engineer.

F. Osman	£14,500	0	0
Dyer & Sons	12,500	0	0
Mussellwhite & Sons	12,390	0	0
Jenkins & Sons, Ltd.	11,664	0	0
Hughes & Stirling	11,225	0	0
H. STEVENS & CO., Southampton (accepted)	11,138	0	0

STANLEY.

For providing and laying-down about 366 yards of 21-inch, 340 yards of 18-inch, 22 yards of 12-inch and 20 yards of 9-inch earthenware sanitary pipes, together with manholes and lampholes, at Stanley, Durham. Mr. JOSEPH ROUTLEDGE, surveyor.

S. Dart	£772	13	3
R. Hudson & Sons	762	17	4
G. E. Simpson	700	12	2
A. Routledge	699	14	0
J. Coxon	698	12	9
J. Friend	667	9	3
W. Garnett	593	17	9
J. Thompson	589	11	9
W. Johnson	584	5	0
A. Tench	577	10	0
J. McLaren & Son	567	0	0
JOHNSON & STRONG, Stanley, R.S.O. (accepted)	510	5	10

SURBITON.

For the construction of about 1,800 yards of 9-inch and 12-inch stoneware pipe sewers, with manholes, lampholes and house connections Mr. SAMUEL MATHER, surveyor.

Pedrette & Co.	£3,300	0	0
J. F. Outram	3,258	0	0
Free & Sons	2,860	0	0
G. Bell	2,448	0	0
J. A. Denmore	2,200	10	9
D. G. Rayner	2,047	9	0
S. Atkins	1,965	0	0
S. KAVANAGH & CO., Surbiton (accepted)	1,918	0	0
W. Adamson	1,915	0	0

TILBURY DOCKS.

For the erection of a school for 400 boys and a caretaker's house at Tilbury Docks, Essex. Mr. JAMES THOMPSON, architect, 12 St. Vincent Road, Southend-on-Sea.

S. E. Moss	£10,120	0	0
Foster Bros.	10,111	0	0
W. King & Son	9,914	0	0
W. Parmenter	9,797	0	0
A. E. Tong	9,739	0	0
J. Brown	9,700	0	0
S. Parmenter	9,693	0	0
J. Shelbourne & Co.	9,469	0	0
W. Lawrence & Son	9,149	0	0
E. West	8,968	0	0
H. J. Carter	8,720	0	0
Davis & Leaney	8,547	0	0
F. & E. DAVEY, LTD, Southend (accepted)	8,397	0	0
Dobson & Davison	8,364	0	0
W. E. Davey	7,996	0	0

TYNEMOUTH.

For South African War Memorial. Mr. A. B. PLUMMER, architect, Newcastle and Tynemouth. ROBERT BEALE, Newcastle (accepted).

WASHINGTON.

For New Sinclair Memorial Children's Home. Mr. A. B. PLUMMER, architect, Newcastle and Tynemouth. THOS. HUNTER, Washington, co Durham (accepted).

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TELEGRAMS:

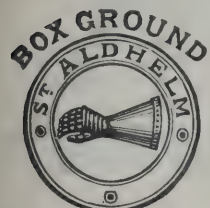
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VARIETIES.

A RETURN shows that the Co-operative Societies of the United Kingdom have built and own 8,247 houses. The number of houses built and sold was 5,080, houses built by members on advances made by the societies numbered 23,940, while the expenditure in this direction totalled 8,127,155/.

THE Benchers of the Temple have not yet considered the report recently made respecting the renovation and repairs necessary for the preservation of the Temple Church. These include the rebuilding of the turret and steeple and the renewing of the great west doorway and the three arches of the porch. The estimated cost of the repairs is over 2,000/.

THE Governors of the Royal Hospital for Children and Women in the Waterloo Bridge Road being in need of funds for rebuilding, &c., have hit on the expedient of setting an illuminated captive balloon, with an appeal for the 50,000/ urgently needed thereon, afloat about 500 feet above the hospital site.

CARBORUNDUM melts only at a temperature far above that ordinarily generated for smelting ores and metals. It is therefore proposed as a coating for fire-bricks, to be applied as a paste with sodium silicate, and tests have shown that $\frac{1}{16}$ th-inch coating protects the bricks from the greatest heat of ordinary work with metals.

THE new police court erected at Ton, South Wales, to serve the upper division of the Rhondda, was opened on Monday afternoon. The building, which cost 3,500/., was erected from designs by Mr. R. S. Griffiths, provides good accommodation, and has been furnished by Mr. Morgan, the Hayes, Cardiff. On a site adjoining a police station is being built at a cost of 2,800/., and this will be in charge of Inspector Williams.

MR. MARTIN, who has been appointed town clerk of Dundee, is a native of that place. He qualified as a solicitor twenty years ago, and since then he has been a partner of the firm of Messrs. Gray & Martin, solicitors. Since 1896 he has held office as one of the directors of the Commercial Union Assurance Company, Ltd, and has a seat on the Edinburgh Board. Under the conditions of appointment Mr Martin will devote his whole time to the duties of the office.

A MEETING of the Council of the Institution of Civil Engineers of Ireland was held on the 3rd inst. at Dawson Street, Dublin, when the annual report was considered and adopted. It showed a satisfactory condition of the Institution, both from the point of view of increasing membership as well

as in the interest taken in the sessional meetings. The facilities afforded for reference and study, particularly to the junior members of the profession and those about to enter it, by the new library and reading-room, were particularly referred to.

A NUMEROUS party of members of the Manchester Field Naturalists and Archaeologists' Society, accompanied by their president, Mr. L. H. Grindon, visited Coventry last week, they being on a brief tour in Warwickshire. On arrival in Coventry the visitors lunched at the Queen's hotel and listened to a paper on "St. Michael's Church," read by Mr. A. J. Brookes. Subsequently they visited St. Michael's Church, Holy Trinity Church and St. Mary's Hall. The mayor (Alderman A. S. Tomson) at St. Mary's Hall expressed the hope that the Manchester tourists would find their visit to Coventry both profitable and interesting. The party subsequently left for Kenilworth.

THE roof of Holy Trinity Church, Southport, has been condemned as unsafe, and the congregation find themselves committed to a considerable building scheme. A proposal for building the nave would mean an expenditure of 12,000/., while the remaining portion of the chancel would absorb 5,000/., of which 2,000/ is to hand. The expenses will be defrayed by voluntary contributions, and a tablet will be erected in memory of the 32nd Company Imperial Yeomanry (Lancs Hussars), who fell in the late war. Holy Trinity Church was built in 1837, and is the third oldest in Southport, ranking after St. Cuthbert's (1730) and Christ Church (1821).

THE great memorial church of the Sacré Cœur in Paris is, like the Westminster Cathedral, to have its campanile. The quadrangular tower on the summit of Montmartre will, when completed, be nearly twice the height of the towers of Notre Dame. According to the plan, the monotony will be relieved by light casements and pillars, and the tower will be surmounted by a dome. Unfortunately, the nature of the site will not allow the structure to bear the weight of the Savoyarde, which will be replaced by a peal of bells, the project of a separate tower for the giant being already prepared.

THE new isolation hospital for smallpox cases lately erected at the Pigeon House for the Dublin Corporation is capable of accommodating thirty-two patients. It is fitted with wards for male and female patients, doctor's quarters, rooms for nurses, kitchen, pantries, bathrooms and lavatories. The building is

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ILLUSTRATIONS.

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UNIVERSITY COLLEGE HOSPITAL.

HOUSES, PRINCES STREET, W.

over 200 feet long with administrative block, constructed of strong timber framing, covered externally with thick non-conducting felt (which renders the building cool in summer and warm in winter), over which is laid galvanised corrugated iron sheets. The interior of the building is lined with varnished match-boarding, and the floor is composed of tongued and grooved boards on strong joists.

TRADE NOTES.

SELBY ABBEY new clock and chimes, erected by Messrs. W. Potts & Sons, clock manufacturers, Leeds, was set going on Tuesday, June 2, by Mr. Mark Scott, J.P., chairman of Selby Urban Council. Messrs. Potts are also replacing the chime clock at Marshes-by-Sea Church, given by the Marquis of Zetland and destroyed by fire last year.

MESSRS. DEFRIES have executed a special design in their new crystal mosaic and relief process for the decoration and illumination of the Council Buildings of the city of Westminster. The main design consists of the arms of the city on an amber crystal ground, relieved with green foliage in alto-relievo. The lions supporting the shield are modelled in high relief in pure white crystal, blue and amber collars, affording a brilliant contrast. No less than 30,000 crystals have been employed in the construction of this decorative illumination, which represents approximately 1,000,000 facets of exceptional brilliancy due to the new mosaic process of producing the crystal. The space occupied by the whole design, including the huge letters "A. E.," is 20 feet by 8 feet in height, and it is expected that the first occasion upon which this resplendent device will be submitted to the public will be when lit up for the King's birthday. The illuminant employed is gas. This is the second largest device produced by Messrs. Defries for any of the boroughs. Birmingham still holds the lead with the huge crystal device provided by the same firm for the Council Hall. Westminster now ranks second, Kensington being third on the list.

BUILDING AND BUILDERS.

THE great epileptic colony of the Lewes trustees at Warford, Cheshire, is now nearing completion. This gigantic establishment, which will cost nearly 100,000l., will accommodate a large number of epileptics, who will be treated on the latest principles. All the houses are fitted up in elaborate style. The institution is undoubtedly the finest of its kind, and stands in a charming part of Cheshire. The opening ceremony is expected to take place in the autumn.

THE foundation-stone was laid on the 4th inst. of a new Wesleyan chapel to be erected at Scriven, near Knaresborough. The chapel will supply a want in a district fast increasing in population, where building operations have for some time past and are still being carried on. The cost of the new chapel and land is estimated at 1,500l. Mr. Danby, of Leeds, is the architect.

IN the Consistory Court of London, held in the Wellington Chapel of St Paul's Cathedral, Dr. T. H. Tristram, K.C., chancellor of the Metropolitan Diocese, granted a faculty to the rector (the Rev. Charles J. Proctor) and the churchwardens of the parish church of St Mary's, Islington, authorising the carrying out of extensive alterations and improvements to the church, at a cost of 12,000l. The terms of the faculty give power to the authorities to extend the church at the east and west ends, to extend the chancel, to remove the existing staircase to the galleries and construct new ones, and to place two other doorways to the church, as well as to reseal the whole of the gallery. Counsel for the petitioners pointed out that there were human remains under the site of the chancel, and as these were to be removed he asked for leave to have them reinterred in some other place. The Chancellor gave the order asked for.

THE LONDON HOSPITAL NEW OUT-PATIENTS' DEPARTMENT.

THEIR Majesties the King and Queen, accompanied by Princess Victoria, proceeded to Whitechapel yesterday in order to formally open the extensive new buildings which have been erected for the accommodation of the out-patients of the London Hospital.

This important building takes the place of the old out-patients' department which occupied a part of the cramped, dark and

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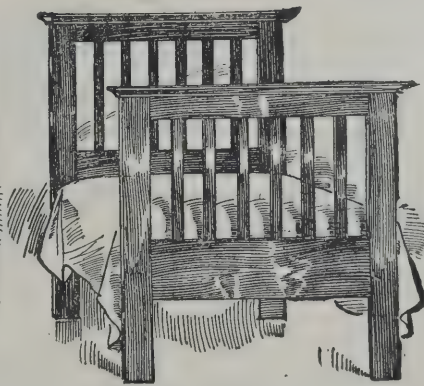
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Quotations
compatible with
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badly-ventilated basement of the old west wing of the hospital. To form a site, it was necessary to demolish forty houses on the hospital estate. The building as completed is the largest of its kind in the United Kingdom, occupying nearly an acre of ground, but is only of an extent necessary to cope with the number of out-patients who require treatment. The total number treated last year was 162,147 persons, and it is anticipated that larger numbers will come to the enlarged department.

The building is entered from Oxford Street through a large vestibule, capable of seating 200 patients, in which are the registration and ticket offices at which new patients are registered, and old cases receive their tickets.

In the centre of the ground floor is a spacious waiting-hall, 105 feet by 55 feet and 40 feet high, having a seating accommodation for 1,000 persons. It has an open steel roof with a lantern the whole length, in addition to large windows in upper part. It was in this hall that the opening ceremony took place.

At the east end of the building there are two complete suites of rooms forming the surgical department. Each suite consists of a surgeon's-room 28 feet by 19 feet, clinical assistant's-room, an operating-room with a recovery-room adjoining, two examining-rooms, and in both male and female sides there are waiting-rooms for old and new cases, with separate surgical dressing-rooms.

At the west end is situated the medical department. This has also two suites of rooms, and each consists of physician's-room 30 feet by 19 feet, clinical assistant's-room, two examining-rooms and waiting-rooms for both old and new cases for each sex.

There are two private entrances from the street for the use of the staff and the officials.

This out-patients department is connected with the west wing of the hospital by means of a subway which is constructed under Turner Street. This enables the officials and indoor hospital patients to get from one building to the other without crossing the public street, and allows of the medicine and stores from the laboratories to be taken direct into the hospital.

On the first floor are situated the aural, dental, obstetric and massage departments, each of which are complete in themselves, having the necessary consulting, operating and waiting rooms.

The aural department at east end has a consulting-room 60 feet by 19 feet, fitted with thirteen tables, two operating-

rooms, with anæsthetising and recovery-rooms and a dark-room, together with male and female waiting-rooms.

The dental department at west end consists of extracting and stopping-rooms, with anæsthetising and recovery, teeth cleaning and waiting-rooms.

The obstetric department has two consulting-rooms, with dressing and waiting-rooms. The massage-room has waiting-room for each sex, and the staff sitting-rooms are also on this floor.

The second floor is devoted to the ophthalmic, photographic and electrical departments.

The ophthalmic department has rooms for surgeons and clinical assistants, large refraction and dark rooms, also operating-room with anæsthetising and recovery-room adjoining. There is a large photographic studio with two dark-rooms and workshop and store attached, also a separate room for radiography.

The electrical department has large consulting-room with electric bath-room, Röntgen ray-room and dressing-rooms adjoining.

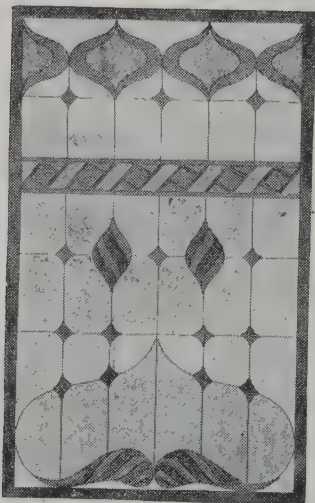
The lupus department is also on this floor, and contains the "Finsen" lamp which Her Majesty presented to the hospital, together with several other lamps. There are separate rooms for the surgical dressing of wounds, medical officer and nurses. The motor-generators and other apparatus for the transforming of the electric current to supply this department are situated in a room on the roof above. Their Majesties inspected and the Queen opened this department.

These upper floors are approached by four staircases and two large lifts.

The basement contains a large laboratory department, fully equipped for the manufacture of medicines, pills, lozenges and soda-water, and has large stores for drugs, dressings and other necessities for medical and surgical treatment. The bath department consists of medicated and Turkish baths, with the necessary dressing and waiting-rooms, and is also in the basement, together with the boilers, isolation-rooms, and accommodation for students, dispensers, porters and other officials.

The whole building is of fireproof construction, and the floors throughout finished with mosaic, and where necessary the walls are glazed with either glazed brick or opalite; the remainder are finished with sirapite plaster. The whole of the rooms throughout the building are fitted up with sinks, lavatories and other fittings, as required for the various purposes.

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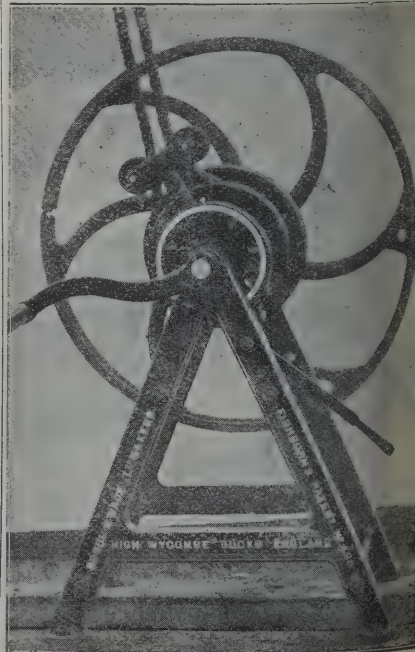
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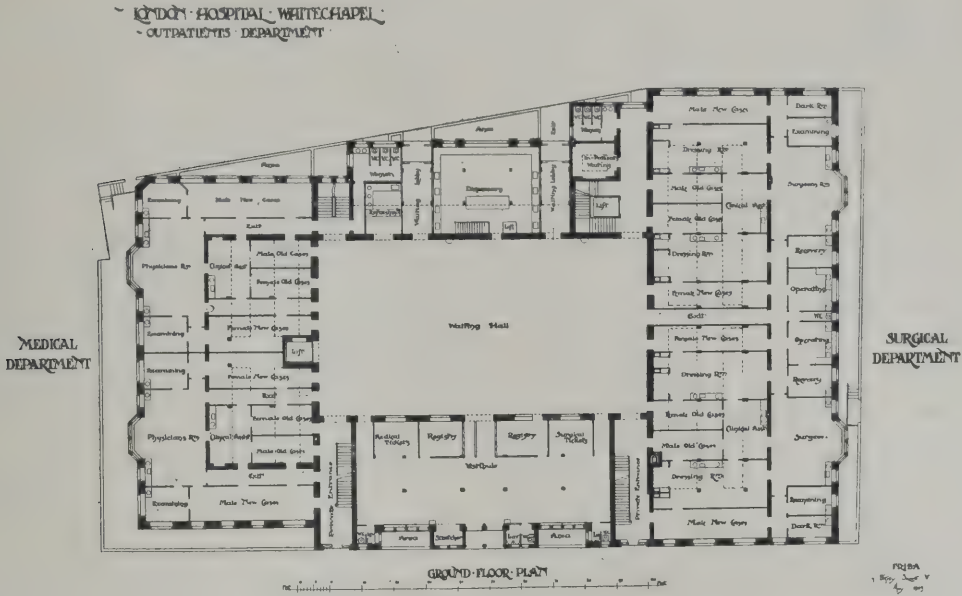


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he whole is fitted with electric light and electrical appliances. he internal and external areas are faced with white glazed icks. The external elevations are of plain utilitarian aracter, being faced with red brick and artificial stone ressings. The large waiting-hall and principal rooms are entilated by a system of inlet and forced outlet ventilation. The total cost of the building is 80,000/., of which sum

the superintendence of Mr. Rowland Plumbe, F.R.I.B.A., of 13 Fitzroy Square, London, W.; Mr. Henry J. Wagg, 15 Great George Street, acted as consulting electrician, Mr. William Shepherd being the builder, and Mr. G. T. Murton, clerk of works. The whole of the mosaic flooring was laid by Diespeker & Co., Ltd, of 57 Holborn Viaduct. The work is on the most up-to-date lines,



28,000/., was given by a friend of the hospital. The balance of 55,000/., still remains to be collected. The buildings have been carried out in accordance with instructions given by the chairman and house committee of the hospital, many months having been taken up in elaborating the scheme in consultation with the medical and surgical staff. The whole has been erected from the designs and under

all angles being rounded to avoid any possibility of the lodgment of dust and dirt. The sinkings to the various gulleys have also been formed in mosaic. The total quantity of mosaic laid by this firm at the London Hospital amounts to nearly 9,000 yards super. They have also fixed in the front block their patent mosaic steps, which are also formed so as to avoid any sharp internal or external angle.

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THE BUILDING EXHIBITION.

It is creditable to Mr. H. Greville Montgomery's power of organisation that each Building Exhibition is an improvement on its predecessor. There is no doubt that when all is arranged the collection this year will in variety and excellence be more representative of the auxiliary industries of architecture than what was seen in 1901. It is needless to say that none of the varied exhibitions which are held at Islington during a year can vie in interest, inventiveness and form with the examples which are produced in connection with building. This year the collection of architectural drawings is more representative of modern style than last year's, and we take this opportunity to express our thanks to the contributors. By their aid the keystone, as it were, has been introduced, for a building exhibition could not be considered as complete if the designers were not able to co-operate. If regarded as the union of art, inventiveness and manufacturing industry, what will be seen in the Agricultural Hall may be taken as forming an industrial spectacle without any parallel. We hope that all who have laboured so efficiently will obtain the reward they desire.

It is not possible in this issue of our paper to give more than a preliminary list of names of the firms exhibiting, with the briefest mention of the specialties shown on their stands, for to attempt a description of them before the exhibits are ready, and in many cases the spaces reserved are still empty, would not only be misleading to our readers, but unfair to the exhibitors.

In the following list some few names may have been omitted, due to the difficulty of collecting information in advance, but they will be dealt with in our succeeding issues containing the full report of the exhibition.

The following firms will be found on the ground floor of the Hall:—

C. Chancellor & Co.—"Velure" Japan elastic paint, "Stripso" paint remover, Coxhead's ventilating cowl, Cowell's iron louver air bricks, &c.

L. Lewis & Co.—Flexible mastic damp course, roofing felt and slaters' felt.

Ewart & Son, Ltd.—Baths, "Lightning" geyser, "Empress" smoke cure and "Victoria" ventilator.

The National Opalite Glazed Brick and Tile Syndicate, Ltd.—Opalite tiling for wall surfaces.

Safety Lift and Elevator Co. (M. T. Medway).—Electric lifts, dinner lifts, electric-lift controllers, &c.

Maughen's Patent Geyser Co., Ltd.—Their well-known specialties, including "Teba" auto-geyser for household supply, both geysers and copper and steel baths.

Fredk Jones & Co.—Silicate cotton applied for fire, sound and heat proofing.

F. A. Fawkes.—Wood mantels, mouldings, panellings, &c.

Simplex Steel Conduit Co., Ltd.—Specimens of their conduits for encasing electric wires, with complete set of fittings.

Columbian Fireproofing Co., Ltd.—Examples of fireproof construction by their system of steel-ribbed bars and concrete.

The London Fireproof Plasterwall Co., Ltd.—Partitions constructed of solid plaster plates grouted together.

Mellows & Co., Ltd.—A roof glazed on the well-known "Eclipse" system.

Cloisné Glass Co.—Windows, fanlights, door panels, window screens, &c., showing the application of "Cloisné" decorative glass.

Walter P. Nottcutt.—A full range of "Bommer" spring hinges, fitted to single and double action doors, &c.

The British Compo-Board Co., Ltd.—A pavilion showing the various applications of compo-board.

The Wood-Carving Co., Ltd.—Fittings, balusters, newels, overdoors, mouldings, &c.

Crittall Manufacturing Co., Ltd.—Metal casements, sashes, iron doors, wrought-iron gates and constructional ironwork.

The Decorative Marmorite Co.—"Marmorite" (a composition of metal and glass), as used for facias, wall panelling, &c., &c.

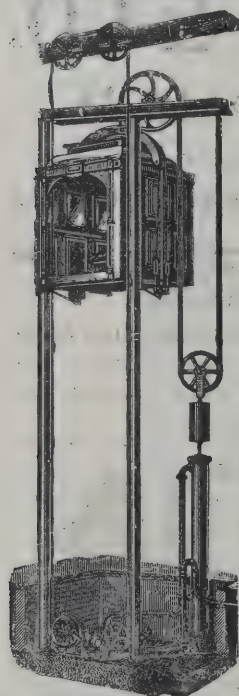
Thos. Wragg & Son—Stoneware pipes and connections, Hassall's and Stanford's patent pipes, Wakefield's corrugated socket pipes and street gullies, Jennings's patent joinder, chimney-pots, sinks, glazed bricks and blue bricks, &c.

George Jennings, Ltd.—Numerous specimens of their sanitary specialties, including baths, closets, lavatories, radial urinals, water-waste preventers, automatic latrines, school latrines, &c.

Venesta, Ltd.—Door, wall and ceiling panels, partitions, &c., embossed and poker-worked in various kinds of wood.

F. McNeil & Co.—Asphaltic roofing, dry-hair felt, frost and sound proof, slag wool for fire and sound proofing, &c.

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FULL LIST, and dates when they appeared, of THE CATHEDRALS which have been published on Application to The Publisher.

Gibbs & Canning, Ltd.—Architectural terra-cotta, doorway, balustrading, coping, &c., vitreous pavings, glazed sanitary ware, bricks, &c.

Patent Indurated Stone Co.—Paving, window sills and heads, moulded steps, coping and balustrading, &c., and indurated sewer tubes.

The British Uralite Co., Ltd.—A pavilion showing uralite in its various forms for roofs, ceilings, partitions, panels, &c. Uralite has now been scheduled by the London fire offices as a first-class roofing material.

J. A. King & Co.—The "Mack" patent fireproof slabs and blocks, as used for partitions, floors, ceilings, for insulating roofs, lining damp walls, &c.

Shanks & Co., Ltd.—Various examples of their sanitary specialties, including baths, lavatories, w.c.'s, kitchen and scullery sinks, &c.

G. Tucker & Son.—Red pressed facing bricks, special bricks for sewers, &c.

S. & E. Collier.—Architectural red terra-cotta, windows, doors, &c., roofing tiles, bricks, chimney-pots, &c.

Colthurst, Symons & Co., Ltd.—Patent interlocking double Roman and corrugated roofing tiles, ridges, finials, &c.

Samuel Elliott & Sons, Ltd.—High-class mouldings and joinery and "Simplex" weather bar.

Sissons Bros. & Co.—Paints, colours and varnishes, Hall's distemper, a sanitary water paint.

Carter & Co.—Tiles, ceramic mosaics, constructional faience and terra-cotta.

Joseph Fishburn.—Fishburn's improved labour-saving winch.

Clark, Hunt & Co.—Builders' ironmongery, brassfoundry, &c., gas and electric-light fittings, stoves, kitcheners, grates, ranges, &c.

Mark Fawcett & Co.—Example of fireproof floor.

Jas. Keith & Blackman Co., Ltd.—Blackman fans for ventilating and drying, radiators and the Keith intensified incandescent gas light, &c.

John Tann.—"Anchor Reliance" safes, strong-room and warehouse doors.

Eastwood & Co., Ltd.—Specimens of Möller & Pfeifer's system of drying and burning bricks and cement, cement dryers.

Towers & Williamson.—Adamantine clinker for stable and other floors.

Jas. Rooke.—Weldon stone for building and ornamental work.

Ripolin, Ltd.—A good display, showing applications of Ripolin paint on various materials, Ripolin washable flat paint.

Moore's Patents Co., Ltd.—Safety windows, door springs and checks, &c.

The Elkay Bath Syndicate, Ltd.—A novelty in baths, a bathroom complete, fitting into the area of a wardrobe.

Mark Gentry.—Red facings, red rubbers, and red moulded bricks.

The Offa Ventilating Co.—The "Offa" inlet ventilator.

O'Brien, Thomas & Co.—Coburn sliding doors, hangers, &c.

Jas. Austin & Co.—Patent sash lines, &c.

Vulcanite, Ltd.—Vulcanite roofing, sheet asphalt, &c.

E. Warrall & Co.—Collapsible gates, wrought-iron gates, railings, &c.

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The Crystalline Co.—Glass tiles and decorations.

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J. C. Broadbent & Co.—Slag wool compositions

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Broad & Co., Ltd.—White enamelled sanitary goods, tiles, cast-iron drain pipes, &c.

Veronese, Ltd.—Specimens of fibrous plaster decoration, &c.

George Wragge, Ltd.—Art metalwork, casements, stained and leaded glass.

London Tablet Co.—Mezotil wall and ceiling coverings.

Hall & Co., Ltd.—Westmoreland and Welsh slates, new rustic slate and stone slating.

B. Ward & Co., Ltd.—Artificial stone steps, balustrading granite, concrete floor, &c.

Stanley Bros.—Glazed bricks, sinks, &c.; red and buff terra-cotta, chimney-pots, tiles, blue bricks, &c.

John Knowles & Co.—Samples of "Vitrifine" stoneware pipes, sanitary fittings, gullies, interceptors, &c.

Asbestos and Asbestic Co., Ltd.—Fireproof plaster, &c.

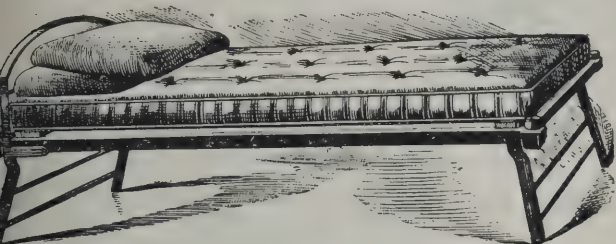
Watson Nelson, Ltd.—Roofing tiles, bricks, facing and ornamental

Yates, Heywood & Co.—Man'els, stoves, tiles, kitcheners, baths, &c.

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Ashton & Green Iron Co.—Kitchen ranges, chimney-pieces, stoves and interiors, baths, &c.

The Aylesford Pottery Co.—Gault bricks, roofing tiles, &c.



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F. Merrick & Son.—Joinery and fire and sound-proof partition bricks.

R. Prower.—Red facing and ornamental bricks.

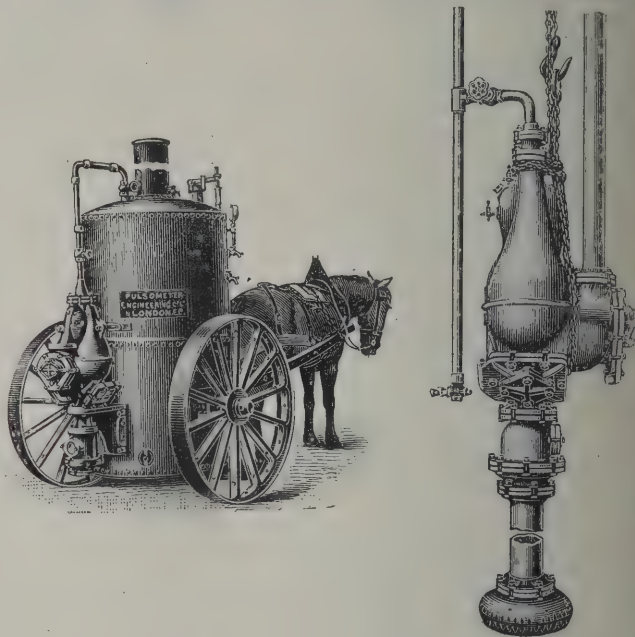
Laverstock and Acorn Red Brick Co.

Geo. Riches.—Red facing bricks, &c.

The New Expanded Metal Co., York Mansion, York Street, Westminster, are showing a structure with a concrete floor 13 feet 6 inches clear span, having an expanded steel tension bond, built 3 feet off the ground so as to show the method of temporary centring, and a strip of the metal tension bond is left exposed throughout the length of the floor so that anyone can see the form of construction. On two sides of the structure is shown 2 inches solid partitioning with window and door details. Expanded steel and brass panels are substituted in place of wooden panels in the door. The other two sides are enclosed with expanded steel verandah railings. Girder and stanchion encasing with expanded steel lathing and plaster, false columns formed of expanded steel lathing and plaster, panelled ceilings, suspended ceilings, coving and false beams of expanded steel and plaster are also shown. A very attractive feature of the exhibit are the sky-signs of expanded steel around the top of the structure.

The Pulsometer Engineering Co., Ltd., of Reading, the well-known firm of pump-makers, have an interesting stand. They are showing, in the first place, the Pulsometer itself, a pump whose name is a household word in the trade. As most people are aware, this ingeniously constructed pump works as well hanging on the end of a chain as on a solid foundation, and visitors to the stand are shown the method of slinging it. The simple valves which work the entire "internal economy" of the pulsometer may be inspected, and anyone who opens the hinged doors that close the valve chambers will admit that simplicity of construction could not well be carried further. Pulsometers will pump practically anything—anything, that is, that will flow at all. Stone, sand, &c., that cut the valves of ordinary pumps to pieces, have no effect on them. Dirty water suits them as well as clean. All those whose business brings them constantly face to face with the problem of removing water from positions where it is not wanted will realise the comfort of having always ready for work a pump that requires no nursing. The company are also showing a singularly handy

contrivance which is certain to attract the attention of those—and they are legion—who realise the advantage of a really portable steam pump. This is a boiler on wheels, carrying a pulsometer attached to its side on a bracket, from which at a moment's notice it can be detached. For temporary work the arrangement is one that should be singularly useful, and it is another proof of the careful way in which every detail that can add to the usefulness of these pumps has been thought out by the makers. An air-lift pump is a novelty, and a working model of one of these of the Pulsometer Company's manufacture will be found at this stand.



It is claimed that these pumps will bring up more water than any other form of pumping apparatus from great depths, and they are of the utmost utility in cases where the water supply is obtained from a borehole. The pump is composed of two tubes, which are let down through the borehole and terminate in a special footpiece. Compressed air passes down one tube

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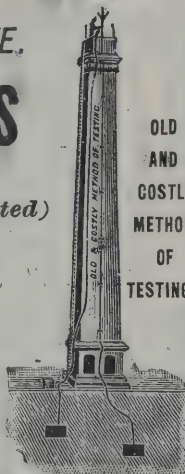
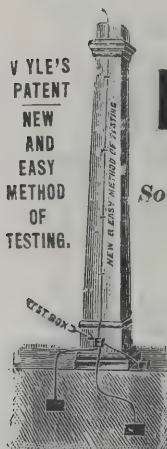
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and the water is forced up the other. The Pulsometer Company's "Union" pipe should also be specially noted. The pipe is of wrought-iron fitted with faced malleable flanges with slotted holes for the bolts. The ease with which the pipes can be shifted, being very light although strong, insures a great saving in time, and they are particularly suitable for sinking work and where pumps have to be suspended. "Deane" pumps, "Caryl" donkey pumps, centrifugal pumps, &c, are also shown.

Messrs. John Bennet Lawes & Co., Ltd, Atlas Works, West Ferry Road, Millwall, exhibit at stand 38, row B, specimen work in "Gypo" fire-resisting plaster and "Lawes" Keene's cement, comprising girders and columns encased in "Gypo" plaster and covered with Portland cement, and galvanised corrugated sheet iron partitions covered in "Gypo" plaster sections papered and painted. All "Gypo" work on iron is placed direct on to the surface of the metal without the aid of any key whatever. Messrs. Bennet Lawes & Co. have just completed covering 50,000 square feet of iron columns with "Gypo" fire-resisting plaster, 1 inch thick, covered with Portland cement and sand 1 inch thick at Millwall Dock granary, this replacing the 4 inches concrete usually adopted, and saving the cost of metallic lathing cradles, &c. The firm also show Mack's fireproof partition slabs covered with "Gypo" polished, mouldings and cornices in "Lawes" Keene's cement, brick and lathwork covered with "Gypo" sections painted and distempered, &c, sundry small specimens of "Gypo" work, &c.

Matthews & Yates, Ltd., of Cyclone Works, Swinton, Manchester, are again exhibiting, amongst other things, their refuse collecting plant. This is, of course, a small plant just intended to demonstrate the principle. It consists of one of the firm's Cyclone steel plate exhausters collecting wood refuse from a hopper and delivering it into one of their improved Cyclone separators, where the material is separated from the air, the former dropping back into the hopper to be re-collected by the blower, and the latter being delivered at the top of the separator and becoming free air again. In a complete installation in a sawmill or joinery works, for instance, each saw, planer, moulder and other machines would be connected by sheet iron branch pipes to a centrally located main of the same material, the main itself being carried to the inlet of the fan. The fan would deliver all the material it collected into the separator, which is as a rule installed in the boiler-house, and the refuse used for firing the boiler. In some installations,

where it is desired to separate sawdust from chips, shavings, &c, two exhausters and two separators are used, one for each kind of material, or by making special arrangements the plant may be used alternatively for chips and sawdust, and each kind therefore kept separately as desired. Another type of fan of which the firm make a specialty is their Cyclone electric blower, shown with open-type continuous-current motor. These are now being extensively used for general ventilating purposes. The firm also show what is absolutely unique, viz. a 48-inch Cyclone electric fan with alternating-current motor. The Swinton patent ventilating gas radiator is also on view, the specialty of which is that they admit into the rooms in which they are placed large volumes of fresh air, warmed without being brought into contact with the gas products.

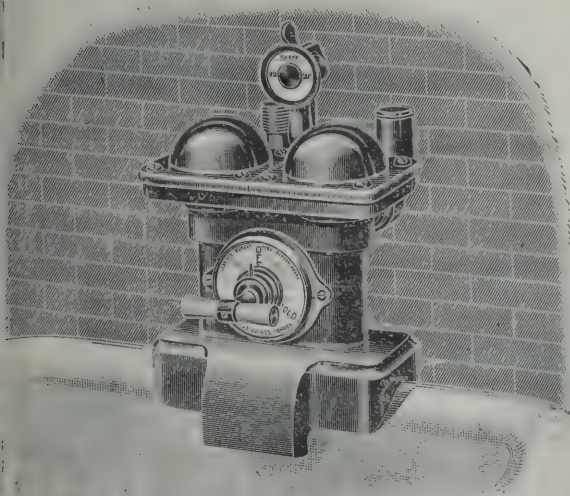
Messrs. Watson & Co., 119 Victoria Street, Westminster, exhibit specimens of their different asphaltes and bitumens. Their standard asphalt, which has been used for Government work in London and elsewhere, is well known and largely used for cavity and insertion work. They have a section of brickwork built with it, and it is their intention to have a trial of its breaking strength. Their Wassal-Seyssel and other mastic asphaltes are too well known to require commenting upon. They also exhibit a specimen of Trinidad bitumen. By extracting the residuum from the Trinidad asphalt, a product is left containing 20 per cent more bitumen than any other and at a lower price.

At Stand C 54 will be found an exhibit which will doubtless attract a large amount of expert attention, comprising as it does a number of specimens of Ford's silicate-of-lime stone, shown by *The Silicate-of-Lime Stone, Ltd.*, of 32 Victoria Street, S.W. This new artificial stone, which we have already had occasion to describe with some minuteness, is composed of pure silicate sand with a small admixture of lime, and is an attractive stone of excellent colour, close texture and great strength and durability. It has been proved, we understand, to be invulnerable to the action of acids as well as to atmospheric deterioration, is very easily worked, and can be made in blocks of practically any size; a block weighing over 2 tons, for instance, will be found here, as well as blocks of smaller dimensions, slates, bricks, carved mouldings, cornices, a font, &c. It may be mentioned that any sand is suitable for the manufacture of silicate limestone. Specimens of excellent quality are shown made from the tailings of the Johannesburg mines, others from sand from Leighton-Buzzard, Glasgow

JENNINGS' PATENT

DUPLEX BATH VALVES

(For Hot and Cold Water Supply), and
HALF-TURN LEVER WASTE.



Upwards of 5,000 in Use in Various Parts of the Country
in Public Baths, Asylums, Hospitals, Infirmarys, Hotels,
and Private Houses.

Cold water can only be admitted first, thus preventing
damage to the Bath, and injury to Bather from scalding.

Supplied to H.M. the King at Windsor Castle, and various
Residences of the Nobility.

AWARDED THE MEDAL OF THE SANITARY INSTITUTE.

THE "LONDON" WARMED FRESH-AIR VENTILATING GRATE & STOVE,

USED IN THE BANK OF ENGLAND and BRANCHES; the CAMBRIDGE HOSPITAL, ALDERSHOT,
and other important Buildings.

NEW SHOWROOMS: Architects are invited to inspect these and other Specialties at the New and Extensive
Showrooms, where further particulars can be obtained. Catalogues on application to

GEORGE JENNINGS, LIMITED,

BY SPECIAL APPOINTMENT SANITARY ENGINEERS TO H.M. THE KING.
LAMBETH PALACE ROAD, LONDON.

Telegrams.
"JENNINGS, LONDON."

Telephone,
680 HOP.

Birmingham, &c., and all is found equally suitable. Indeed, it is explained that wherever sand exists works can be set up and stone and (which is perhaps of more significance) bricks manufactured at the minimum of cost. Among many advantages that Mr. Ford maintains for his stone is its cheapness, as it can be manufactured at 3d. per cubic foot, and the bricks at about 12s. per 1,000.

Many important exhibits are located in the Gallery, amongst them being:—

The Patent Victoria Stone Co, Ltd, who are showing a moulded carved porch with moulded eills, columns, jambs and circular arch; also flight of moulded bracketed steps and landing.

The Hard York Non-slip Stone Co.—Stone flags for footway paving, radiated corner cut from square flag; also sunk rebated channelling, moulded and plain steps, copings, &c.

The British Paving and Granite Co.—Norwegian non-slippery granite setts, Irish and Swedish macadam, Welsh and Irish setts. This company and the Hard York Non-slip Stone Co. are branches of Messrs. Brookes, Ltd.

Empire Stone Co. (Mr. T. J. Dowell, managing partner)—Flight of moulded steps, doorway entrance in Portland and yellow Mansfield, windows in red Mansfield, paving, &c.

Acme Wood-Block Flooring Co, Ltd.—Duffy's patent wood-block flooring.

J. Defries & Sons.—Equifex disinfectant appliances, Pasture Chamberland filters.

W. E. Farrer.—Automatic alternative distributing apparatus for small bacteria beds, Tarfit urinals, patent syphon flushing apparatus.

Jas. Wainwright & Co., Ltd.—Seysse and metallic asphalte, asphalte for damp-course, tar macadam.

Wm. Griffiths & Co., Ltd.—Broken granite, setts and curbing.

Ames Crosta Engineering Co, Ltd.—Ames Crosta's patent self-adjusting pipe joints, Crosta's surface-water gullies, Ames's stoneware conduits for electric cables.

Sutton & Co.—Impermeable stoneware sewerage pipes, with junctions, bends, yard and street gullies, Henman's channel gully and trap, Stanford jointed pipes, Sutton's patent flush joint, Green's patent "Wyvurst" channels.

Joseph Richmond & Co., Ltd.—Working models of electric push-button lift, self-sustaining dinner-lift, street orderly bin.

W. F. Stanley.—Surveying, measuring and drawing instruments.

Imperial Stone Company.—Paving, copings, steps and sewerage pipes.

Bradshaw & Co.—Samples of asphalte, asphalte cauldrons, contractors' trestles.

W. Salter & Co.—Asphalte paving for floors, paths, roofs and damp-courses.

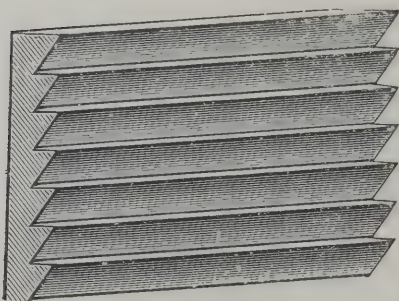
E. J. Smith.—Venetian, Florentine, duchesse and other kinds of window blinds.

G. W. Riley, F.R.H.S.—Summer-houses, rustic benches, chairs and various specimens of rustic and garden furniture.

Sam Deards's system of self-locking glazing.

Messrs. Robert W. Blackwell & Co, Ltd, of 59 City Road, are showing at Stand No. 30, in the Gallery, specimens of their "Ruberoid" roofing and dampcourse and the purposes to which it and other preparations of "Ruberoid" can be applied. This material is practically new to the market, but has, where used, met with gratifying success. "Ruberoid" dampcourse contains no tar or asphalte in its composition and will not become brittle, dry up, rot, decay or shrink or squeeze out, and, most important of all, it is said to be an absolutely permanent insulation against damp. This pavilion illustrates the method of applying "Ruberoid" over boards in the usual way and also over wire netting. The material as used as a siding and lining for buildings can also be seen. Messrs. Blackwell & Co. are also exhibiting their well-known "P. and B." "Giant" insulating paper for cold storage work and their "P. and B." building and sheathing papers. It is worthy of note that these materials have secured eighteen medals at various exhibitions, including Paris and Pan-American.

Messrs. Major & Co, Ltd, of Hull, exhibit the effects of their wood-preserving stain—Solignum—in a most effective manner. Their stall consists of a model half-timber house in an enclosure, a railing and gate in front separating it from the gangway. All the half-timbered work of the house is treated with the medium and dark shades of Solignum, and looks very well, these two shades being most suitable for this class of work. The fence work and gate in front is treated with light Solignum which matures to a fine brown tone. There are specimens of different sorts of wood treated with Solignum, and small samples of the fluid are obtainable at the stall. To exemplify its effect as a preservative three post ends are exhibited which have been buried in the ground for four years. The post end untreated with Solignum shows considerable rotting, whereas those treated with one and two coats are perfectly sound. The roof, inside walls, window sills, and door of



PATENT PRISMATIC ROLLED GLASS.

Increases the Light in Dark Rooms, Cellars, Passages, &c.
Saves Expense of Artificial Lighting.

Pilkington Bros. Ltd.

ST. HELENS, LANCASHIRE.

Manufacturers of

Polished Plate, Silvered & Bevelled Plate for Mirrors,
Sheet and Rolled Plate Glass,

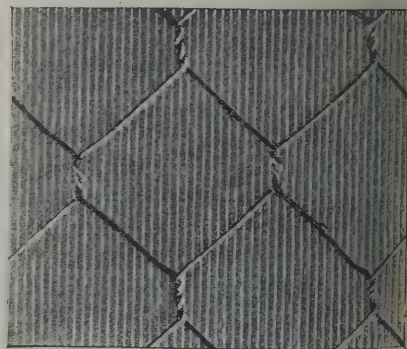
Figured Rolled in a Variety of Patterns (White and Tinted).

All kinds of ORNAMENTAL WINDOW GLASS, BRILLIANT CUTTING,

BENDING and EMBOSSEING,

LEADED LIGHTS, &c.

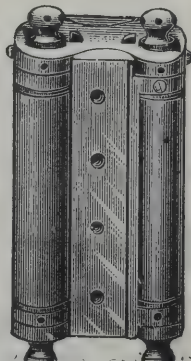
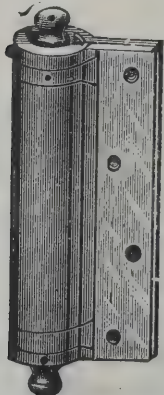
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PATENT WIRED ROLLED GLASS.

(About 1/4 inch thick.)

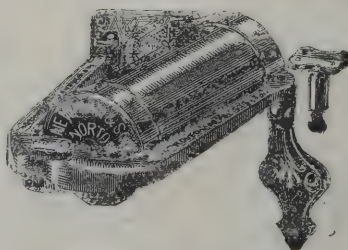
RESISTS FIRE.
PROTECTS LIFE.
HINDERS BURGLARY.
PREVENTS ACCIDENTS.



NEWMAN'S PATENT REGULATING HELICAL SPRING HINGES

With Patent Stop to Prevent Overwinding.
The power can be instantly taken off while the Hinges are being fixed and afterwards adjusted to close the Door conveniently. They not be overwound.

Made in Brass and Iron, 3, 3 1/2, 4, 4 1/2, 5, 6, and 7 inches.



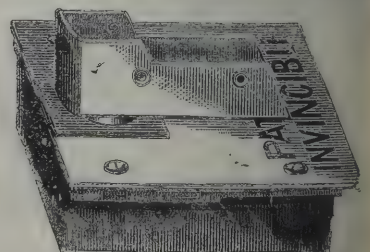
NEWMAN'S NORTON SYSTEM.

MADE IN MALLEABLE IRON.

The Best Door Spring and Check for closing Doors without noise.

Pressure is direct, but diminishes pleasantly as Door is opened.

Also made with Patent Regulator to latch stubborn bolts.



NEWMAN'S PATENT INVINCIBLE,

With and Without Pneumatic Check.

Will hold Door rigidly to centre, but diminishes in power as Door is opened, allowing comfortable passage through.

The Best Spring to close Door against wind pressure, and the most suitable for Banks, schools, and other public buildings. Made in sizes to suit all Doors.

Made solely by **W. NEWMAN & SONS,**

DOOR SPRING MAKERS AND BRASSFOUNDERS, HOSPITAL ST., BIRMINGHAM.

ESTABLISHED OVER 100 YEARS.

model house are treated with Major & Co.'s Solignum B in green and red shades, and have a very pleasing ect. On the inside walls are displayed photographs of rious work in connection with which Solignum has been ed. A book of original letters which speak in glowing terms the advantages of Solignum shows how highly it is appreciated by those who have used it.

Messrs. Sutcliffe, Speakman & Co., Ltd., engineers, Leigh, ncashire, are exhibiting in operation their new process for laking indurated cement concrete paving flags. By this ocess they can manufacture and harden these flags in three ys' time, and they claim that they can obtain results in that ort period superior to those obtained in three years on the l-fashioned method. We understand that they have obtained engths (tensile) of 936 lbs. per square inch, and in six weeks ve obtained crushing strengths of 7·84 tons per square h, thus far exceeding the strength of granite. Their process said to entirely prevent the objectionable air-cracking which is en shown in concrete goods; on the same process, and where nd is used, they can obtain a finish and appearance exactly e sandstone.

Messrs Elliott, Caversham, Reading, are exhibiting a odel window (patent applied for), of which they are the sole anufacturers, that has been invented to reduce the effect of terior sounds usually audible in buildings. It embodies the st already known method of two panes in two frames, in one ame or sash. Model on view at their stand at No. 97, Row E. may afterwards be seen at their offices.

NEW CATALOGUES.

LARGE variety of plumbers' fittings are depicted in the ustrated catalogue which the Falcon Brass Works, Ltd., of olkland Streer, S.E., are now issuing to their customers, and ill be pleased to send to all applicants. This firm makes a pecialty of keeping an extensive stock of the various fittings rder to enable the trade to execute promptly small urgent ders requiring immediate attention.

MESSRS. J. H. HEATHMAN & CO., of Fulham, Endell treet and Pentonville Road, have prepared a new illustrated ice-list of their very useful extending ladders (double, treble ad quadruple). These ladders are exceedingly portable. hey can be carried round short corners, stored out of the ach of burglars, carried into rooms without damaging the

furniture, and used in situations quite inaccessible to old-fashioned ladders. The extending sections (which are detach-able) are lifted and adjusted at any height by one's hand, as there are rests to grip any rung. We are able from personal experience to speak of the great utility of these ladders.

IN a circular issued by the Patent Steam Carpet Beating Company, Ltd., of 196 York Road, King's Cross, the following table is given, showing the relative efficiency of their system as compared with the so-called vacuum processes of extraction by suction :—

Description of Carpet.	Size. Sq. yds.	Weight.		Time.		Weight of Dust Removed		
		Before After		Vacuum.	Beat-ing.	By Vacuum.	By Sub-sequent Beating.	Total.
		Treatment.	lbs.					
Turkey	10	69½	46½	45	12	8	15½	23½
Persian	9	37½	32	25	5	2½	3	5½
Brussels	18	41½	38½	20	4½	1½	1½	2½
Wilton	20	71½	68½	28	8	1	2	3
Axminster	16	70½	67½	40	11½	3½	4½	8
Kidder	14	32	30½	15	2	1	½	1½
Indian.	18	65	55½	40	9	3	5½	9½
Cocoa mats (2)	65 sq. ft.	139	132	35	25	5	52	57

THE foundation-stones of a Wesleyan church and school at Kirkley have been laid. The building is being erected at the corner of Lorne Park Road and Lawson Road. The contractors are Messrs. Smith & Wolfe, Lowestoft, carrying out designs by Mr. G. E. Smith, of Southsea. The stonework is being executed by Messrs. Wolfe & Brown. The building will be used for the present as a school-chapel, and when the contemplated church is built in London Road, this present erection will be used as a Sunday-school. It will be 53 feet long, 36 feet wide and 36 feet high, of red brick with carved stone dressings, in the Perpendicular Gothic style. There will be two entrances—one from Lawson Road and another from Lorne Park Road, each with double lobbies paved with wood-blocks. The church itself will be boarded. There will be a gallery, and the joinery of this will be in pitch-pine. The roof will be open timbered with plaster ceiling, and the windows lead glazed. An angle turret at the south-west corner will be quite a feature of the building. The heating will be by low-pressure hot-water apparatus, and the lighting by electricity. There will be a vestry and basement. The place will seat between 350 and 400 persons. The total cost will be 2,700*l.*, including 40*l.* for the land.

GREENWOOD & BATLEY, LIM.,

ALBION WORKS, LEEDS,

ELECTRICAL AND GENERAL ENGINEERS.

MOTORS and DYNAMOS.

DE LAVAL'S PATENT STEAM TURBINE MOTORS, TURBINE DYNAMOS, PUMPS and FANS.

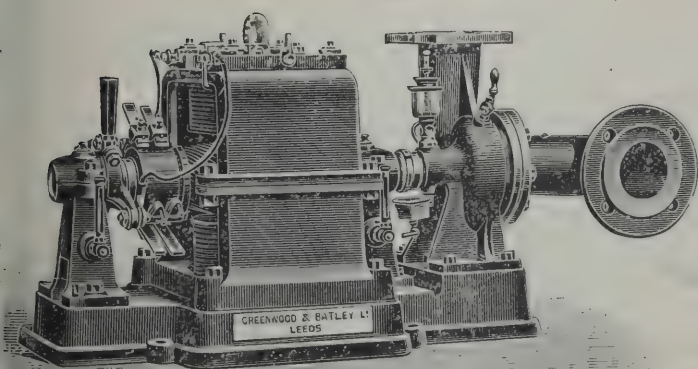
ADVANTAGES—

Small Space Occupied.

No Vibration.

No Special Foundations Required.

Economy in Steam Consumption.

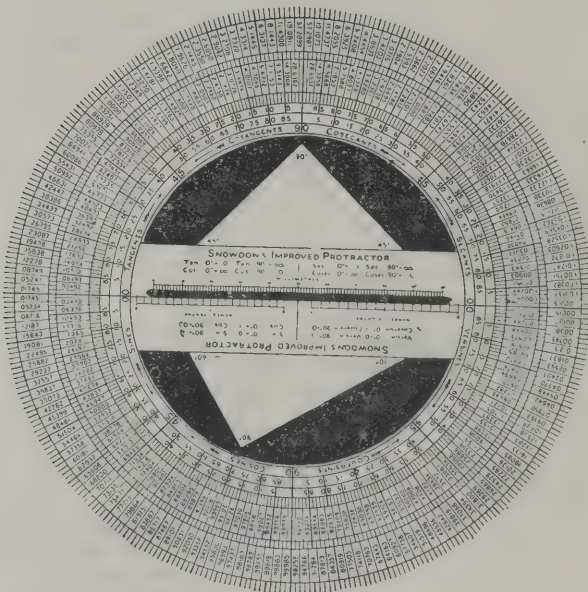


No. 6177, DE LAVAL PATENT ELECTRIC MOTOR PUMP.

SEND FOR CATALOGUES.

A NEW PROTRACTOR.

THE protractor is so old an instrument, and so many improvements have been introduced in those needed for special purposes, it might be supposed there was no room for novelty. There are some who believe that a table of chords with a scale and a compass are preferable to a circular protractor, or a ruler on which the edges are graduated to correspond with angles. Mr. F. Seaton-Snowdon has brought out one which, it will be seen from the reduction we give, possesses several advantages. It is made in various materials, the most expensive being aluminium and the cheapest glazed cardboard. Two small set squares enable the angles most often required



to be set out without delay. The circle is of course divided into the usual number of degrees, and angles can be marked off without difficulty. In addition the natural sines, cosines, cosecants, tangents, &c., are given, and in that way trigonometrical ratios become familiar to the user. An ordinary pro-

tractor only partly fulfils its purpose, but by means of the figures the various functions in relation to the angles become impressed on the mind. It is possible to obtain the figures from a book of mathematical tables, but one is not always at hand. The new protractor has received the approval of practical men, and we have no doubt it will be found useful in drawing offices by facilitating the laying off of angles. As the diameter is 8 inches all the figures are legible. It can be obtained from any dealer in drawing instruments.

ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW.

THE Glasgow Royal Hospital for Sick Children was opened twenty years ago, and since then the population in and around Glasgow has grown enormously, and further, medical and more especially surgical, science has made such progress that now it is in many instances possible to treat and cure the youngest child where formerly it was impossible. The work that can be done in this direction is testified to, says the *Glasgow Herald*, by the fact that now there are about 30,000 attendances at the Children's Dispensary every year. In these circumstances, it is matter of no surprise that the seventy-four beds provided at the hospital twenty years ago are now quite incapable of meeting the demands made upon them. The result is that, even after selecting only the more urgent cases from among the numerous applicants, there are on an average the names of 100 little patients of under twelve years of age waiting admission. In these circumstances the directors gratefully accepted the most generous offer made by Miss Margaret Montgomery Paterson, Learmonth Terrace, Edinburgh, to spend about 6,000*l.* in erecting in memory of her parents an extension or branch of the hospital in the country, to which certain classes of cases which require somewhat prolonged treatment can be taken, thus in some measure relieving the pressure in the hospital, and giving patients so removed the chance of a quicker and more complete recovery in the country air than they would have in Glasgow. After careful consideration a splendid site was secured on elevated ground, with a southern exposure, situated on the Drumchapel estate, a few minutes walk to the east of the station of that name on the main line of the North British Railway from Glasgow to Dumbarton. The building, which has been erected from plans prepared by Mr. Robert A. Bryden, architect, is designed mean-

NORMAN & STACEY

FURNISHERS & DECORATORS.

**PIONEERS
OF THE
MODERN
ENGLISH
STYLE.**

**ESTIMATES
& DESIGNS
FREE.
ADVICE
GIVEN.**

TOTTENHAM COURT ROAD
OXFORD ST. END.

to contain two large airy wards with twelve beds in each, provision has been made for adding two other wards as occasion may require. The wards are on a line running north south, which is considered the best method of placing such buildings, and the walls are finished in Keene's cement and the floors laid with polished oak. Off the wards, but separated from them by a ventilated corridor, there is suitable latrine accommodation, consisting of bath-room, steep-room, with fittings of the most modern design. Each ward has also a duty-room for the nurses' use, from which all the patients in the wards can be observed, and there is connection with the lower ward, a sun-room about 40 feet long by 10 feet wide enclosed in large glass windows and doors into which the beds can be rolled. Access to the roof of the sun-room, which is surrounded by a stone parapet, and will also be useful for airing patients, can be had from the upper ward. The walls have been built of brick, an arrangement which secures greater warmth in winter and coolness in summer, and excellent ventilation is obtained by means of ventilating radiators placed upon the windows, assisted by Birmingham valves set in the walls at intervals, Munn's extra ventilators in the roof, and ventilating open fireplaces, which also give the wards a bright and warm appearance in winter. A small separate or isolation ward with lavatory accommodation in case of an outbreak of infectious disease is provided, and the building further contains surgeons' room, iron's parlour and bedroom, sisters' room, rooms for nurses, servants, kitchen, scullery, wash-house, laundry, store-rooms, pantries, boiler-house, &c. There is an abundant supply of Loch Katrine water, and the building is supplied with fittings in view of the immediate introduction of Glasgow Corporation gas into the district. Elaborate fire-extinguishing apparatus is provided both inside and outside the building. The building has now been completed at a total cost of fully £100,000.

ELECTRIC-LIGHT STATIONS.

A meeting of the Society of Engineers held at the Royal Institution, Whitehall, on Monday evening, June 8, Mr. J. Patten Barber, president, in the chair, a paper was read on "Electric-light Stations: their Design and Arrangement," illustrated by drawings of the Bridlington Electricity Works, by Mr. Ernest R. Matthews, C.E., F.G.S., a thorough engineer of Bridlington. The author commenced by observing that during recent

years the supply of electricity for lighting purposes had become one of the chief municipal industries in this country. He then sketched its early history and its development, pointing out that in 1882 the attention of Parliament was drawn to it, that the Board of Trade was then convinced that electricity for lighting purposes had a future before it, the result being that the Electric Lighting Act, 1882, was passed. The result of this was that numerous local authorities and private companies applied to Parliament for provisional orders enabling them to proceed with installations. Private companies very soon found out that the conditions of the Act were somewhat unfavourable to them, and so they appealed for an amendment, the outcome being that the Amended Electric Lighting Act was passed. The author then noted the rapid progress that was made under this Amended Act, and stated that during the past three years about 320 provisional orders had been granted, and that of these upwards of three-fourths were for local authorities or private companies in small towns, namely, towns under, say, 25,000 population.

The author then gave a detailed description of the various points necessary to be observed in designing an electric-light station, illustrating his remarks by drawings of the proposed Bridlington electric-light station, which he had designed and which was about to be carried out. He first dealt with the engine-house, and pointed out that it was a great mistake to cramp up an engine-house, that the floor area should be full and sufficient, and that ample space should be left not only between each engine, but also adjoining each wall of the engine-house. He then referred to the necessity of making provision for future extensions by building a temporary end. He stated that plenty of head room was necessary in order that the overhead crane could run to and fro with perfect freedom. The walls, he considered, should be built in cement mortar, and should be calculated to withstand not only the strains due to the overhead crane and the thrust of the roof, but also the vibration set up by the engines. Piers built in cement should support the girders or arches carrying the overhead traveller, and he stated that it was a most decided advantage to have the walls of an engine-house lined with glazed bricks, and he described such a method which he had adopted in the Bridlington engine-house. He considered that a 10-ton crane, worked by hand from the floor by ropes, was quite sufficient for a small station. Plenty of light was necessary, and he recommended that one-seventh of the roof surface should be skylight, and about one-sixth of the total wall area

STRIPSO

In 7, 14, 28 and 56 lb. kegs.

Quickly and thoroughly removes **PAINT, VARNISH, STOVE ENAMEL, RUST or GREASE**, however old or thick, without injury to the Wood or Metal, leaving the surface perfectly clean and ready for applying new Paint or Varnish.

Saves more than half the ordinary cost of stripping Paint and Varnish.
C. CHANCELLOR & CO., 13 CLERKENWELL ROAD, LONDON, E.C.

WHAT WE SAY

VELURE

A new and perfected JAPAN PAINT, superseding varnish, with remarkable spreading, elastic and weather resisting properties. One coat equals two coats of ordinary paint and one of varnish. In 120 colours. Any shade matched. Sanitary washable. Will not crack, chip, peel, blister, or fade. Twelve months' guarantee given by the manufacturer. Saves time, labour, varnish and money.

C. CHANCELLOR & CO.,

13, CLERKENWELL ROAD, LONDON, E.C.

WORTH

One Gallon will
Cover about 90
Square Yards.

TRYING.

FINISHED LIKE A MIRROR.

Your white Velure is the best we ever tried on the Yachts. Two coats really finished like a mirror. It far surpassed any enamel or ivory japan we ever used. I have done all the Windows in the house with it.

HUGH DORRIAN, Yacht Builder.

Nunsquarter, Kirkcubbin, Co. Down, June 24, 1901.

**BETTER FINISH. BETTER WEAR.
FEWER COATS. LESS MATERIAL.**

WHAT CUSTOMERS SAY

H.M. THE KING.

I have had it used at Sandringham for H.M. the King and found it most satisfactory. It was used on some large additions last year.

C. SMEDLEY BECK, Architect.
11a, Prince of Wales Road, Norwich, Jan. 21, 1903.

ARCHITECT.

I am exceedingly pleased with the result of the Velure I had last year. Our doors look and feel like ivory, and show every appearance of great durability. I find that they keep very clean, and do not take the dirt.

A. E. PURDIE, F.R.I.B.A.
Meadow Grange, Blean, near Canterbury, Jan. 2, 1902.

IN A STEAM DISINFECTOR.

I am pleased to state that the Velure has been a perfect success so far. It has been subjected to great heat, steam pressure, and withstood the expansion and contraction of the iron, and there are no cracks or flaws to be found, the surface being perfect. It was applied by unskilled labour, the hospital porter doing the work.

J. BROOK, S.I.C., A.S.I., Surveyor, R.D.C.,
Stratford-on-Avon, 5th December, 1902.

UNDER WATER.

Velure gives a beautifully smooth surface, which remains hard under water, and does not foul easily.

JOHN MACKENZIE, Sail Maker.
Sandbank, Argyllshire, Sept. 26, 1901.

**STANDS ANY AMOUNT OF EXPOSURE TO SUN OR FROST,
HEAT OR DAMP, WITHOUT CRACK OR BLISTER.**

windows. Ample ventilation should be provided, chiefly by means of hopper ventilators in the windows, and by means of the glazed roof ventilators.

The engine bed would vary from 5 feet to 20 feet in thickness, according to the type and weight of the engine. The floor might, with advantage, be paved with red Staffordshire encaustic tiles, laid herring-bone fashion on 6 inches or 9 inches of concrete, the cover plates of the trenches being filled in to match the floor. A convenient size for the trenches, he thought, was 2 feet 6 inches wide by 2 feet deep. The drains should have manholes at intervals; the roof should be supported by light steel roof trusses; brackets should be inserted in the walls to carry pipes, and there should be a pair of broad doors, running on rollers at the temporary end.

The floor area of the boiler-house would depend on the number, size and type of boilers. The Bridlington boiler-house measured 63 feet by 33 feet 6 inches, and it accommodated two Lancashire boilers, each 7 feet 6 inches diameter and 30 feet in length. In calculating the weight of the boilers for foundation purposes it was necessary to include water and fittings. Concrete 2 feet in thickness should be sufficient. Provision should be made for future extensions by building one side of the boiler-house in a temporary manner. The height might with advantage be from 24 feet to 30 feet, and the floor should be sunk several feet.

The walls should be built in cement mortar, and plenty of light should be provided by means of a number of large windows placed on the permanent side, and about one-fourth of the roof covered with patent glazing. The ventilation might be by means of hopper ventilators in the windows and louvre ventilators in the roof. The floor might with advantage be paved with flags on 6 inches or 9 inches of concrete, and the trenches should be covered with wrought-iron checker plates.

The roof should be supported by steel roof trusses, and should be close-boarded. Drainage for the scum and blow-off cocks, water-gauge cocks, &c., should be provided. The coal bunker should be placed as near to the furnaces as possible, and an inclined footway should lead to the boiler-house for the purpose of wheeling ashes out. Care should be taken in the arrangement of the doors, and the flues should be lined with 9 inches of firebrick, radiated bricks only being used.

The accumulator-room should not be cramped for room; it should be light, well ventilated and might be paved in the same manner as the engine-house. It should not be less than 13 feet or 14 feet in height. Two store-rooms should be pro-

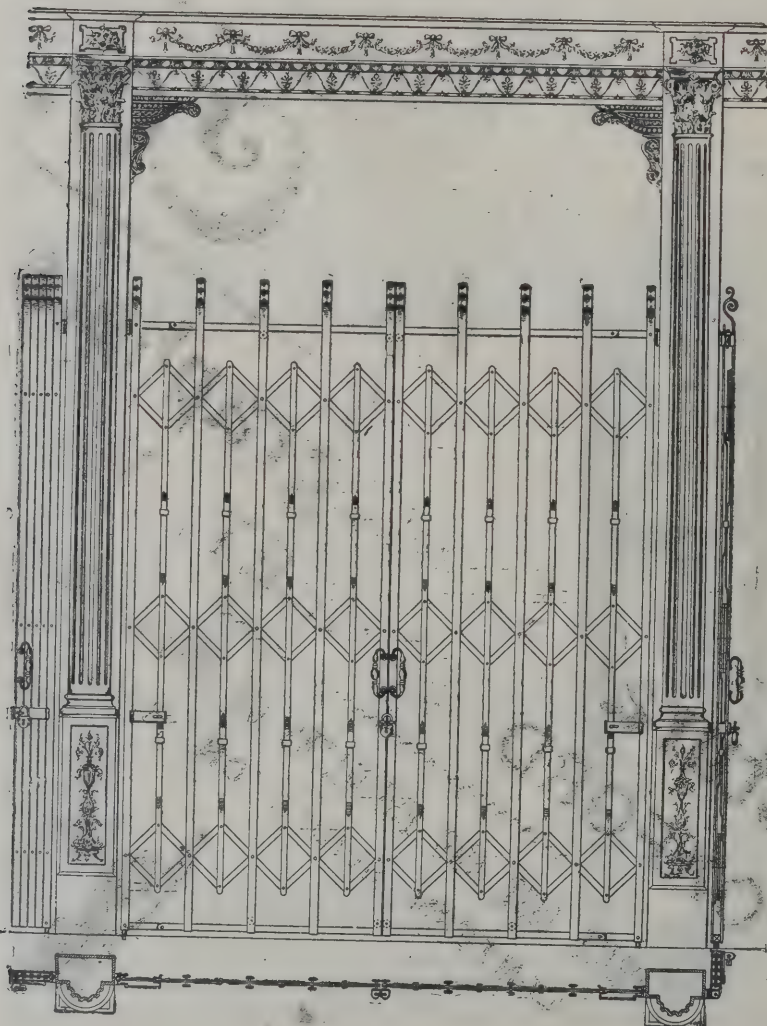
vided, one to contain heavy goods, the other oil, waste and lighter goods. No works are complete without a meter-room. There should be a workshop sufficiently large to contain lathes, drilling and milling machines, fitters' bench, forge, &c. A convenient size is about 25 feet by 14 feet. Ample lavatory accommodation should be provided. The engineer should have a private office, fitted up with desk, drawing table, cupboard and other suitable fittings. A convenient size for the men's room is 20 feet by 10 feet. The water-storage tank should be formed of square cast-iron plates, planed to template, and strongly stiffened with brackets and flanged.

Referring to the chimney-shaft, the author observed that where the buildings were intended to be permanent, a brick shaft should be erected, which might be square, octagonal or round. The wind pressure on the two latter was stated to be considerably less than on the former, the relative pressures being:—Square, 1.0; octagonal, 0.65; round, 0.5. The external width of the shaft at the base should be, if square, 1-10th of its height, if octagonal 1-11th and if circular 1-12th.

The author then dealt with the foundation, observing that given a good clay foundation, a chimney 150 feet high might stand on a good bed of Portland cement concrete (5 or 6 to 1), 20 feet or 22 feet square by 7 feet or 8 feet thick. The concrete should remain three weeks before any brickwork is placed upon it, and all the bricks should be of the same density.

He then dealt with the thickness of the brickwork, also the bond, which should be one course of headers to three or four courses of stretchers. The mortar, he said, should be lime mortar and not cement mortar, which was too rigid. The brickwork should proceed slowly, say three or four feet per day. He said the cap might be of iron, terra-cotta or stone, and should not project more than the thickness of the brickwork. The shaft should be lined to a height of at least 30 feet for ordinary beats with a fire-brick lining. The lightning-conductor should not be carried around projections, but through them. The author then gave particulars of how the lightning-conductor should be fixed; also as to how the inside diameter or area of a flue should be determined, and as to the height of a shaft.

The author stated that the tender of Messrs. G. Storr & Son, contractors, of Bridlington, for the buildings had been accepted, the contract amount being 5,283/. The consulting electrical engineer is Mr. J. H. Medhurst, B.Sc., M.I.E.E., of Westminster, and the total estimated cost of the works is 26,000/.



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ARCHITECTURAL SECTION

OF

THE BUILDING EXHIBITION, 1903.

Catalogue of Designs by Architects, Water Colour Drawings, Models, &c.,

COLLECTED BY

GILBERT WOOD & CO. Ltd.

Proprietors of "The Architect and Contract Reporter."

A

- | | |
|--|--------------------------------------|
| 1. Proposed Decoration of Chancel, Church of St. Andrew, Stockwell, S.W. | } Cole A. Adams, F.R.I.B.A. |
| 2. Proposed House at Romiley. | |
| 3. The Woodclyffe Hall, Wargrave, Berks. | |
| 4. Camberwell Polytechnic. | } Maurice B. Adams, F.R.I.B.A. |
| 5. Blickling Hall, Norfolk. | |
| 6. The St. Pancras Baths. | } T. W. Aldwinckle & Son, F.R.I.B.A. |
| 7. Gore Farm Smallpox Hospital. | |
| 8. Plan and Section Gore Farm Hospital, and one Ward Pavilion and Isolation Pavilion, &c., all erected in 12 weeks at a cost of £250,000 for the Metropolitan Asylums Board. | |
| 9. Rotherhithe Smallpox Receiving Station. | |
| 10. Fulham Ambulance Station. | |

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|---|---------------------------------|
| 1. Garden House Villa, Monterey, Cannes. | } O. Maxwell Ayrton. |
| 2. Do. do. do. | |
| 3. Additions to Heath End, Checkendon, for Mr. A. Hacker. | |
| 4. Lime, Brick, &c., Wharf, Weybridge. | |
| 15. House at Sittingbourne. | |
| 16. House at Chester, for Mr. E. H. Davies. | } Sir R. Rowand Anderson, LL.D. |
| 17. Three Photographs of a House designed for Mr. Bruce, of Kinleith, near Edinburgh. | |

B

- | | |
|---|--------------------------------|
| 18. Mixed Higher Grade School, Cassland Road, Hackney, for London School Board. | } T. J. Bailey, F.R.I.B.A. |
| 19. New Premises, Middlesboro', for the York City and County Banking Co., Ltd. | |
| 20. Seacroft Hotel and Golf Club. | } Brewill & Bailly, F.R.I.B.A. |
| 21. 44 Parliament Street. | |
| 22. The Paddock, Ruskington. | |
| 23. Pen and Ink perspective of His Majesty's Exchequer and Audit Office, Victoria Embankment. | } A. F. Briggs. |

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|---|----------------------------|
| 24. Design, West Front, Liverpool Cathedral. | } R. A. Briggs, F.R.I.B.A. |
| 25. Exterior of Entrance to Garden Fronts, Cowley Manor. | |
| 26. Porch and Piazza, Cowley Manor. | |
| 27. Dining-room, Cowley Manor. | |
| 28. First Premiated Design for the Victoria Memorial, Liverpool (in conjunction with Mr. R. Clarke, sculptor, of Cheltenham). | |
| 29. Photo of the Exterior of Cowley Manor, showing the new Ball-room. | } W. A. Burr. |
| 30. Bleak House, Broadstairs. | |
| 31. Houses, Winchmore Hill. | |
| 32. House, Kidderford Avenue, Hampstead. | |

C

- | | |
|---|-------------------------------|
| 33. Billiard-room in Carnick House, Ayr. | } John A. Campbell. |
| 34. Gilmour Institute, Alexandria, N.B. | |
| 35. Do. do. do. | |
| 36. House near Seaham, Kent, Garden View. | } Sydney E. Castle. |
| 37. A House in Somersetshire. | |
| 38. St. Thomas's Church, Hove. | } Clayton & Black. |
| 39. Capital and Counties Bank, Brighton. | |
| 40. Royal Insurance Offices, Brighton. | |
| 41. Cottages in High Street, Brighton. | |
| 42. Design for Bungalow. | } W. I. Chambers. |
| 43. Detail of Doorway. | |
| 44. Design for Block of Flats. | |
| 45. The Mosque, Woking. | } H. O. Cresswell, F.R.I.B.A. |
| 46. New Estate Office, near the Eyre Estate, Park Road, N.W. | |
| 47. New House, Woking. | |
| 48. New Church, Holloway, Derbyshire. | } Percy H. Curray. |
| 49. Vicarage House, Holloway, Derbyshire. | |
| 50. A Set of Seven unsuccessful Drawings for the Harrogate and Knaresborough Infectious Hospital. | } Hy. Curtis Card, F.S.I. |
| 51. King's Sanatorium for Tuberculosis. | |

52. Stoke Damerel Parish Church and Rectory. } W. D. Caröe, F.R.I.B.A.
53. The Celebrated Ceiling, Chapel of Royal Military Hospital, Kilmainham. Residence of H.R.H. the Duke of Connaught. } Robt. Cochrane, F.S.A., F.R.I.B.A.
54. Photo of Pinnock's Almshouses, Gravesend. }
55. Photo of Pinnock's Almshouses, Gravesend. } Colson, Farrow & Nisbett, F.R.I.B.A.
56. Gravesend Hospital. }
57. Do. - do. }
58. Melrose School, Guernsey. }
59. A Studio. }
60. A Gardener's Cottage. } Amian L. Champneys.
61. Design for a Clergy House. S. B. Caulfield.

62. Porter's Hall, Shenley, Herts. }
63. The Staircase, Porter's Hall, Shenley, Herts. } C. Harold Cooper.

D

64. Semi-detached Houses, Scheveningen, Holland. }
65. Private House. } T. Gerard Davidson.
66. Do. Do. }
67. The Borough Club, Nottingham. }
68. Residence, Ruddington, Notts. } Gilbert T. Doughty.
69. Business Premises, Nottingham. }
70. New Children's Homes, for the Greenwich Guardians. } Thos. Dinwiddy & Sons, F.R.I.B.A.
71. Window, Ca d' Oro Palace, Venice. }
72. Chapel of Reliquary. } W. J. Davies.
73. Sant' Apollinare, Ravenna. }
74. The Gateway, Lincoln's Inn, W.C. }

E

75. Walberswick Church. }
76. A Sketch in Rouen. }
77. A Court off Drury Lane (demolished). }
78. La Vieille Boucherie, Antwerp. } Frank L. Emanuel.
79. A Rouen Street. }
80. Calais Towers. }
81. Rue de l'Epicierie, Rouen. }
82. A Castle in the Air. }
83. Houses at Northwood. }
84. Two Photos of Villas. } F. M. Elgood, A.R.I.B.A.
- 84A. Offices of *Daily Mail* and Harmsworth Publications. } H. F. O. Ellis.
85. Detached Residence, Isle of Wight. E. M. Eunson.

F

86. Vestibule of the Church of the Holy Sepulchre, Jerusalem. }
87. The Rotunda and Chapel of the above. }
88. The Wall of the Wailing Place, Jerusalem. }
89. The Tomb of the Kings, Jerusalem. } John Fulleylove, R.I.
90. Interior of the Golden Gates, Jerusalem. }
91. Jacob's Well at Shechem, Jerusalem. }
92. Interior of Spanish Synagogue. }
93. South Door of the Holy Sepulchre Church, Jerusalem. }
94. Houses on the Marine Parade, Leeson-the-Solent, Hants. }
95. House at Cliftonville, Margate. } Herbert L. Fedden.
96. New Sessions House, Old Bailey. }
97. New Premises, Lowndes Terrace, S.W. }
98. Institute of Journalists, Tudor Street, Blackfriars. } H. L. Florence, F.R.I.B.A.
99. Fireplaces and Interior Fittings, Abbess Grange. }
100. Two Photos of King's College School, Wimbledon. } Banister Fletcher & Sons, F.R.I.B.A.
101. Drawing of the Queen Victoria Memorial, Liverpool. }

G

102. County Inn, Wheatsheaf, Redhill. }
103. County Inn, Cricketers, Dorking. } Spencer W. Grant.
104. Capital and Counties Bank, Redhill. }
105. Ilkley Baptist Church. }
106. Purston Wesleyan Church. } Garside & Pennington.
107. Somercotes Wesleyan Church. }
108. The British Pavilion, St. Louis Exhibition, U.S.A. } Ernest George & Yeates, F.R.I.B.A.
109. Foxcombe, Boar's Hill, Oxford. }

H

110. Suggested Scheme for Development of Adelphi Foreground. } Hayward & Maynard, F.R.I.B.A.
111. House at West Hampstead. }
112. House at Croydon. } W. F. Harber.
113. New Front to an Old House. }
114. South-west View of House, Wolves Newton, Monmouthshire. }
115. House at Esher, Surrey. } A. Jessop Hardwick.
116. House at Roehampton, Surrey. }
117. Fireplace to Billiard-room to House at Wolves Newton. }
118. Decorative Painting, Autumn. }
119. Decorative Painting, Spring, on gilt ground. }
120. Ceiling Design, Cupid and Psyche. }
121. Design. Drawing-room (in English Pompeian style). } Thos. Wallace Hay.
122. Ball-room Ceiling. }
123. Dining-room (Pompeian style). }
124. Decorative Ceiling (Louis XVI.). }
125. Carthaginian Princess's Bedroom. }
126. A Series of Photographs of executed work. }
127. A Reception-room. }
128. A Drawing-room (style Louis XVI.). }
129. A Decorative Mahogany Panel, "Peace." }
130. Design for a Morning-room. }
131. Ridgemount, Enfield. }
132. A Small House at Enfield. } Hart & Waterhouse.
133. Salford, near Birmingham. Arthur Hill, F.R.I.B.A.
134. The Tower, St. Swithin's, Hendon, N.W. }
135. Electric Stations on the Severn. } Geo. Hornblower, F.R.I.B.A.
136. Additions, The Oaks, Hampstead. }
137. Warehouse, &c., Newtown. }
138. Alterations, Elbridge, Windlesham. }
139. Perspective of New Buildings, St. James's. }
140. Gymnasium and School of Cookery, St. James's. } E. Hoole, F.R.I.B.A.
141. Parish Hall, St. James's. }
142. Three Town Houses. }
143. New Inland Revenue Office at Reading. } Hoare & Wheeler.
144. Design for Municipal Buildings, Harrogate, Yorks. }
145. Perspective View of Hauteville, Harrietsham, Kent. } Church Howgate.
146. Photo of Sheen Vale Chapel, Mortlake, Surrey. }
147. Quarter-inch Detail of part of Front Elevation, Barry Municipal Buildings. } C. E. Hutchinson & E. Harding Payne, A.A.R.I.B.A.
148. Aldershot Municipal Buildings (Council Offices). }
149. Hereford Municipal Buildings (Council Offices). } C. E. Hutchinson.
150. New R. C. Church, Tonbridge. }
151. Greyhound Inn, Langton. } W. Barnsley Hughes.

I

152. The White Cottages, Austin Street, Hunstanton.
 153. The Pytch, Lincoln Square, Hunstanton.
 154. Two Houses, Boston Square, Hunstanton.
 155. Three Houses, Austin Street, Hunstanton.
- H. G. Ibberson,
F.R.I.B.A.

K

156. Commercial Travellers' Schools, Pinner.
 157. Baker's Almshouses, Leyton.
 158. City of London Schools.
 159. No. 321 Strand (now pulled down).
 160. Interior Coffee-room, Cavendish Hotel, Eastbourne.
 161. Abbotsford, St. Helen's Wood, Hastings.
 162. Principal Staircase, Broom Hall, Oxshott.
- T. E. Knightley,
F.R.I.B.A.
- Fredk. G. Knight.

L

163. Thirkleby Church, Yorks.
 164. Village Club.
 165. House at Studland Bay.
 166. Addiscombe Church, Croydon.
 167. Before the Campanile Fell.
 168. In the Shadow of San Marco.
 169. The Abazzia, San Gregorio.
 170. In San Marco—The Pulpit.
 171. In the Cortile, Ducal Palace.
 172. Rio on the Giudecca.
 173. Fishing Boats on the Laguna.
 174. River Field, near Oxford.
 175. Dock Lights from the Western Shore, Southampton.
 176. Great Screen, Winchester Cathedral.
 177. Winchester Cathedral from the N.E.
- E. B. Lamb.
- C. J. Lauder, R.S.W.
- R. M. Lucas.

M

178. Perspective Sketch of Country House.
 179. Drawing of Carved Oak Screen, end of Dining Hall at Crewe Hall. Sketch for a picture by B. S. Marks, R.C.A.
 180. Gateway at Llantwit Major, Glamorganshire.
 181. Photo of the Bust of His Majesty King Edward VII., presented to the Corporation of the City of London by Mr. T. V. Bowater.
 182. A Model of the Cottage and Stabling at Geddes, Paddock Wood, Kent.
 183. A Butcher's Shop and House at Matfield Green, Kent.
 184. Lych Gate, Wilmington, Kent.
 185. Drawing of the King of the Belgians' Villa near Ostend.
 186. Model do. do.
 187. Bank, Llandrindod Wells.
 188. Vicarage, St. Mark's, Wyke, Surrey.
 189. Business Premises, Swansea.
 190. Convalescent Home, Swansea.
 191. Llanelwedd Rectory.
 192. New Museum and Technical Schools for the Corporation of Liverpool.
 193. New Sessions House, Old Bailey.
 194. Interior of Central Hall, New Sessions House.
 195. Interior of Lower Hall, New Sessions House.
 196. Interior of No. 2 Court, New Sessions House.
 197. The Sheffield Town Hall.
 198. Residence in Romford.
 199. Premises at Reading.
 200. Do. do.
 201. House at High Wycombe.
 202. House at Bournemouth.
- Percy L. Marks.
- B. S. Marks, R.C.A.
- Walter Merrett, sculptor.
- Robert Marchant,
A.R.I.B.A.
- Arnold B. Mitchell,
F.R.I.B.A.
- Glendenning Moxham.
- E. W. Mountford,
F.R.I.B.A.
- R. Banks Martin.
- Joseph Morris & Son.
- Chas. T. Miles,
F.R.I.B.A.

N

203. Martin's Bank, Bromley, Kent.
 204. Entrance Front, Glebe Lands, Wokingham.
 205. Garden Front, West Green, Winchfield.
 206. Steep Hill, Jersey.
 207. House at Wrotham, Kent.
 208. House at Bromley.
 209. House at Wimbledon.
- Ernest Newton,
F.R.I.B.A.
- Niven & Wigglesworth,
F.R.I.B.A.

O

210. The Granville Hotel, Ramsgate.
 211. Northumberland Avenue.
 212. French Architecture.
 213. Paris.
 214. The Riviera.
 215. Knodishall, Oxshott.
 216. Porte St. Croix, Bruges.
 217. The Houses of Parliament.
 218. Kingston-on-Thames.
 219. View of Savoy Hotel from River.
- Harold Oakley.

P

220. Interior of Hall, Oxshott.
 221. Drayton Gardens, S.W.
 222. House at East Grinstead.
 223. House at Holmbury St. Mary.
 224. Selected Competition Design, Old Kent Road Baths and Washhouses.
 225. Labourers' Cottages at Maidstone, for the Right Hon. the Earl of Romney.
 226. Proposed Congregational Church, Snaresbrook.
 227. Baptist Church, Willesden Green.
- Walter H. Pawley.
- Edward Turner Powell.
- E. Harding Payne.

R

228. New Children's Home, for the Leeds Union.
 229. St. Martin's Victoria Institute, Leeds.
 230. New Shoe Factory, Leeds.
 231. Armley Branch Library, Leeds.
 232. House at Chapeltown, Leeds.
 233. Designs for Baths at Bramley, Leeds.
 234. A Hillside House.
 235. An Artist's Cottage, Collingham.
 236. Design of a Nurses' Home, Colchester.
 237. Design for a Church.
 238. The New Gaiety Theatre.
 239. The Royal Music Hall.
 240. Strand Improvements: a Suggested Scheme for Municipal and Commercial Buildings.
 241. Tudor Chambers.
 242. The New Palace Theatre, Halifax.
 243. Design for an Oxfordshire Mansion.
 244. Hadleigh National Schools.
 245. Campden Mission Hall, Interior.
 246. Minterne Church, for Lord Digby.
 247. Arlesey Mission Church, Choir to South.
 248. St. James's Church, Bermondsey, Colour Scheme.
 249. Choir Stalls for Lord Llangattock at St. James's Church, Bermondsey.
 250. Photos of Radley College Cricket Pavilion, &c., &c.
- Percy Robinson.
- Reginald B. Rowell.
- Ernest Rüntz.
- Arthur H. Ryan-Tenison.

S

251. New Schools at Southborough, Kent.
 252. A Doctor's House at Tunbridge Wells.
 253. Business Premises on the Pantiles, Tunbridge Wells.
 254. New Front to the Office of the Builder.
 255. A Study for a Stone Bridge.
- C. H. Strange.
- H. H. Statham,
F.R.I.B.A.

256. House at Reigate.	C. E. Salmon.	286. Cranston's Kenilworth Hotel, Great Russell Street, W.C.	Geo. Weymouth.	
257. Hambro' Synagogue, Commercial Road.	Lewis Solomon, F.R.I.B.A.			
258. Shops at Camberwell Green.				
259. House at Byfleet.	G. L. Sutcliffe, A.R.I.B.A.	287. Emmanuel Almshouses, Westminster (now demolished).	W. Arthur Webb.	
260. Smaller House at Byfleet.		288. A Dutch House, Enkhuizen, Holland.		
261. Pair of Cottages, Devil's Bridge, Cardiganshire.		289. Memorial Prayer Desk, Little Wenlock Church, Shrops.		
262. House near Barnsley.				
263. J. & R. Morley's Warehouse, Nottingham.	Ernest R. Sutton.	290. Municipal Buildings, Deptford.	T. Butler Wilson & Oglesby, F.R.I.B.A.	
264. Gordon Memorial Home, Nottingham.		291. Hardwood Fitments.		
265. Sketches of Vickerstown, the new town on Walney Island, Barrow-in-Furness.	W. Moss Settle.	292. No. 41 Park Square.		
266. Do. do. do.		293. Chelsea Baths.		
267. Do. do. do.		294. West Huntington Hall.		
268. House on the Warren, Royston, Herts.	Lucas & Stratton.	295. Photo—The Large Dining-room, Exchange Club, Leeds.		
269. Proposed House on the Thames.		296. Do. do. do.		
270. Competition Design for New Church, Southend-on-Sea.		297. Photo—The Small Dining-room, Exchange Club, Leeds.		
		298. Do. do.		
		299. Do. do.		
		300. Three Houses, Halifax.		
		301. The Municipal Buildings, Hereford.		
		302. A Memorial for a Public Park.		
		303. Semi-detached Houses, Halifax.		
		304. Tourelle, Halifax.		
T				
271. House at Oxshott.	Arnold S. Tayler.	305. Angel Hotel, Ilford.	Horace M. Wakley.	
272. Frimley Court.	F. Steward Taylor.	306. Dining Hall of City of New York Restaurant, Bedford Row, W.C.		
273. The Passmore Edwards Public Library, East Ham.	Silvanus Trevail, F.R.I.B.A.	307. House at Sunningdale, for Mr. C. F. Yeomans.		
274. The Passmore Edwards Hospital, East Ham.				
W				
275. House at Launceston.	R. P. Whellock.	308. No. 25 Hanover Square, W.	Withers & Meredith.	
276. Harston Rectory.		309. Wesleyan Church, Newquay.		
277. Harston Rectory, Photos.	W. H. Ward & J. S. Lee.			
278. High Moss, near Keswick.				
279. High Moss, Garden Front.				
280. High Moss, Interior.				
281. High Moss, Lingry Acre.				
282. Moss Park Boat House.				
283. High Ullack, near Keswick.				
284. Sheerwater Cottage.				
285. Byfleet.				

The Architect.

THE WEEK.

THE late SAMUEL E. WALLER, who died on the 9th inst., was not only one of the most popular of modern artists, but as the son of Mr. FREDERICK S. WALLER, of Gloucester, the cathedral architect, he was an example of hereditary influence. In his painted dramas old buildings may be said to have been mute actors, and they were selected and represented with a skill that was almost unique. In that way he should be regarded as an agent in popularising the architecture of England. Whether he depicted a gateway, a flight of steps, a porch, an interior, or a village, he was always accurate. But to attain that quality he spared no pains in his search for suitable models. His success testifies that attention to architecture need not diminish the attractiveness of a picture, but much depends on the style of production. Having gained public attention by one class of subject he was faithful to it, and critics had to own it was not exhausted. His works were well adapted for reproduction. The story which each expressed was dramatic and could be realised at a glance. They would, no doubt, be considered as sentimental, but they were not unhealthy or mawkish, and publishers found the plates from them were in demand as soon as published. Tested by the returns of the print shops few living artists could stand equally high with the public. Among the best known of his paintings are *The Day of Reckoning*, *The Runaway Match*, *Alone, Safe, The Empty Saddle*, *The White Cockade*, *The Secret Panel*, &c. Only occasionally he meddled with highwaymen. His pictures are so clear it might be supposed he was facile in their production. But from what he said his first ideas of them were very different in their protuseness, for "the mind becomes, like the cook's stock-pot, filled with material, and every after process with me consists, like the cook's, in boiling down and flavouring." Mr. WALLER had almost reached his fifty-third year, and his death closes one prolific source of innocent pleasure.

A NEW law has come into operation for the regulation of the sale of works of art in Italy. It will be applicable throughout the kingdom. The export duty on works which are under 5,000 lire will be 5 per cent. on the value. Between 5,000 and 10,000 lire the duty will be 7 per cent. For every 5,000 lire an additional 2 per cent. will be paid. The highest rate that can be levied will be 20 per cent. The regulations concern private collections. Works remaining in churches, monasteries, convents or in public buildings cannot be sold. An inventory is to be taken of all works of art to be found in Italy which can be considered as having importance, and without special permission they will from the date of the registration be considered as alienable. The valuation of works for export duty will be declared by the owners, but will have to be confirmed by officials. It is fortunate that the law was not earlier enforced, for then it would be impossible to possess such treasures as are exhibited in the Victoria and Albert Museum. But although hard on impecunious patricians, it will put some check on the production of ancient masterpieces by modern journeymen.

FOR some time past an action has been before the Irish courts in which Messrs. H. & J. MARTIN, contractors, sought to recover 5,000*l.* from Messrs. ARNOTT & Co., LTD., damages. Mr. G. P. BEATER, the architect to the company, was made a separate defendant. The plaintiffs' statement was that they were compelled by Mr. BEATER to execute works which were not provided for in the bill of quantities, and that the plans and specifications on which they undertook to build the premises for 18,400*l.* were not the same plans and specifications upon which Messrs. GRIBBON & BUTLER, who were employed by the defendants to take out the bill of quantities, had worked, with the result that plaintiffs' work was increased by several thousand pounds. Defendants replied that the plaintiffs were bound by the contract, and that the plans and specifications signed

by them were the same as those used by the surveyors, and that any additional work that the plaintiffs were called upon to perform was occasioned by errors and mistakes of the quantity surveyors. Plaintiffs contended that Mr. BEATER, having received from the surveyors one-third of the commission paid to them for taking out the quantities, was thereby constituted a partner with the surveyors, and that he was responsible to the plaintiffs for any errors or mistakes in the quantities, by reason of which additional work was cast on them. The defendants counter-claimed 1,850*l.* as penalties for seventy-four weeks' delay in completing works. The case was partly heard in the last term, but had to be reopened owing to the illness of a juror. After plaintiffs' counsel had stated the particulars, counsel for defendants said they were most anxious to be examined and to repudiate the false charges which had been made against them, but there was no evidence of fraud against them that could be submitted to the jury, and their counsel therefore considered it their duty to rely upon their strict legal rights and to decline to enter into any evidence. No case had been made against them, and if they went into evidence on behalf of the defendants the action would occupy several days. Mr. Justice MADDEN expressed surprise at the resolve, which was, however, justified. His lordship proposed a series of questions to the jury. In reply it was stated that Mr. BEATER was a partner with Messrs. GRIBBON & BUTLER in taking out the quantities, that the quantities were in fact taken on the document relied on by the plaintiffs, that the works provided by the contract and specifications differed from the bill of quantities, that Mr. BEATER knew the quantities were taken out on the document relied on by the plaintiffs, and that Mr. BEATER represented to the plaintiffs that the quantities were taken out on the specifications, but that he did not do so fraudulently. They also found that Mr. BEATER acted as agent for the defendants. As there was no fraud imputed the answers were taken to be a verdict for the defendants, and judgment was given in their favour with costs. As to the counter-claim his lordship left the parties to move for judgment. The issue corresponds with that of the well-known English case, *PRIESTLEY v. STONE*. The quantities were alleged to differ from the plans, but as there was no evidence of any fraudulent representation, the verdict was given for the defendant.

EXAMPLES of the painting of the ancients are so rare, it was anticipated that a representative of the British Museum or National Gallery would have attended the sale of the frescoes from Bosco Reale which took place on the 8th inst. in Paris. They were discovered in the same district from whence the gold plate presented to the Louvre by the late Baron ADOLPHE DE ROTHSCHILD was derived. M. SANDHERR, who has described them, obtained *The Lyre-Player* for 100,000 francs, and for a similar sum the paintings which adorned an alcove. For a painting of a Winged Genie the authorities of the Louvre paid 15,300 francs. The prices were much lower than had been expected, but the recent exposures of the trade in pseudo antiques have made amateurs more cautious than formerly.

THE reports of the juries for the Great Exhibition of 1851 in Hyde Park formed a single volume. Although containing some valuable information, it was not appreciated, and copies may now be obtained for a shilling or less. Afterwards an illustrated catalogue came out in four volumes. For all the international exhibitions held since 1851 reports were prepared, and their voluminousness has increased as time advanced. The reports on the Paris Exhibition by French experts will comprise fifty-two octavo volumes of about six hundred pages each. Six of them are the work of M. PICARD, the commissary-general. It was arranged that the volume on Painting was to be produced by M. LARROUMET, the secretary of the Academy of Fine Arts. Owing to illness he was compelled to decline the task. Eventually it was undertaken by M. DUBUFE, the painter, and it was completed a few days ago. The series is ended, and can be printed.

ARCHITECTURE AT THE BUILDING EXHIBITION.

ANYONE who will go from the Architectural Room of the Royal Academy to the gallery of the Building Exhibition containing similar drawings can hardly fail to be struck by the difference in general appearance between the two collections. It is imperative at the Academy for all pictures and drawings to be in gilt frames. A like rule does not prevail in other countries. French artists believe the frames should be adapted to enhance the character of the work enclosed, and therefore should vary not only in colour, but in material. CHEVREUL explained on scientific grounds the necessity of respecting the law of contrast of colours in such cases, and demonstrated that a bronze, black, grey, yellow, green or blue frame might become more advantageous than one which was gilt. In shops where frames are sold which are to be placed in drawing-rooms and boudoirs a variety of colours as well as of forms will be seen. The drawings at the Building Exhibition were framed in any way the owners considered to be most suitable, and it cannot be said the absence of uniformity is detrimental to the designs or to the general effect. There are some examples which are unframed, and they have received as much attention from visitors as any of the others. The drawings of the Gore Farm Hospital, which cost 250,000*l.*, and had to be erected in twelve weeks, are shown on the original strainers by Messrs. ALDWINCKLE & SON, and their appearance suggests building operations rather than pictorial display. It would also have been absurd if Mr. H. CURTIS CARD increased his outlay on his "Seven Unsuccessful Drawings for the Harrogate and Knaresborough Infectious Hospital," which are all of double elephant size, by paying for gilt frames to contain them. They are eloquent enough as they stand of the risks of modern practice. In the French Salon unframed strainers are admitted.

That gilt frames can be often efficacious in enhancing representations of buildings must of course be allowed. The three series of photographs of a few of his works which Mr. J. A. CAMPBELL contributes in massive gilt frames with broad gilt mounts are very striking, and could hardly be passed over in the most cursory examination. With gold the tendency is to plain forms. The Academy's warning about the risk of breadth and mouldings in frames has given encouragement to the use of plain flats or bevel and flats, classes which when seen together become monotonous. If flats must be used it is better to have them of oak gilded, of which several successful examples are in the gallery at Islington.

Another rule of the Royal Academy is the exclusion of photographs. Wherever designs alone are allowable for exhibition the regulation would be applicable, especially if, as in Paris, geometrical drawings are permitted. When the object is to suggest, not the original intention of the architect, but the effect of his building in its completed state, then photography becomes a record which has the advantage of being impartial. It could not be denied that the large photograph showing the tower of Mr. MOUNTFORD'S Sheffield Town Hall is impressive, as well as faithful. The detail of the ceiling of the Royal Military Chapel, Kilmainham, lent by Mr. ROBERT COCHRANE, would fail to be expressed by any drawing unless the artist had the enthusiasm and patience of a pre-Raphaelite. The merits of drawing and photography can be compared in the views of Cowley Manor, for Mr. R. A. BRIGGS has had the building shown in both manners. In the exhibitions of the Royal Scottish Academy photographs of new buildings are admissible. Such examples as those sent by Sir R. ROWAND ANDERSON, Mr. J. A. CAMPBELL, Messrs. COLSON, FARROW & NISBET, Mr. ELGOOD, Mr. BANISTER FLETCHER, Mr. HOWGATE, Mr. RYAN-TENNISON, Messrs. WARD & LEE, Messrs. BUTLER WILSON & OGLESBY and others need colour only to be perfect as representations.

Perspective drawings of buildings can become valuable works of art. Those by Mr. JOHN FULLEYLOVE, some of which are in colour and some in pencil, would be precious additions to any public gallery or school of art. Mr. C. J. LAUDER'S Italian scenes are also adapted to serve as models of style for architectural draughtsmen. Such effect as we see in them is, however, only attainable by devotion to that class of work, and we doubt whether anyone who

has to take part in the varied occupations of an architect's office dare hope to rival the water-colour drawings of the two painters. Brushwork, whether in monochrome or unrestricted in colour, is, however, well exemplified. Mr. F. G. KNIGHT'S Staircase at Broom Hall, Mr. IBBERTSON'S Houses, Mr. A. HILL'S drawing of Salford, near Birmingham, Mr. LUCAS'S Dock Lights, Southampton, Mr. O. M. AYRTON'S villas, Mr. EMANUEL'S foreign sketches, Mr. E. NEWTON'S Glebe Lands, Mr. DAVIES'S Italian views, &c., suggest the level which can be reached by practitioners, without any neglect of the care demanded by architectural practice. A man is not, however, always in the mood to represent his own works, and an artist may not be available when required. In such cases photography becomes a substitute, and there would be no great departure from the character of any institution if examples were accepted in its exhibitions.

The Royal Academy no doubt is convinced that the tradition of art is preserved by the exclusion of everything which is not produced by hand. But it is well to remember how few architectural painters have existed if compared with figure-painters and landscapists. The time required for painting one of the scenes by HOOCH or HEYDEN must have seemed wasted to most of their contemporaries. The buildings painted by the Italians consisted of few parts, and those introduced in their landscapes were usually of a simple kind. Unless we are mistaken, the Renaissance architects rarely attempted such elaborate representations as are to be seen every year in England. VASARI, for example, was an architect in a more definite sense than the majority of the Italian painters. The drawings exhibited in Lille which he is supposed to have prepared for MICHEL ANGELO denote his skill and comprehension of planning and construction. But although he often speaks of his painting architectural ornaments and allegories relating to the art, he makes no mention of any attempt to produce a view of a building. The drawings by architects which have come down to us are not elaborate. Instead of perspectives models were likely to have been prepared.

We have been led into offering these remarks from a consideration of the difference between painting and architecture as regards exhibitions. While exhibitions of pictures are held in most towns every year, it is supposed to require a combination of favourable circumstances to warrant an exhibition of architecture. London appears to be as indifferent to the subject as any remote town. About forty years ago there were attempts to have such exhibitions, but they were abandoned owing in part to the expense they involved and partly to the neglect of the public to attend.

It should be accepted as inevitable that for some time to come there is little likelihood of the public caring for an exhibition which is essentially technical and requires more or less knowledge to understand. Architects and others who have a personal interest in building may be assumed to be the only patrons of any display which depends for attraction on architectural drawings. But the number of such men is not few, and is yearly increasing. If the standard of the Royal Academy were adopted and only elaborate perspectives in gilt frames were hung on the walls, the expenses which would fall on every exhibitor if counted as a whole would not be insignificant. But the interest taken in the collection at the Building Exhibition indicates that it is not necessary to have a uniform and costly standard. The criticism expressed was altogether different from what is occasionally heard in Burlington House. The variety of character in the drawings suggested that they were not all prepared for display, and this gave a new interest to the collection. The drawings of decoration by Mr. T. W. HAY also reveal that there are artists who are able auxiliaries, but who rarely have an opportunity of announcing their capabilities.

From the experience derived from this last venture at Islington it seems to us that architectural exhibitions could be more often held without involving the organisers in any heavy expenses. If it were recognised that architects and representatives of building were to be the spectators there need be no stipulations about style of drawing or framing which would lead to any special outlay. A good design can be appreciated although it is without a frame. Such exhibitions would, we think, help to remove that mysterious secrecy which is one of the characteristics of the

profession and which is allied to the alarm prevailing among inventors. They would also be serviceable in other ways, and it is doubtful whether any contributor would suffer through his co-operation.

PROFESSOR COCKERELL'S TRAVELS.*

AT all times there were men who gained distinction among their contemporaries, although for what reason may not always be obvious. Professor COCKERELL was one of the instances which the nineteenth century afforded. There was no question among architects who knew him about his ability as a designer, a scholar, or a judge. In the relief on the Albert Memorial he appears engaged in conversation with CHARLES BARRY. There would have been no dissatisfaction if COCKERELL alone were introduced as the representative of architecture at the period. But it is now difficult to explain his position to a foreigner, and in the course of not many years it is likely English architects will wonder at the reverence accorded to him. Some of the buildings on which his reputation rested have been removed. Those remaining suggest that he laboured under restrictions. His contemporaries allowed that he never had free scope for the display of his genius, but posterity probably will not accept an explanation of that kind. Judging by his contributions to Academy exhibitions, it might be presumed that COCKERELL preferred his restorations of ancient cities and ancient buildings rather than his designs for offices and banks. These "professor's dreams" were indeed his most characteristic works, and the only books he cared to publish related to Classical or Mediæval antiquities. It was not, however, as an archaeologist that he was most esteemed, but as a possessor of artistic power. There could be little doubt of his ability. But it is possible that he gained his position partly by the fascination of his manner. This is the conclusion likely to be drawn by those who read the journal of his travels between 1810 and 1817, which has been edited by his son, Mr. SAMUEL PEPPS COCKERELL.

CHARLES ROBERT COCKERELL was the son of SAMUEL PEPPS COCKERELL, surveyor to the old East India Company. He was born April 17, 1788, and was taught in Westminster School. At sixteen he entered his father's office, and after about five years' training he became an assistant to ROBERT SMIRKE, then engaged in rebuilding Covent Garden Theatre. SMIRKE had journeyed in Greece, and no doubt was loud in praising what he saw, so it was arranged that COCKERELL should acquire a similar advantage. Through the influence of the Under-Secretary for Foreign Affairs he was able to travel as king's messenger, which was an advantage in so disturbed a period. After some adventures he reached Constantinople. At the time STRATFORD CANNING was beginning to exercise the power which afterwards made the "Great Elchi" feared throughout Europe. COCKERELL said of him, "For me he is rather too grand to be agreeable." In those days it was risky for a Giaour to make sketches in the Turkish capital. The subjects most admired by COCKERELL were the mountains and the grand kiosks or summer residences. He became acquainted with a Turkish architect in the expectation of gaining information, but had to own that he was "too great a rogue to keep company with, for he gets drunk and stabs his friends, and as for his art he is not worth cultivating for that, for it is confined to the chisel and mallet. And his promises are false promises, for with all my hopes I have never got him to show me anything." In a few months he exhausted Constantinople and wished to travel in the Levant. The passport was filled up by CANNING, who described COCKERELL as if he were an animated statue, viz. "Statura, mezzana; viso, triangolare; occhi, negri e splendenti; naso, fino; bocca di ermiglia; fronte, di marmo," and below "in somma Apollo in stesso." Evidently the traveller was endowed with an attractive appearance or a fortunate exterior, as his son says, "which had probably something to do with the good reception he generally met with in society throughout his life."

Athens at the time possessed more than usual interest for an Englishman of the character of CHARLES COCKERELL. Lord ELGIN had taken the marbles from the Parthenon, but they had not been removed out of Greece. LUSCIERI, his draughtsman, was still in the city. One of the first visits of COCKERELL and his party was to the Island of Ægina. He examined the ruins of the temple, and in a few days "had learnt all we could wish to know of the construction, from the stylobate to the tiles, and had done all we came to do." A labourer engaged in excavation at the interior portico struck a piece of Parian marble, which was found to be the head of a warrior and perfect in every feature. This led to further examination, and sixteen or seventeen statues besides fragments were unearthed. It was then easy to carry off spoils from Greece, but at Ægina the authorities protested, as they feared calamities might fall on the island if the remains were disturbed. A payment of 40% overcame the difficulty. They were able at last to bring the sculpture to Athens, and then the question arose what was to be done with it. COCKERELL had for companion a very young English architect named FOSTER, but he also picked up a couple of Germans. The Englishmen were anxious the marbles should be secured for the British Museum, the Germans wished to have them for their own country. Lord HARDWICKE and the other trustees of the British Museum obtained the authority of the Government to make an offer of 6,000% for them. But it was expressed in such official language as to excite doubts about the conditions, and the bid was therefore rejected. Afterwards Mr. COMBE, the superintendent of antiquities in the Museum, was sent to Malta, where it was expected the marbles would be sold, and he was instructed to go as high as 8,000%. In the meantime the collection was sold at Zante to the PRINCE ROYAL of Bavaria for 6,000%. There was disappointment in England, for archaeologists prized the figures as examples of architectural sculpture in the pre-Periclean age, and also as evidence of painting and gilding. COCKERELL and FOSTER had both generously agreed to abandon their share of the purchase money. All that would have to be paid by the English Government was therefore only 3,000%. The sculpture is now in Munich.

A discovery of that kind within a year of his arrival in Greece was enough to raise anticipations about the success of COCKERELL. He was more fortunate at Bassæ. He was scrambling among the ruins of the temple with HALLER, who was one of the party, when they disturbed a fox. In hope of meeting with another, COCKERELL, as became an Englishman, ventured among the lower stones and found, not what he expected, but a relief in marble. Then he carefully re-covered the stone, as he believed the whole of the frieze to be there. Afterwards other members of the party returned with the requisite powers, and during COCKERELL's absence removed the stones. There were a great many fragments, but without restoration about 96 feet of the frieze was put together. Another part was obtained in 1816. COCKERELL has given an account of what took place, which is interesting from the contrast afforded to the modern and more prosy process of exploration. The party consisted of about fifteen persons. He said:—"They established themselves for three months, building round the temple huts covered with boughs of trees, until they had almost formed a village, which they denominated Francopolis. They had frequently fifty or eighty men at work in the temple, and a band of Arcadian music was constantly playing to entertain this numerous assemblage. When evening put an end to work, dances and songs commenced, lambs were roasted whole on a long wooden spit, and the whole scene, in such a situation, at such an interesting time, when every day some new and beautiful work of the best age of sculpture was brought to light, is hardly to be imagined. APOLLO must have wondered at the carousals which disturbed his long repose, and have thought that his glorious days of old were returned." COCKERELL, being a skilful draughtsman, made drawings of the reliefs, which he sent home, and they were greatly admired at meetings of the Dilettante Society and elsewhere. The fiasco in the case of the Ægina marbles, which by one Government department was ascribed to another, moved people to desire that energetic action should be taken to acquire the Phigaleian marbles. Mr. COCKERELL,

* *Travels in Southern Europe and the Levant, 1810-17.* The journal of C. R. Cockerell, R.A. Edited by his son, Samuel Pepys Cockerell. With a portrait. (London: Longmans, Green & Co.)

senr., had submitted the drawings to the PRINCE REGENT, who expressed the wish for their immediate purchase. The price demanded was 15,000*l.* Mr. HAMILTON, the under secretary, applied to the First Lord of the Treasury, the Chancellor of the Exchequer and the Colonial Secretary of State, and obtained permission for their removal. A messenger was sent to Zante, who arrived in time. The price given was 15,000*l.*, but through the process of exchange it amounted to 19,000*l.* They reached England in 1815. The subjects represented are the contests between Centaurs and Lapithæ, and between Athenians and Amazons.

COCKERELL also visited Crete in order to examine the labyrinth, of which he gives the following account:—

We had brought a quantity of string for a clue, which we rolled on two long sticks, then lit torches and went in. At first one enters a vestibule, out of which lead several openings. Two of the three, perhaps four, dark entrances are blocked up, but one remains open. This we followed, and for three mortal hours and more we groped about among intricate passages and in spacious halls. The windings bewildered us at once, and my compass being broken I was quite ignorant as to where I was. The clearly intentional intricacy and apparently endless number of galleries impressed me with a sense of horror and fascination I cannot describe. At every ten steps one was arrested and had to turn to right or left, sometimes to choose one of three or four roads. What if one should lose the clue!... We entered many chambers; in some were Venetian names, such as Spinola; in another, "Hawkins, 1794," "Fiott," and other Englishmen, and many names of Jews. All the *culs-de-sac* were infested with bats, which were very annoying, and rose in thousands when one of our party fired a pistol. In one place is a spring. Here and there we saw some lichen, and there were occasional signs of metallic substances, but not enough to support the idea of its having been a mine. The stone is sandy, stratified and easily cut, the air dry, and it appears to me that the most probable purpose of this wonderful excavation was as a secure storehouse for corn and valuables from the attacks of robbers in the days of Minos. The work was plainly all done with the chisel.

COCKERELL could not have anticipated that the labyrinth was to be explored by another English traveller, and that most accurate representations of the interior would one day be displayed in an exhibition of the Royal Academy. Indeed, in many places which have since been the scenes of discoveries he passed over the ground as if it were hopeless. Thus, at Ephesus he says:—"The remains are very trifling, and what there are are in a very poor style. I did not any more than other travellers find out the Temple of Diana, though, of course, I have my own opinion as to the site." At Olympia he could not make out a trace of a stadium or theatre. He attempted some work at the temple, but achieved next to nothing. To do it completely, he declared, would be a work for a king. The substructure of the temple at Pergamo he described as prodigious and very noble, but the remains were disappearing, for the Turks were cutting them up into tombstones. He also travelled in Sicily, and spent a long time in endeavouring to reconstruct the Temple at Girgenti. His diary is a very good record of the state of affairs in Greece, Turkey and part of Italy in the years preceding the decline of NAPOLEON.

The fall of the Emperor allowed more freedom to students like COCKERELL. In Greece he was under Turkish dominion, but the wandering life made him lose sight of the task before him if he sought practice in London. As his son says:—"He had been forming a taste, but a taste in the externals and details of building only. Of composition and of planning he had seen as yet no fine example and had learned nothing." As he moved westwards he found that his collection of drawings and the interest of his travels, together with his charming manners, caused him to be sought after. From Rome he wrote:—"I get so many invitations and am so harassed to show distinguished persons of all nations my drawings that I can get no time to myself. And in order to have something to show, I have been obliged to finish up some of my sketches, which has occupied the whole of the last two months." It was, no doubt, very delightful to be lionised. But the only practical benefit he derived was a request to send in designs for a palace for the Duke of WELLINGTON, which was to surpass Blenheim. He set about the work with zeal, but his lack of experience was an obstacle.

As he confessed, "Plans would not agree with elevation, doors and windows would not come into their right places, I invented roundabout ways for simple ends." He was so worried by his difficulties with the abortive scheme that he asked his father's permission to become a painter. When he reached Paris he received a letter advising him about the preparation necessary to undertake work in London. "If," his father wrote, "you can bend to the consideration of what is called the 'fittings-up' of the interior of the best hotels and palaces of Paris, the graces of their *meubles* and the harmony of their colours in hangings, painting and gilding, you may be the general arbiter of taste here; and as there are very few persons who are real judges of compositions even Classical, much less sublime, and there must be few opportunities of exercising those parts of your studies here, it will be really useful if you allow yourself to look at those minor objects at Paris which in truth they judge well of." Mr. COCKERELL, senr., was proud of his son. The Duke of GLOUCESTER sought his acquaintance, and he was spoken well of in Carlton House. But, he added, "you must not be disappointed to find very common things occupying the minds of a large majority of a nation of *boutiquiers*, and we must take the world as we find it, believing always that good sense, refined judgment and true taste will ultimately prevail."

He had left London on April 10, 1810; he returned June 17, 1817. It was his resolve to bring out a treatise on Greek architecture, which was to be the joint production of his companion HALLER and himself. But his friend died suddenly in 1818, and it was not until 1859 that the work on the temples of Jupiter Panhellenius and Apollo Epicurius appeared. Like many artists, he disliked writing, and on that account in his Academy lectures he never did justice to himself. But the information he acquired was utilised by others. As his son remarks, "his collection of inscriptions was picked over by WALPOLE; HUGHES fills out his pages with his letters; BRONSTEDT uses his drawings. It is STACKELBERG who relates how he discovered the bas reliefs at Phigaleia; BEAUFORT anticipates anything he may have had to tell of Karamania; WORDSWORTH plundered his portfolio."

MR. S. P. COCKERELL has rendered a service by the account which he gives of his father's "Wanderjahre." It was in the seven years he spent in the South of Europe that Professor COCKERELL's character as an artist was mainly formed. Like most things in this world, the travels were not an unmixed benefit. We must remember it was the age of BYRON, when it was almost impossible to be considered a gentleman unless one possessed some disgust of modern society, with a desire to make time retrograde, and to become once more a sharer of the old life of Greece. CHARLES COCKERELL enjoyed the privations he met with, for they made him acquainted with conditions which were opposed to what was respectable in London. Competition in the Metropolis was to be conducted under other forms, for there was nothing in Greece to prepare him for the peculiar power by which a man like WILLIAM TITE became his temporary partner in spite of himself, and shared his fees without performing any of the work required. On such occasions he may have regretted the evenings he spent among the Turcomans sitting cross-legged on a mat and smoking. The diary explains a period of the Professor's life which was heretofore generally unknown, and enables us to comprehend some of his peculiarities which have been generally misunderstood.

THE PRINCIPLES OF ARCHITECTURAL DESIGN.

By PERCY L. MARKS.

APPENDIX A.

THE following extracts from an article written very many years ago by a Mr. SAMUEL HUGGINS are worthy of being brought to the front. He remarks:—

"Expression in architecture is given by three different means:—

"(1) Truthful adaptation of form and arrangement of the parts to the destined purpose of the edifice.

"(2) Form and proportion and general style of decoration under the guidance of analogy.

"(3) Allegory, *i.e.* symbolic sculptural (and other) illustration.

"If we were more truthful generally, we should be more expressive. The ancients availed themselves to the utmost of the labours of their predecessors, but imitated in the right spirit and adapted their buildings to their own purposes in all their peculiarities. . . . Form and proportion should be so used as to excite emotions in harmony with the purpose—feelings which are sympathetic with the spirit of the plan, so that the front, say, of a theatre, will be a kind of preface, a prelude in stone, to the entertainment within. If the building be for a gay purpose, the architect must employ those forms and lines and that style of composition that will express gaiety. If for a solemn purpose, such a character of design and such proportions as will yield a solemn aspect. Thus, rough-hewn and boldly rusticated masonry, harsh angular lines, lofty and unpierced walls will give the idea of a prison; prison-like strength, combined with palatial sumptuousness of decoration, will characterise a bank; severity of outline and form, a character grave and solemn, of patriarchal simplicity, in which nothing is hidden, intricate, or but partially told, and the absence of all imaginativeness, will distinguish a justice court."

APPENDIX B.

REMARKS BY VITRUVIUS.

THE following selected extracts from the work on "Architecture" by M. VITRUVIUS POLLIO may be fitly introduced here. The translation is by the late Mr. JOSEPH GWILT:—

"As the distances between the columns increase, so must the shafts of the columns increase in thickness . . . because the air interposed between the columns . . . apparently diminishes their thickness. . . . Columns at the angles, on account of the unobtrusive play of air around them, should be . . . thicker than the rest. . . . *The deception which the eye undergoes should be allowed for in execution.* . . . Always remembering that as the upper parts of column are more distant from the eye, they deceive it when viewed from below, and that we must therefore *actually* add what they *apparently* lose. The eye is constantly seeking after beauty, and if we do not endeavour to gratify it by proper proportions and an increase of size, where necessary, and thus *remedy the defect of vision*, a work will be always clumsy and disagreeable. . . . In proportion to the height of the column is the architrave to be proportioned; always remembering that the higher the eye has to reach, the greater is the difficulty it has in piercing the density of the air, its power being diminished as the height increases, of which the result is, a confusion of the image. Hence, to preserve a sensible proportion of parts, if in high situations, or of colossal dimensions, we must modify them accordingly, so that they may appear of the size intended. . . . All members over the capitals of columns . . . should not be vertical, but inclined forwards, each a twelfth part of its height. And for this reason, that when two lines are produced from the eye, one to the upper part of a member, and the other to its lower part, the upper line (or visual ray) will be longer than the lower one, and if really vertical, the member will appear to lean backwards; but if the members are set out as above directed, they will have the appearance of being perpendicular. . . . Where the air does not play around them (*i.e.* internal columns) the diminution thus made will not be perceived; lest, however, they should appear slenderer, when the flutes of the external columns be twenty-four in number, these may have twenty-eight, or even thirty-two. Thus, what is taken from the absolute mass of the shaft will be imperceptibly aided by the number of the flutes, and though of different thicknesses, they will have the appearance of being equal. This arises from the eye embracing a greater number of surfaces, and thence producing on the mind the *effect* of a larger body. For if two columns, equally thick, one of them without flutes, and the other fluted, are measured round with lines, and the line is passed over the flutes and their fillets, though the columns are of equal thickness, the lines which girt them will not be equal, for that which passes over the fillets and flutes will, of course, be the longest. This being the case, it is not improper, in confined and

enclosed situations, to make the columns of slenderer proportions, when we have the adoption of the flutes to assist us. . . . Nothing requires the architect's care more than the due proportions of buildings. When the proportions are adjusted, and the dimensions found by calculation, then it is the part of a skilful man to consider the nature of the place, the purpose of the building, and the beauty of it; and either by diminutions or additions to find expedients, by means of which the appearance may not be injured by the additions to, or diminutions of, the established proportions that may be necessary. For an object under the eye will appear very different from the same object placed above it; in an enclosed space, very different from the same in an open space. In all these matters it requires great judgment to adopt the proper means, since *the eye does not always form to itself the true image of an object, and the mind is often deceived by the false impression.* Thus, in painted scenery, though the surface is a perfect plane, the columns seem to advance forward, the projections of the mutuli are represented, and figures seem to stand out. The oars of ships, also, though the parts immersed in the water are really straight, have the appearance of being broken; those parts only appearing straight which are above the level of the water. This arises from the part immersed in the water reflecting its image in an undulating state up to the surface of the water, through a transparent medium, which, being there agitated, gives the oar a broken appearance. But whether the sight arises from the impression which images make on the eye, or by an effusion of visual rays from the eye, as naturalists contend, it is certain that, in some way or other, *the eye is often deceived.* Since, then, some images are falsely conveyed, and others appear different from what they really are, I think it beyond doubt that, according to nature and the circumstances of the place, diminutions or additions should be made, so that no defect may be apparent."

APPENDIX C.

THE LONDON BUILDING ACT, 1894 (57 & 58 VICT.
CAP. CCXIII.).

PART VI. SEC. 73.

RULES AS TO PROJECTIONS AS AFFECTING METROPOLITAN BUILDINGS.

THE following provisions shall (*except with the consent of the Council*) apply to projections from buildings:—

(1) Every coping, cornice, string-course, fascia, window-dressing, portico, porch, balcony, verandah, balustrade, outside landing, outside stairs and outside steps and architectural projection or decoration whatsoever, and also the eaves, barge-boards and cornices to any overhanging roof, *except the cornices and dressings to the window fronts of shops*, and *except the eaves, barge-boards, and cornices to detached and semi-detached dwelling-houses, and to other dwelling-houses in which the party-walls are corbelled out so as to project four inches beyond such eaves, barge-boards or cornices*, shall be of brick, tile, stone, artificial stone, slate, cement or other fireproof material.

For the purposes of this sub-section, a pair of semi-detached houses shall be deemed to be one building.

(2) Every balcony, cornice or other projection shall be tailed into the wall of the building and weighted or tied down to the satisfaction of the district surveyor, and no cornice shall exceed in projection 2 feet 6 inches over the public way.

(3) In a street or way of a *width not greater than 30 feet*, any shop front may project beyond the external wall of the building to which it belongs to any extent not exceeding 5 inches, and any cornice of any such shop front may project to any extent not exceeding 13 inches; and in any street or way of a *width greater than 30 feet*, any shop front may project to any extent not exceeding 10 inches, and any cornice of any such shop front may project to any extent not exceeding 18 inches beyond the external wall of the building to which it belongs *over the ground of the owner of the building*, provided that this provision shall not authorise in any such street the projection of any part of any such

shop front other than the cornice on or over the public way or any land to be given up to the public way.

(4) No part of the woodwork of any shop front shall be fixed higher than 25 feet above the level of the pavement of the public footpath in front of the shop. No part of the woodwork of any shop front shall be fixed nearer than 4 inches to the centre of the party-wall (where the adjoining premises are separated by a party-wall), or nearer than 4 inches to the face of the wall of the adjoining premises (where the adjoining premises have a separate wall), unless a pier or corbel of stone, brick or other incombustible material 4 inches wide at the least be placed as high as such woodwork and projecting throughout an inch at the least in front thereof between such woodwork and the centre of the party-wall or the separate wall, as the case may be.

(5) In a street of a width not less than 40 feet, or to a building the front wall of which is not at a less distance than 40 feet from the opposite boundary of the street, *bay windows to dwelling-houses* may be erected on land belonging to the owner of the building, notwithstanding the provisions of this Act relating to buildings beyond the general line of buildings in streets, provided that such bay windows:—

(a) Do not exceed three storeys in height above the level of the footway.

(b) Do not project more than three feet from the main wall of the building to which they are attached.

(c) Do not project in any part within the prescribed distance of the centre of the roadway.

(d) Are in no part nearer to the centre of the nearest party-wall than the extreme amount of their projection from the main wall of the building to which they are attached.

(e) Do not, taken together, exceed in width three-fifths of the frontage of the building towards the street to which such bays face.

(f) Are not constructed upon any part of the public way or upon any land agreed to be given up to the public way; and

(g) Shall not be used for trade purposes.

Bay windows to which the foregoing rules do not apply shall not be erected without the consent of the Council after consulting the local authority.

(6) In a street of a width not less than 40 feet, or to a building the front wall of which is not at a less distance than 40 feet from the opposite boundary of the street, projecting oriel windows or turrets may be constructed, provided that:—

(a) No part of any such projection extend more than 3 feet from the face of the front wall of the building, or more than 12 inches over the public way.

(b) No part of any such projection be less than 10 feet above the level of the footway of the street.

(c) No part of any such projection (where it overhangs the public way) be within a distance of 4 feet of the centre of the nearest party wall.

(d) On no floor shall the total width of any such projections taken together exceed three-fifths of the length of the wall of the building on the level of that floor.

(e) Every such projection be constructed to the satisfaction of the district surveyor, or in the event of disagreement, to the satisfaction of the superintending architect, whose determination shall be final.

Oriel windows or turrets to which the foregoing rules do not apply shall not be erected without the consent of the Council after consulting the local authority.

(7) The roof, flat or gutter of every building, and every balcony, verandah, shop front or other similar projection or projecting window shall be so arranged and constructed, and so supplied with gutters and pipes, as to prevent the water therefrom from dropping upon or running over any public way.

(8) Except in so far as is permitted by this section in the case of shop fronts and projecting windows, and with the exception of water pipes and their appurtenances, copings, string-courses, cornices, fascias, window dressings and other like architectural decorations, no projection from any building shall extend beyond the general line of buildings in any street, except with the permission of the Council after consulting the local authority.

THE NATIONAL GALLERY.

THE King has graciously given permission for the two great pictures from Hampton Court, by Tintoretto, "The Muses" and "Esther before Ahasuerus," which His Majesty lent to the Royal Academy for the winter exhibition this year, to be shown to the public for a few months in the National Gallery. The pictures, which were very much obscured by dirt and varnish, have now been cleaned; and they are hung in the Venetian Room No. VII., the large altar-pieces by Romanino and Moretto being temporarily removed for the purpose.

Mrs. Seymour, of Chesterfield Gardens, has presented to the National Gallery the large picture by Mr. G. F. Watts, R.A., called "Life's Illusions." It is hung in the Tate Gallery in Room No. VIII.

The daughters of the late Mr. H. T. Wells, R.A., Mrs. G. E. Street and Mrs. Hadley, have presented to the National Gallery their father's picture called "Victoria Regina," representing the announcement by the Archbishop of Canterbury and Lord Melbourne at Kensington Palace of Her Majesty's accession to the Throne. It is hung in the Tate Gallery in Room No. II.

A picture by Paul C. La Fargue, a Dutch painter of the eighteenth century, representing the market-place at The Hague, has been purchased for the national collection out of the Lewis fund. It will be hung in Room VI. at Trafalgar Square as soon as the redecoration of the room is completed.

ART FOR SCHOOLS ASSOCIATION.

THE annual general meeting of the Art for Schools Association was held at 46 Great Ormond Street, Bloomsbury. Mr. Lionel Cust presided in the absence of Canon Scott Holland. The report for the past year, which was read, stated that though the year had been a somewhat uneventful one for the Association, the work had nevertheless progressed steadily. The number of pictures sold during the year was 3,566, as compared with 3,338 in 1901, and it was satisfactory to note that the increased sales were chiefly of the publications of the Association, the amount received for these alone being 283% as compared with 166% in the previous year. The list of schools and School Boards supplied also showed further extension, and many orders continued to come from the colonies.

An expression of thanks having been made to Dr. Robertson, the late chairman of the executive committee, who was congratulated on his promotion to the Bishopric of Exeter, the accounts were presented.

Sir Joshua Fitch, in moving the adoption of the report and accounts, spoke of the great usefulness of the Association, which was not to be measured by the number of its members or of its publications that had been distributed. It had been the pioneer of a new set of thoughts and aspirations as to the proper functions of a school, which should be beautiful, interesting and attractive.

Miss Mary Christie seconded the resolution, which was carried.

THE GLASGOW SCHOOL OF ART.

THE governors of the Glasgow School of Art, as authorised by the Scotch Education Department, offered five maintenance scholarships and seven bursaries for competition during the session now concluding. The judges appointed by the governors have now made their awards. The judges were:—For drawing and painting—Mr. Alexander Roche, R.S.A.; Mr. W. H. Lorimer, R.S.A.; Mr. William Leiper, R.S.A.; with the headmaster. For architecture—Mr. W. Forrest Salmon, F.R.I.B.A.; Mr. John Keppie, I.A.; Mr. W. J. Boston, I.A.; and the director for architecture, Mr. Alexander M'Gibbon, F.R.I.B.A. For modelling—Mr. A. M'F. Shannan, A.R.S.A., and the director for modelling, Mr. Johan Keller. For design—Mr. W. Forrest Salmon, F.R.I.B.A.; Mr. Arthur L. Gwatkin, Mr. D. H. L. Young, and the design master, Mr. A. Aston Nicholas. The following are the winners:—Five maintenance scholarships, value 20% each—Drawing and painting—Upper school, Reginald Duncan; lower school, Daniel P. Davidson. Architecture—J. M'Nee Jeffrey. Modelling—Gilbert Tait. Design and decorative art—Adam Jenkins. Seven local bursaries, value 10% each—Drawing and painting—Peter Mitchell, Mary J. Dempster. Architecture—James Govan, William J. Wright. Modelling—Peter M'Laren. Design and decorative art—Florence Jacob, Peter M. Somerville. The gold medal instituted by Mr. Bram Stoker for "the best imaginative work of the session in any branch of effort in the school" has been gained by David B. Carter, and silver medals have been awarded to Isobel Hotchkis and Annie French. The Glasgow Institute of Architects' prizes have been gained by Evan D. Smith, 1st prize; T. Dunlop Rankin, 2nd prize.

TESSERÆ.

Reynolds's Historical and Imaginative Works.

AS many lovers of painting may wish to have a catalogue of Reynolds's historical pieces, we subjoin the following:—Hope nursing Love; Venus chastising Cupid for having learned to cast Accounts; Count Ugolino in the Dungeon; the Calling of Samuel; Ariadne; a Captain of Banditti; a Beggar Boy; a Lady in the character of St. Agnes; Thais; Dionysius the Areopagite; an infant Jupiter; Master Crewe in the character of Henry VIII.; the Death of Dido; a Child Asleep; Cupid Sleeping; Covent Garden Cupid; Cupid in the Clouds; Cupids Painting; a Boy Laughing; Master Herbert in the character of Bacchus; Hebe; Miss Meyer in the character of Hebe; Madonna, a head; the Blackguard Mercury; a little Boy (Samuel) Praying; an old Man Reading; Love losing the Zone of Beauty; the Children in the Wood; Cleopatra dissolving the Pearl; Garrick in the character of Kiteley; Garrick between Tragedy and Comedy; Mrs. Abingdon in the character of Comedy; a Child surrounded by Guardian Angels; Miss Beauclerc in the character of Spenser's Una; Resignation; the Duchess of Manchester in the character of Diana; Lady Blake in the character of Juno; Mrs. Sheridan in the character of St. Cecilia; Edwin, from Beattie's "Minstrel"; the Nativity, Four Cardinal Virtues, and Faith, Hope and Charity, for the window of New College Chapel, Oxford; the Studious Boy; a Bacchante; a daughter of Lord W. Gordon as an Angel; the Holy-Family; the Cottagers, from Thomson; the Vestal; the Careful Shepherdess; a Gipsy telling Fortunes; the infant Hercules strangling the Serpent; the Mouse-trap Girl; Venus; Cornelia and her Children; the Bird; Melancholy; Mrs. Siddons in Tragedy; Head of Lear; Mrs. Talmash in the character of Miranda, with Prospero and Caliban; Robin Goodfellow; Death of Cardinal Beaufort; Macbeth, with the Cauldron of the Witches.

Anglo-Saxon Masonry.

The Pharos in Dover Castle is a fine specimen of Roman excellence; its builders could not get hewn stone, but they so bound their flint rubble with bands of brick that the tower stands like a rock. Close by is the desecrated church, with a good deal of undoubted British masonry in its shell. Here, too, there is "Roman brick" in the quoins, &c.; but the general inferiority of the masonry to the real Roman work is very striking. Then again the fine Romanesque ashlar in the chapel of the Norman keep in the same fortress is a specimen of the reviving art of masonry, but it is in kind like that of the little parish church near the Caen quarries. The stones are all small, though beautifully and effectively used; there is no single stone to tempt you to measure its length and width and to exclaim at its bulk, which seems to be the general effect produced on people's minds by modern masonry. As a matter of fact, it must, we suppose, be granted that the architects of the Romanesque and Early-Pointed styles could not procure large stones; they were compelled to use even fine building stone—like that (which they so highly valued) of Normandy—in small masses, as they could inartificially obtain it from the quarries. So late as 1841 there was not a single crane at Caen by which to ship the stone had it been extracted in very large blocks, a fact that may assist us to comprehend the great mechanical disadvantages under which the Mediæval architects laboured. But though their stone was in such small pieces, how beautifully they used it. Of course there is a great deal of ancient work that is very bad; although what has stood for six or seven centuries may seem fairly entitled to entire exemption from any blame. But as a general rule early masonry—at least after the later Romanesque had superseded the Anglo-Saxon kind—is surprisingly excellent, not only for solidity, but for keeping and harmony. It suits the style. The eye is satisfied entirely, without knowing or inquiring why. You admire the design, and feel almost unconsciously that it is worthily embodied in its material exhibition. You are neither induced to examine and commend the ingenuity with which the difficulties of a bad building stone are overcome, nor are you called on to join in the vulgar admiration of "such big blocks." In a word, you forget such a mere detail in the whole; but when you can descend from the whole into particulars you find them all that can be wished.

Guatemala Cathedral.

The old churches in Central America are, or are intended to be, in the Italian style. Guatemala Cathedral is the only correct and fine church in the country. It was built by an Italian architect in the last century, after the destruction of the cathedral of Old Guatemala by an earthquake. In general correctness of style it is perhaps equal to St. Paul's Cathedral, London; and the churches generally are nearly as good as provincial churches in Italy. This cathedral is perhaps about 300 feet long. There is a lady chapel east of the high altar with an apsidal end. The nave, which is about 35 feet wide and 40 to 45 feet high, has double aisles, each 15 to 20 feet

wide, north and south clerestory and transepts, or quasi-transepts with chapels. The walls are of great thickness and the windows rather small for the size of the building, which has a gloomy appearance. The window frames are of wood, and do not open sufficiently to ventilate the buildings properly. The orientation of the churches generally is correct or nearly so; and the principal entrance almost always in the west front or portico. Guatemala Cathedral has a dome over the choir. The other churches generally have a kind of dome or dome-covered tower. It has a good peal of deep-toned bells; and the organs, clocks and bells generally are good, and of Spanish manufacture. The roofs, both of the nave and aisles, are plain semicircular stone vaults, covered externally with stucco or cement; there is no timber, lead or slate used.

An Irish Hermitage Settlement.

Ardoilen, or High Island, is situated about six miles from the coast of Omey, and contains about 80 acres. From its height and the overhanging character of its cliffs, it is only accessible in the calmest weather, and even then the landing, which can only be made by springing on a shelving portion of the cliff from the boat, is not wholly free from danger; but the adventurer will be well rewarded for such risk, for, in addition to the singular antiquities which the island contains, it affords views of the Connemara and Mayo scenery, of insurpassable beauty. The church here is among the rudest of the ancient edifices which the fervour of the Christian religion raised on its introduction into Ireland. Its internal measurement, in length and breadth, is but 12 feet by 10, and in height 10 feet. The doorway is 2 feet wide and 4 feet 6 inches high, and its horizontal lintel is inscribed with a cross, like that on the lintel of the doorway of St. Fechin's great church at Fore, and those of other doorways of the same period. The east window, which is the only one in the building, is semicircular-headed, and is but 1 foot high and 6 inches wide. The altar still remains, and is covered with offerings, such as nails, buttons and shells, but chiefly fishing-hooks—the most characteristic tributes of the calling of the votaries. On the east side of the chapel is an ancient stone sepulchre, like a pagan kistvaen, composed of large mica slates, with a cover of limestone. The stones at the ends are rudely sculptured with ornamental crosses and a human figure, and the covering slab was also carved, and probably was inscribed with the name of the saint for whom the tomb was designed, but its surface is now much effaced; and as this sepulchre appears to have been made at the same time as the chapel, it seems probable that it is the tomb of the original founder of this religious establishment. The chapel is surrounded by a wall, allowing a passage of 4 feet between them; and from this a covered passage, about 15 feet long by 3 feet wide, leads to a cell which was probably the abbot's habitation. This cell, which is nearly circular and dome-roofed, is internally 7 feet by 6, and 8 feet high. It is built, like those in Arran, without cement and with much rude art. On the east side there is a larger cell, externally round, but internally a square of 9 feet, and 7 feet 6 inches in height. Could this have been a refectory? The doorways in these cells are 2 feet 4 inches in width, and but 3 feet 6 inches in height. On the other side of the chapel are a number of smaller cells, which were only large enough to contain each a single person. They are but 6 feet long, 3 feet wide and 4 feet high, and most of them are now covered with rubbish. These formed a Laura like the habitation of the Egyptian ascetics. There is also a covered gallery or passage, 24 feet long, 4 feet wide and 4 feet 6 inches high, and its entrance doorway is but 2 feet 3 inches square. The use of this it is difficult to conjecture. Could it have been a storehouse for provisions? The monastery is surrounded by an uncemented stone wall nearly circular, enclosing an area of 108 feet in diameter.

The Bridges Committee of the London County Council have written to the Woolwich Borough Council regretting that, owing to the County Council's heavy commitments, it cannot proceed at present with the scheme for a subway under the Thames at Woolwich.

The First Summer Excursion of the Leeds and Yorkshire Architectural Society took place on Saturday, the 13th inst., when the members visited the new St. Anne's (R.C.) Cathedral now in course of erection in Cookridge Street, Leeds. The visitors were met and conducted over the works by the architect, Mr. J. H. Eastwood, to whom a vote of thanks was accorded on the motion of Mr. Butler Wilson, president of the Society. The members then inspected additions to Messrs. Spark & Son's printing works, where a new system of fireproof flooring known as the "Fram" has been introduced into Leeds by the architects, Messrs. Butler Wilson & Oglesby. The party afterwards journeyed to Seacroft, where a new infectious diseases hospital is in progress from the designs of Mr. Edwin T. Hall.

NOTES AND COMMENTS.

THE decision of Mr. CURTIS BENNETT in a case of seven summonses issued by the Hampstead Borough Council against Mr. TENNANT, a contractor, for making structural and sanitary alterations at the Finchley Road Station without giving notice to the Council must have excited commotion in the offices of railway engineers and architects. It is generally understood that, as the premises of railway companies exist by means of special Acts, they are exempted from the operation of ordinary by-laws. The London Building Act affords evidence of the fact. But the Hampstead Council contend there is no clause in the Public Health Act and Metropolitan Management Act which authorises any exemption of railway premises. In section 45 of the Public Health Act, 1891, which relates to management of public closets by sanitary authorities there is the usual formula:—"Nothing in this section shall apply to railway stations." The Council say the exemption proves that the other sections are to be applied. Mr. CURTIS BENNETT adopted that view. He considered the company had not acted wisely from a health point of view in the alterations they had made, and that the Public Health Act did apply to this case. He had come to the conclusion that the company had offended in reference to all the summonses. Fines and costs amounting to 11*l.* 6*s.* were inflicted. This, Mr. CURTIS BENNETT remarked, was the first case of this kind which had ever been decided, and if the decision he had come to was right, it would have a far-reaching effect, for it would touch every railway in the country. It is not surprising that notice of appeal was given.

WE referred lately to the condition of the schools in East Sussex which were taken over by the new educational authority. The West Sussex schools appear to be in a more satisfactory state. Sixty-five of them were examined, and according to the surveyor the matters requiring chief attention were poor sanitary arrangements, faulty ventilation and lighting, and unsuitable playgrounds. In some small schools infants' classrooms were badly needed. In larger schools improvement would sometimes result from the more general use of suitable partitions. It was always possible to suggest improvements, but in some cases these were of a minor character. As in East Sussex the sanitary arrangements were often found to be very unsuitable. The sub-committee recommended that notice be sent to all schools stating that a good and sufficient supply of water is necessary for every school, and that such supply should be provided quite separate from the teacher's dwelling-house where such dwelling-house adjoins the school. An amendment was proposed that the question of water supply should be postponed, and it was agreed to by a majority of one.

THE "James Forrest" lecture was intended to be a memorial of the late Secretary of the Institution of Civil Engineers, who applied a part of the money subscribed for his portrait to that purpose. This year Mr. W. H. MAW was selected as lecturer, the subject assigned being "Some Unsolved Problems in Engineering," and his discourse was delivered at the opening of the Engineering Congress on Tuesday. In the course of it he referred to the so-called "factors of safety" employed in the design of structures, and which, he said, might more properly be described as "factors of ignorance." It was pointed out that a more exact knowledge of the effect of wind pressure, especially on the lee-side of roofs, might result in a revolution in the construction of such structures; whilst the question of stresses in girders, the effect of compound stress in stayed plates, girders and boiler shells, the determination of elastic resistances, the effect of alternating bending stresses, elastic fatigue and other problems of this nature were referred to, and instances were given of the influence they should exert on design of engineering structures. To the employment of the microscope, it was said, we must look for our chief aid in determining the changes which the structure of metal undergoes as the result of the application of repeated loads. The action of oil tempering, the thermal treatment of steel, and the action of the alloys, especially the alloys of nickel and iron, were also considered. On the latter point our knowledge was meagre, and consisted

chiefly of isolated tests. The results obtained had shown the material to be of the greatest value, and the time had come when an exhaustive examination should be made. An alloy iron containing 35 to 36 per cent. of nickel had an exceedingly small change of volume, the linear expansion and contraction under the influence of heat being only about that of one-tenth of platinum, that is to say, it was practically insensible to ordinary atmospheric changes. They had there the singular case of two metals, possessing about the same coefficient of expansion, giving when mixed under certain conditions only about 1-13th to 1-14th of that of either of the metals separately. In conclusion Mr. MAW spoke about the progress of electrical engineering, which he considered as exemplifying what can be done when physical research is combined with engineering.

THE narrowness of Balls Bridge, which carries the main road from Kingstown to Dublin over the river Dodder, was found to cause so much inconvenience on the occasion of the last visit of Queen VICTORIA to Ireland, there was a resolve to widen it. Plans were prepared by Messrs. PARRY & ROSS for the work. The lowest tender received was from Messrs. H. & J. MARTIN, which amounted to 7,230*l.* Afterwards the design was modified, and the tender was reduced to 6,643*l.* That was in 1899. The work was not commenced, and in 1902 an inquiry was held, after which a loan of 8,000*l.* was sanctioned. After another delay it was decided to have the quantities again taken out by a different firm of surveyors, but from the same plans. Messrs. MARTIN's tender was 8,397*l.*, while another from Messrs. STEWART was received for 7,645*l.* There seems to be no prospect of saving by the experiment, but the reverse. Both sets of quantities will have, we suppose, to be paid for, and the bridge will cost more than if constructed four years ago. In such a case the auditor of the Local Government Board would do well to withhold his approval of the unnecessary surveyors' work, and to let the expense be borne by the members of the local Urban Council.

M. ANTONIN MERCIÉ, the French sculptor, is a sufferer through the Servian tragedy. He had completed the model of the equestrian statue of King MILAN, which was to bear the inscription, "Regi Milano patriæ gratitudo erexit." The pedestal is flanked by symbolic groups, and on two of the sides are reliefs, one showing the King receiving the keys of the city of Nisch, and the other the King reading his proclamation before the Servian Assembly. The work was to be erected on a part of the fortification of Belgrade, near the Danube. M. MERCIÉ was about to start for that city to submit the model and to prepare busts of King ALEXANDER and his Queen when the news arrived of the assassination. It is, of course, doubtful whether the Servians will care sufficiently for the memory of a King who abdicated to undertake the expense of a costly monument of him.

UNTIL a recent time Mr. WATERHOUSE could be considered as physically among the few vigorous Academicians, and no architect was more vigilant in the practice of his business. It was hoped that with his constitution his attack of illness would cause no more than temporary weakness. The announcement of his joining the retired Academicians therefore caused regret, and the accuracy of the news was doubted. On Wednesday, however, there was an election to fill the vacancy caused by his retirement. It was anticipated that Mr. DAVID MURRAY, who has quickly secured position by his fine landscapes, which seem to be as unstudied as natural scenes, would be successful. Mr. ASTON WEBB has, with more fitness, become the successor of Mr. WATERHOUSE. It is not often an architect who is so comparatively young has attained a similar position, as well as the Presidentship of the Institute. Mr. WEBB has done and is doing excellent work, but it is safe to anticipate, if opportunities are given, he will exceed his past in the future.

ILLUSTRATIONS.

UNIVERSITY COLLEGE HOSPITAL.

CATHEDRAL SERIES: WORCESTER.—SOUTH-EAST TRANSEPT, LOOKING INTO LADY CHAPEL, THE SCREEN AND CHOIR.

PROPOSED HOUSE AT HIGH WYCOMBE.

HOUSE, BRANKSOME PARK, BOURNEMOUTH.

WARNHAM COURT AND CHRIST'S HOSPITAL.*

THE Manor of Warnham is traced back to 1272, when it was held by William de Saye. It passed in turn to Sir John Doyley, to the De Lewknors and the Coverts, and eventually the main part was acquired by Sir John Caryll, Kt., who died in 1613. In those days the manor house was known as Warnham Place. Warnham Court lies near the village of Warnham, which is about three miles from Horsham, and a very pretty Sussex village it is. It consists mainly of one long street running north and south, and has many pleasant residences in its neighbourhood, of which Warnham Court is a good and pleasing and fine example of a modern Elizabethan home, the characteristic features of which have been made suitable for the tastes and requirements of the present day. Its beauties are manifold, but they are purely of that quiet, domestic character that is utterly opposed to ostentation and show, and that give it an air of comfort possessed by but a few of its more pretentious neighbours. Sussex is a county of many mansions," and they are as varied in their style and their architectural character as they are in the periods in which they have been erected; but few can, out of the whole, compare with Warnham Court in pleasantness of situation, in beauty of external surroundings or in comfort of internal arrangements; it is a house fitted for hospitality and for the enjoyment of the guests its owner delights to have around him—it must be ranked as a home of taste. Mr. Lucas is a liberal patron of art; the walls are hung with pictures of matchless excellence, chiefly by modern, and most of them by British, artists. A list of them would include nearly all the best painters of the age. Warnham Court was built in the Elizabethan style, in place of an older house, in the beginning of the last century, by Henry Tredcroft, of Horsham, a fine old Sussex squire, and at his death was sold to Sir Thomas Pelley, Bart., who made it his residence. The whole estate passed by purchase from the executors of Sir Henry Pelley in 1866 to its present owner, Mr. Charles T. Lucas, the head of the well-known firm of Lucas Brothers, the eminent builders and contractors, to whom we are indebted for the privilege of visiting the place to-day. By Mr. Lucas the house has been remodelled and considerably enlarged, its Elizabethan character being, however, carefully preserved in every detail. Mr. Lucas is the eldest son of the late James Lucas, and is Lord of the manor of Warnham, a governor of Christ's Hospital and a magistrate for the county of Surrey, and is highly esteemed and honoured, and no one is more thoroughly entitled to the lofty position to which, by honourable industry, great ability and high character he has attained. The mansion is approached from the principal lodge entrance by a drive through the park, which is finely timbered with forest trees of large growth; these are chiefly oaks, of which there are some remarkably fine and gigantic examples. Under these roam innumerable herds of red and fallow deer, which add much to the beauty of the park scenery. The lodge, with its overhanging roofs, its mullioned windows, its geometrical chimney-shafts and its advanced porch, is one of the most picturesque and pleasant in the county. The mansion itself is situated on an eminence, and commands extensive views of the surrounding country. On the east side is the carriage entrance, which is a spacious gravelled courtyard, enclosed next the park by a stone balustrade. On the south side is the grand terrace, a fine promenade walk some 600 feet in length by 20 feet in width, adorned with statuary, and overhung and shaded by magnificent trees. This terrace is supported at an elevation from the park of about 10 feet by a massive stone wall and elegantly designed balustrade; in the recesses are fine examples of sculpture, and the balustrade itself supports a number of elegant vases, terminals and other ornaments, placed at regular distances. The park from this point slopes gently away till it ends in a fine ornamental lake. Looking to the eastward down a lovely glade in the park, another and more magnificent piece of water, covering an area of over 30 acres, is seen in the distance. On the right, while passing along to the west end of this terrace, stands the conservatory, which is filled with the choicest exotic palms, tree ferns and flowering plants. In the centre, on a massive marble base, stands a magnificent sculptured group of figures in white marble. The surrounding grounds are beautifully undulating and diversified, and comprise the flower garden, croquet lawn and American garden. The latter is situated in a natural dip of the ground, and is completely encircled and sheltered by a dense mass of oaks and other forest trees, at the foot of which is a broad belt of common laurel, rhododendron, &c. Then follows a winding walk, encircling about an acre of grass lawn, on which are planted masses of azalea, rhododendron, kalmea, andromeda, specimen coniferæ, &c, the whole producing a strikingly pleasing effect. At the end of this terrace is a broad flight of

steps, leading to another terrace walk nearly a quarter of a mile in length, and flanked for most of that distance on each side with masses of rhododendrons, alternated with some fine specimens of Cedrus deodara and the Chinese juniper. Again descending by another flight of steps, access is gained to the rose garden. This garden of roses, which is of perfect Eastern loveliness, takes the form of a half-circle, filled entirely with the choicest roses, backed by a broad belt of flowering rhododendrons. It contains upwards of a thousand standard roses, and nearly as many dwarf roses, which comprise examples of every colour, shade and variety that are worth cultivating. The effect when these are fully in flower is enchanting in the extreme. There is a very choice collection of dwarf Japanese forest trees, some of which are 150 to 300 years old. The forcing and plant houses occupy three sides of a square, and are kept gay with flowers all the year round. In the camellia house is a plant of the old double white camellia, 20 feet across and more than that in height. The rose house is filled almost entirely with tea scented roses. The vineries and the peach houses are simply splendid, with their luscious treasures in different stages of growth. The orchid house is full of the choicest and rarest plants, and the mode of their cultivation is seen and is most interesting. The kitchen garden comprises about four acres. The park is some 350 acres in extent, and the farm occupies about 600 acres more; the pleasure grounds add another 50 acres, so that Warnham Court is a fine and noble property, unmatched in its district.

Warnham Church we visited last year, and its history and monuments were fully dealt with by Mr. Truslove.

The new Christ's Hospital Schools at Horsham, which, by the kind permission of the Rev. Arthur W. Upcott, we have been able to visit to-day, occupy a charming position in thickly-wooded surroundings, and when viewed from Tower Hill, across West Horsham, present a very picturesque scene,



[WARNHAM COURT.]

with their dignified and stately turrets. The ground upon which they are built was but a few years since the estate of the Aylesbury Dairy Company, which has now become the home of one of the largest historical educational institutions in the world, and is undoubtedly admirably suited for the purpose. From them you get in one direction distant views of the Surrey hills and in another the Sussex downs, and from the point of view of healthfulness the position cannot be surpassed. The ground covers an area of nearly 1,400 acres, the part allotted to the school buildings extending to about 120 acres; the frontage is a quarter of a mile long. The general design of the new structure possesses as its central feature the great hall, with its entrance leading into the quadrangle; that on the northern side being the dining-hall, while the chapel is on the west and the science and art school on the east. All are so

* A paper read by Mr. Henry Virgoe before the members of the Upper Norwood Athenæum.

designed that one may pass through them all without leaving a covered way, the same passage giving access to the classrooms on the south and east. The great hall is somewhat larger than its predecessor and is noticeable for its fine interior. The chapel is perhaps the most handsome building; although treated on similar lines to the great hall, it has the advantage of bearing a more elaborate character. With regard to the dining-hall, the lines of the old hall have been followed to some extent and with great success. On the side facing the quadrangle are fixed the beautiful stained-glass windows from the old hall, the Royal windows being at the head, and those bearing the well-known coats-of-arms at the side. On the north side is placed Antonio Verrio's huge picture.

The quadrangle has been admirably laid out with the statue of Edward VI. in the centre, accompanied by a fountain, while in four niches of the buildings forming the quadrangle are statues of Queen Victoria, King Edward VII., the Duke of Cambridge, and the treasurer, Mr. Alderman Vaughan Morgan.

The house blocks, of which there are eight, are divided into two houses, each for fifty boys and two house masters, besides the domestic staff. It may be interesting to mention that the school houses are named after old boys, viz.:—Maine, Barnes, Lamb, Coleridge, Middleton, Thornton and Peele, and that over the doorway of each is a sundial. There are 800 boys in the schools, and thirty-two classrooms.

The architects were Messrs. Aston Webb & E. Ingress Bell, and the builders Messrs. Longley & Co., of Crawley. The cost was about 300,000.



CHRIST'S HOSPITAL.

the foundation and endowment of this hospital and the Royal Mathematical School by His Majesty King Charles II. by letters patent in 1673 and 1675."

With regard to the controversy which arose respecting the centre figure, as to whether it was Charles II. or James II., it was Mr. Carey's opinion that it represented James II. He said:—Verrio having been engaged some years upon the picture, he probably completed the middle part of it during the first two or three years of the dates given on the tablet. Samuel Pepys, at whose instigation the picture was painted, had some difficulty in getting Verrio to finish it, and said the sides of the huge painting were probably hurried off at a later date by him and his assistants. This accounted for some of the work at the sides being inferior to the centre piece. The notorious Justice Jefferies and Samuel Pepys are portrayed and also the founder, Edward VI.; while the lord mayor, in a red robe, is drawing the king's attention to the work of the scholars, the head master being in a kneeling position before a globe, representing the world. On the right of the picture, behind the head master, are depicted the boys, and on the left of the canvas are the girls, while the masters and professors are also represented, together with Verrio, whose back, however, is only shown, as he has turned, and is, presumably, speaking to the attendants. The picture has a new frame of Oregon pine, the ceiling of the huge dining-room being of similar wood.

Another ancient picture of the school, representing King Edward VI. presenting the Charter to the Lord Mayor of London, is extremely interesting; the lord mayor, aldermen



CHRIST'S HOSPITAL.

The boys from both Newgate Street and Hertford took possession of the schools in June 1902. The girls remain at Hertford.

The following figures show the magnitude of the work. There were used:—20 millions of bricks, $1\frac{1}{2}$ millions of tiles, 31,000 tons of sand, 5,000 tons of cement, 15,000 tons of beach, 5,000 tons of coke breeze, 21,000 yards of wood-block flooring, which was equivalent to 5 acres; 100,000 cubic feet of Bath, Portland and York stone; and the approximate amount of tonnage was 150,000 tons. In addition there were 40 miles of hot-water pipes, and 98 miles of electric wires.

A few notes which I have come across may not be uninteresting, relating, as they do, to the removal of various statues and pictures from Newgate Street to their new home. With the statues this was found to be not an easy task by any means, considering the fact that some weigh nearly a ton. Great skill and care had to be exercised to remove them and transfer them to the new school, where they are raised and fixed on alcoves at a great height without the least damage. In order that the school should retain some of its ancient associations, the whole of the brickwork around the alcoves was transferred from the old school to the new. Another and important work was the cleaning and restoration of the famous school picture. This required a great amount of delicate treatment, and it has been admirably carried out by Mr. C. W. Carey, curator of the picture gallery at the Royal Holloway College, Egham, assisted by Mr. Ralph Warner, and has undergone quite a transformation. This picture, which is hung in the dining-hall, is 90 feet in length and 15 feet high, and for the purpose of removing it was found necessary to cut the canvas in three pieces. The tablet affixed to the picture states:—"This monumental picture, the work of Antonio Verrio, was designed and painted in 1684-90, to commemorate

governors and masters of the school, and Bishop Ridley, in his robes, are depicted, with the boys on one side and girls on the other. This picture, reputed to be by Holbein, Mr. Carey considers to be the work of Sir Antonio More, Holbein having died before the incident depicted took place. More was a Dutchman, educated by a Dutch painter, and thus was practically equal to being a Flemish painter. He then went to Italy and studied for a few years; afterwards he went to Spain, where he became eminent. He was then sent over to England by Charles V. to paint the portrait of Queen Mary for her future husband Philip. More was so successful in England that Queen Mary appointed him court painter. He came to England about the year that the incident in the painting happened. The picture, when in the old school, was indistinguishable, owing to dirt and dust, but after undergoing a thorough process of restoration, the original colours are now showing considerable richness, the figures being seen clearly and vividly. The tablet states:—"This great picture, attributed to Hans Holbein, commemorates the incorporation by the future King Edward VI. of pious memory of the three Royal Hospitals of Christ, Bridewell and St. Thomas the Apostle by a common charter, dated June 26, 1553."

I have not thought it necessary to go over the history of the Bluecoat School, as it was so exhaustively done by our friend Mr. Alexander when he conducted us over the buildings in Newgate Street some three years ago—a full account of which appears in our annual volume, and is most interesting.

I am indebted to Mr. Alderman Vaughan Morgan, the *Architect and Contract Reporter*, the *Sussex Daily News*, the *Southern Weekly News*, Llewelyn Jewitt, F.S.A., S. C. Hall F.S.A., H. S. Vaughan and W. F. Harradence for the foregoing particulars. The illustrations are from photographs by Mr. Wheeler and Mr. Virgoe.

THE CELTIC GOLD ORNAMENTS.

ON Thursday in last week the unique case Attorney-General v. Trustees of the British Museum began in the Chancery Division of the High Court before Mr. Justice Farwell. The claim was for the delivery of certain ancient Celtic ornaments, some time since found near Limavady, County Derry, and now in possession of the defendants, being alleged to be treasure trove belonging to His Majesty the King by virtue of his prerogative royal and in right of his royal crown. They consisted of (1) a hollow collar in two sections, with elaborate repoussé ornament of eccentric curves, of Celtic workmanship, and dating probably from one of the early centuries of the Christian era; (2) a model boat with eight (originally nine) thwarts and a number of oars, spars, &c.; (3) a hemispherical bowl of thin metal, with four rings at the edges for suspension; (4) a solid gold torc of stout wire, with thinner wire twisted round it; (5) one half of a similar torc; (6) a necklace formed of three plaited chains, with a peculiar fastening; and (7) a thin single chain necklace of the same plaiting.

The Attorney-General, in the course of his address, said all the ornaments were found within a space of 9 inches, and seemed to have been concealed. The land was not reclaimed from the sea. The question to be decided was, Were they to be considered as treasure trove? According to Coke:—Treasure trove is gold or silver in coin, plate or bullion, which hath been of ancient time hidden wheresoever it be found, whereof no person can prove any property; it doth belong to the King, or to some lord or other by the King's grant or prescription." If the British Museum could prove the title of the person who sold the articles, the Crown would have no right, and a suggestion had been made that the sea flowed over the land where the articles were found, but in some unexplained way they had remained after the sea had receded. He need not inquire how many thousand years before the Christian era the sea flowed over the ground. It was also said the articles were a votive offering to a heathen deity, but he maintained, whether that was the fact or not, it would not affect the question of the articles being treasure trove. The trustees of the British Museum contended that by a charter of James I., 1613, treasure trove in this part of Ireland where the articles were found belonged to the Fishmongers' Company, on whom it was conferred by the Irish Society. This defence, however, was not open. Treasure trove belonged to the class of rights known as *jura regalia*, and the right could not pass from the Crown as suggested. The charter of James I. was forfeited by a judgment of a Court of Chancery, but in 1662 King Charles II. gave a fresh charter to the Irish Society. It was contended for the British Museum authorities that the charter conferred the right to treasure trove upon the Irish Society. He argued that it would not avail the defendants to set up a title to the gold ornaments found at Limavady in a third party against the King, but they must aver the right in themselves. It would be most inconvenient that our title should be tried by third parties and not by the Irish Society and Fishmongers' Company, who are not here making the claim.

Mr. Warmington: The trustees have an order from the Fishmongers' Company to the effect that they had passed a resolution passing their rights in the relics to the British Museum authorities for the better preservation of the relics.

The Attorney-General suggested that his lordship should deal with the case as it stood, and if the Fishmongers' Company had any right they could proceed by petition of right, and if they succeeded they could hand the relics over to the British Museum. He understood, however, that the Fishmongers' Company did not care about the articles.

His Lordship: Must you prove that the things were hidden? It would be a very difficult thing to prove. There might have been a landslip. Must you prove that they were hidden?

The Attorney-General: Yes, my lord; but the fact that they were found in the condition they were, all together in a few inches, indicates that they were hidden there by someone, and that shows that they were treasure trove.

His Lordship: Supposing they were dropped by accident?

The Attorney-General: I could not then contend that it was treasure trove; but I maintain that here the ornaments were placed or hidden intentionally. They were found all together in stiff clay 14 inches deep, and the inference is that they were placed there.

His Lordship: If they had been found at intervals of 30 or 50 yards you would not say they were treasure trove?

The Attorney-General: No, my lord; in those circumstances I could not maintain that they were.

Thomas Nicholls said that in 1896 he was engaged in ploughing land known as the six-acre field. A man named Morrow, since dead, was working with him, Morrow being in front and witness followed after, making a deeper furrow with an American plough. The land was of stiff clay. Suddenly

the plough met with a hard substance, and was turned out of its line. He examined the plough and found something fastened on it. He looked and found the gold ornaments produced. They occupied a space of 9 inches. The spot was 15 yards from the hedge. He took them in and had them washed by Mrs. Nicholls, subsequently handing them over to Mr. Gibson, the farmer. The ornaments were about 16 inches below the surface.

Cross-examined: The occasion when he found the ornaments was the first time he had worked in the field. In ploughing he occasionally turned up shells. They were the same sort of shells as those found on the shore. When he examined the ground where the ornaments were found he had not to dig for them. They were on the surface at the bottom of the furrow. They were bright just as they were now, but not the same shape. The boat was more like the bowl than its appearance presented now.

Mr. H. Myers, surveyor, stated that the last witness pointed out to him where the ornaments were found, which was marked on a map.

Mr. Justice Farwell: What am I to assume as to the age of the articles?

The Attorney-General: It is common ground that they are very old.

Mr. Warmington, in opening the case for the defence, said that the Attorney-General had taken his authorities from what in another place might be called a high Tory source. But there was another high Tory authority, whose views on treasure trove were a little different. He would not argue the point now, but merely indicate what Blackstone laid down, as set out in Stephen's Commentaries, 3rd Edw., vol. ii., bk. iv., part 1, p. 530. On the evidence, their case was that this was not a case of abandonment at all, but a case of a votive offering made to a deity. In comparatively recent times there had been an upheaval of land formerly covered with water in this and other localities, and it was a well-known custom of the ancients to place votive offerings in the water to propitiate the water deities. They contended that these articles were so placed in the water and that the spot where they rested afterwards became dry land. This contention would involve evidence from geologists and from persons who had made a study of votive offerings. The period to which he alluded might be roughly put as extending from the third century B.C. to the first century A.D.

Mr. J. L. Myres, student and tutor of Christ Church, Oxford, and lecturer in Classical archaeology in the University, was then called and a question was put to him as to the general characteristics of a votive offering.

The Attorney-General objected to the evidence.

Mr. Justice Farwell: I am unwilling to shut out evidence, but I cannot have a lecture on votive offerings. This is not pleaded. However, I will hear the evidence *de bene esse*, but will take a note of the objection.

Mr. Myres said that in general a votive offering was some offering given by somebody to a deity either to secure a future advantage or as thank-offering for an advantage already received. As to offerings to water deities, if the deity had a recognised place on land where he might be easily approached the offering was placed there. If not, it was placed in the water. Offerings were sometimes wrapped up. In some cases they were disfigured before being put in the water in order to liberate the supposed soul of the offering. The same thing was still done in the Malay Peninsula. He had read of cases of offerings which had been placed in water being recovered, but he had not himself come across such a case.

The witness was then examined as to specific instances of offerings made to water deities. He gave instances from Greek literature. Pausanias, book 8, ch. vii., mentioned horses being thrown into the sea as an offering, and Herodotus related how Xerxes threw a gold cup and a sword into the Hellespont. Tacitus, in "Germania," ch. 40, spoke of slaves being drowned in pools. There were other instances in Frazer's "Golden Bough" and in Hartland's "Legend of Perseus," among the latter being the case of a well in Roscommon into which offerings were thrown. In Denmark offerings had been discovered in lakes which had gradually been filled up. The model of a boat had been found in what was once a branch of the Humber.

Mr. Justice Farwell: What you have to show, I think, is that within any reasonable period in this district of Ireland there was a water deity to whom it was customary to make votive offerings. I shall have to hear what the Attorney-General has to say on all this evidence. As at present advised the evidence, though interesting, does not help me very much.

After the witness had been briefly cross-examined by the Attorney-General, the Court adjourned.

On the second day Mr. Warmington read the depositions of Mr. Arthur Evans, keeper of the Ashmolean Museum at Oxford, who had the objects in question at his own house for some time in order to study them, and who communicated a paper on the subject in 1897 to the Society of Antiquaries,

which was embodied in the present depositions. Mr. Evans arrived at the conclusion that the articles constituted a votive offering. He thought that the chains were of foreign work, the collar of Celtic work contemporary with the chains, and that the boat was made expressly for a votive purpose. He could not imagine that any one could have the idea that the articles formed part of the treasure of a monastery, and considered as far-fetched and improbable the suggestion that they might have been stolen and hidden by a robber. Nor did he think that they had been collected as works of art and hidden for security in comparatively recent times. It would be a curious coincidence that so many contemporary things should have been placed together by a person who had not our present knowledge of the subject. He did not look on the boat or the bowl as works of art.

Mr. McCausland Stewart, harbour engineer, Londonderry, said that the place where the articles were discovered was about 4½ feet above ordinary high-water on Lough Foyle. There was a specially high tide in February of this year, which washed over the embankment of the Lough, and the level of the water must then have been higher than the spot where the articles were found.

Professor Edward Hull, F.R.S., said that he was formerly director of the Geological Survey of Ireland. The spot where the articles were found was part of what was known to geologists as a raised beach. The raised beach extended all along the north coast of Ireland and down the east coast as far as Wicklow. In the north it was about 15 feet high, but towards the south its height was only about 4 feet. Its general character was that it was a nearly flat terrace of varying width, with the old coast line on the inland side and a slope down to the sea on the other side. A similar formation was found in Scotland, but there the height was generally greater—about 25 feet. The Carse of Gowrie was an example. In the raised beach in the north of Ireland were found not only shells of the present period, but flint arrow-heads and other articles made of flint. In Scotland there was stronger evidence of the date of formation. There had been found skeletons of whales and canoes, some hollowed out of single trunks, but others clinker-built of sawn planks with holes for rivetting. Iron anchors and boat-hooks had also been found in the raised beach in Scotland. The raised beaches in Ireland and Scotland were a simultaneous formation in his opinion. The iron implements were important in fixing the date. He should say that the beaches began to be formed about the fourth century A.D. His opinion was founded upon all the sources of information available. In his opinion, the articles were deposited in the sea as votive offerings and were found on the upper surface of the raised beach. The soil above them was not marine, but had accumulated after the raising of the beach. The inference to him as a geologist was that the articles were originally under the water and were raised about the fourth century A.D.

Cross-examined: It was impossible to say how much the beach would rise in a century; it might be 20 feet, or less than 1 foot.

By the Judge: The movement of the beach was simultaneous.

Cross-examination continued: He could not say when the articles came to the top. It might have taken 100 or 200 years for the beach on Lough Foyle to form.

The Solicitor-General: Have you anything as quick as that in any other country in the world?

Witness: It was the case that he said in his own book that the beach was formed since the occupation of the island by prehistoric tribes. It was a disputed question when the sea retired from these raised beaches. The flint implements dated from the Celtic era, which might be from the second century B.C. to the second century A.D. He could not say how long it would take to form the 16 inches of clay soil on the surface.

Mr. Wallace, an employé of Mr. Johnston, a Dublin jeweller, said that Mr. Day brought the articles to him to be repaired in April 1896. The collar was flattened. The boat was crumpled up like a bit of paper, and witness did not know what it was until it was restored to its original shape. The bowl was in even a worse condition. There was reddish sand in all the articles.

Cross-examined: There was no mutilation.

This closed the evidence for the defence.

The Attorney-General then obtained leave to call rebutting evidence.

Dr. Munro, a vice-president of the Society of Antiquaries of Scotland, said that he knew of no votive offering of this kind either in Scotland or Ireland. He regarded the theory put forward as very improbable. He believed that the collar belonged to the pre-Christian era in Ireland. He had studied the question of raised beaches, and believed they were formed some time before the Christian era and after the appearance of man. It was impossible to fix the date more nearly.

Mr. George Coffey, keeper of antiquities in the National

Museum in Dublin, said that he did not think the articles were votive offerings; more probably they had been concealed.

Mr. Justice Farwell: What I should like to have evidence of the existence of a water deity in the north of Ireland to whom votive offerings were made.

Mr. L. Horton Smith, as *amicus curiae*, referred the Court to Brash's "Ogham Inscribed Monuments of the Gaedhil" p. 22.

Mr. Coffey said some of the objects were damaged and some not, so that if they were delivered to the god mutilated that would be an insult to the god, and, conversely, if a mutilated ornament were offered when it ought not to be mutilated. The strong ornaments were broken and the slender ones, such as the bowl and boat, were crumpled up. These supported the theory that they were hidden, and not intentionally abandoned.

Cross-examined: Pagan tribes undoubtedly did offer votive gifts to the gods. He accepted the view that there were Pagan deities in Ireland. He could not, however, accept the statement that votive offerings were made in Ireland until they found them there.

Mr. Warmington: How many finds would you require to satisfy your archaeological mind?

Mr. Coffey: Ten or fifty. But it is not numbers that are to be regarded, but the consistency of the evidence. The whole question of votive offerings is obscure, and we are gradually opening it up. There are many finds in Scandinavia, but even here archaeologists of the first rank disagree as to the nature of the finds.

Continuing, the witness said the work of the ornaments was Late Celtic. There was nothing on the bowl or boat to indicate age. The wearing of a torc by Irish chiefs was mentioned in the early legends. Archaeologists regarded legends as evidence of something.

Mr. Robert Cochrane, superintendent of the National Monuments, Ireland, said he knew of no pre-Christian votive offerings in Ireland. He had never met with any reference to an Irish sea-god. A collection of gold ornaments found in county Clare in 1854 was accepted as concealed treasure. The Tara brooch found near the seashore at Drogheda and all such gold finds in Ireland had been regarded as of Christian origin. He knew of the theory with regard to the mutilation of these votive offerings, and he saw no evidence of mutilation in the Celtic gold ornaments found at Limavady more than might be accounted for by the impact of the plough. There were shrines in Ireland containing articles of much value, and there was no evidence of a shrine near this place. He thought the collar might date from any time up to the fifth century.

Cross-examined: As no votive offerings had been found in Ireland, this lent support to the view that there were no votive offerings there.

Mr. R. L. Praeger, Bachelor of Engineering and a member of the Royal Irish Academy, was next called. He said he had made a hobby of the geology of the north of Ireland and the raised beaches to be found there. He knew where the gold ornaments were found. Within a mile of the spot where the ornaments were he found that clay of the same kind as that at the spot was 25 feet deep. He thought the raised beach was in existence considerably before the Christian era. He thought the peat lands must have been in the stone age.

Cross-examined: Where he made his investigation was reclaimed land, and it was also part of the raised beach.

Mr. E. H. P. Coles, Professor of Geology, Ireland, said he thought there was evidence to support the view that the raising of the beach was of pre-Christian date.

Mr. Warmington, arguing from the definition of treasure trove in "Chitty on Prerogative," p. 152, submitted that there had been no evidence of actual deposit. The evidence had merely been of the finding of the articles some 18 inches below the surface and in a comparatively narrow compass. The Crown contended that mere finding in these circumstances was sufficient evidence that these articles constituted treasure trove. Articles might find their way into the ground by various methods, and the question was, Must the Court infer that these articles were intentionally hidden? Articles must be hidden for the benefit of the depositor in order to constitute treasure trove. There was nothing in the evidence to show a definite intention of hiding. [Mr. Justice Farwell: If that is carried too far I do not see how the Crown could ever succeed.] The presence of the boat, which was not a common form of ornament, was strong presumption of a votive offering. The pressing together of the sides of the boat and the bowl could not be attributed to the action of the earth—it was clearly intentional. If it was suggested that the articles were stolen from a shrine and concealed, there was no evidence of any shrine in the vicinity containing such articles. The idea of a votive offering was not arrived at for the purpose of the action, but was contained in Mr. Arthur Evans's account of the articles before their purchase by the museum. He discussed the authorities relied upon by the Attorney-General when opposing the contention that under the charters pleaded the

right to treasure trove had passed to the Fishmongers' Company. He would deal only with the grant to the Irish Society, or if that grant did not include the right to treasure trove, it was clear that the Irish Society could not grant the right to the Fishmongers' Company. In the first place, the grant by the Crown to the Irish Society would naturally include more than would be granted to a mere individual. The Irish Society was to plant and to have control of a very large tract of country. In the second place, he contended that the word "franchises" in the charter would pass the right to treasure trove. If it did not, it was a word of mere surplusage. What franchise could the Crown grant except a Royal franchise? Franchise was what the subject received, royalty was what the Crown granted, and when the Crown granted franchises, they could only be royalties. When the wide extent of the grant to the Irish Society was considered, the only reasonable construction was that the intention was to free the land granted from the exercise by the Crown of all Royal prerogatives.

Mr. Haldane, K.C., said the theory put forward by the defendants that the ornaments were votive offerings was quite plausible. It appeared to be the custom in pre-Christian times for the person making a voyage of peril to propitiate the deity of the sea by making some offering. This took place in all parts of the pagan world. The ornaments might have been deposited by some person sailing on the Irish seas, and in course of time, when the bed of the sea began to elevate, they came to the top. From the battered condition of the articles, the theory that the person who made the offering desired to allow the soul of the ornaments to escape to the deity was not improbable. A man who desired to conceal the treasure would have dug much deeper than 18 inches.

Mr. Justice Farwell: But a man making a votive offering would not conceal part of one ornament in another, as in this case. He would naturally want to make as good a show as possible and spread them out before the deity.

The Attorney-General argued that the unmistakable conclusion to be drawn from the concealment of the chain inside the gold collar was that the ornaments were concealed treasure. The Court was gravely told that in these pre-Christian periods there was a sea god, and that it was the habit of the people to throw things to him into the water. Further, it was contended that when the bottom of the sea became elevated and the water retreated these ornaments were exposed to view on the sea-shore for 300 years. Life and property in Ireland, even at that period, were never very secure, but still these gold articles remained untouched, although in full view of everybody. With regard to the practice of making votive offerings, no such recorded case as the present had ever been known in Ireland. He asked his lordship to treat these speculative hypotheses with all the respect they deserved. The obvious inference was that the articles were hidden treasure, probably on the part of some robber who feared being robbed by others, or the keeper of a shrine, who hid them from the Norsemen, who were very active in those parts, and made a famous raid up Lough Foyle in the year 850.

Judgment was reserved.

ARCHÆOLOGY IN THE SOUTH TYNE VALLEY.

A PARTY of members of the Architectural and Archaeological Society of Durham and Northumberland visited last week some interesting places in the valley of the South Tyne. Beltingham Church was described by Mr. C. C. Hodges. Twenty years, he said, had passed since the Society previously met there. A restoration scheme was then contemplated, and the work proposed was of such a character that they felt it their duty to enter a protest. The latter unfortunately, in the opinion of archaeologists and antiquarians, had no effect. Everything ancient was practically swept away. In the unrestored church were two very large pews resembling somewhat an old-fashioned four-poled bed; also a three-decked pulpit. These were destroyed, together with stone memorials of the departed, which in all probability were broken up and used to form the concrete of which the floor is now composed. One of these stones was of exceptional historic value, being the oldest memorial extant of the Ridley family. The name inscribed was that of Nicholas Ridley, who died about the year 1550. Beltingham Church was built a few years prior to the Reformation, and was an interesting specimen of Late Perpendicular work. It was not however, as often stated, the only church of that type in Northumberland. There were two Alnwick was Perpendicular from end to end.

Canon Greenwell differed from Mr. Hodges in regard to the state of the church. The building, he asserted, was much better now than it was when he last saw it. It was then in a deplorable condition. The three-decked pulpit was an interesting object, but there was nothing special about it. They sometimes, he thought, carried their views with regard to the

alteration of churches a little too far. He condemned, however, the destruction of old monumental inscriptions and other antiquarian relics.

Willmoteswick Castle was next visited. It was the chief seat of the ancient family of Ridley, one of the most illustrious members of which was, as Canon Greenwell reminded the visitors, Bishop Ridley the Martyr. Here, it is recorded, that famous man was born. Commenting upon claims put forward by different individuals of the present day that they were descendants of the old family, Canon Greenwell said he doubted very much whether any of them could prove their right to the distinction. He would leave the several branches to fight it out among themselves. Passing from the family itself, Canon Greenwell spoke of pele towers generally and of this one in particular, describing their uses in the days of Border raids and warfare. Mr. Hodges added a few details of the structure, which he characterised as one of the most interesting. The two towers, he said, were simply the ends of a long basil house similar to those at Doddington and Longhirst.

The next place of call, according to the original arrangements, was Haltwhistle, but no stay was made there, it having been decided to reach to Featherstone Castle, some four or five miles further up the valley of the South Tyne. Bellister Castle, which it had also been intended to inspect, was merely viewed from the roadway. Nothing was more admired than the extensive parks which surrounded Featherstone Castle, the old home of the Featherstonehaughs. The building itself has many attractions, especially for the archaeologist. Altogether there was ample material at hand for a delightful hour or more, but time forbade.

LIVERPOOL CATHEDRAL.

ON Friday last a meeting of the general committee of the Liverpool Cathedral was held at the Church House.

Mr. R. A. Hampson read the report of the executive committee, which stated that competitive designs were sent in by the five selected competitive architects—Messrs. Austin & Paley, Mr. C. A. Nicholson, Mr. G. Gilbert Scott, Mr. Malcolm Stark and Mr. W. J. Tapper—on April 30, and the advisers, Mr. Bodley, R.A., and Mr. Norman Shaw, R.A., after careful consideration, reported to the executive committee that the designs sent in "gave evidence of the great care and pains the competitors had bestowed upon their work and the admirable response they had made to the invitation of the committee." In concluding their report the advisory architects said:—"What we had to find was not the best or the most beautiful drawings, but the best idea and the finest conception. Many of the drawings are attractive, but we had to look much further than that—we had to look to the real effect of the building rising to its final completion, at the dimensions and proportions of the different parts, such as piers and arches of the great nave; we had to look at the practical and feasible aspect of the designs; we had to look for a sufficiently original conception; we had to look for a fine and noble proportion, combined with an evident knowledge of detail, and, lastly, we had to look for that power, combined with beauty, that makes a great and noble building." In Mr. Gilbert Scott's set of drawings these qualities were pre-eminently shown. The executive committee had approved of the selection made by their advisers, and they had appointed Mr. Bodley, R.A., and Mr. G. Gilbert Scott the joint architects for the new cathedral, thus securing the experience of the greatest modern exponent of Gothic architecture and the brilliant talent of Mr. Scott, so conspicuously displayed in his drawings. The building committee had instructed their architects to prepare the plans for the new cathedral with such modifications as they might think desirable. Also to provide a morning chapel to seat 300, a chapter-house and more commodious vestries. They had also been requested to submit plans for the foundations for the chancel by October 1 next, which the committee trusted might enable them to arrange to have the foundation-stone laid during the spring of next year. The principal dimensions of the cathedral taken from Mr. Scott's drawings were as follow:—Total length over all, 450 feet; total length of nave, 224 feet; total width of nave between the piers, 50 feet; total length across transepts, 198 feet; total height of nave vaulting, 116 feet; total width of north façade, 196 feet; total height of towers, 260 feet.

Lord Derby, in moving the adoption of the report, said it was now becoming a pleasure to look back to the times of difficulty and doubt which necessarily surrounded their earlier movements. Even last year many great questions were unsolved, and though by that time they had become pretty well established, the future was not so bright as at present, and he thought they met that day under circumstances which should encourage them all. One or two details had been given him from a source competent to speak with authority, and which showed that the designs were admirable in every way. The leading characteristics would be a building of much breadth, effect and dignity. It was proposed to build with local red

sandstone, which gave a pleasant warmth and colour. He trusted the work would be worthy of the efforts of those who had taken part in it, and that many in that room would see the building well on the path of progress. He thought they ought not to omit to express their thanks to the assessors who had taken such great pains in the matter. Their examination and analysis of the different designs must have entailed a great amount of labour of the most difficult and conscientious character. As far as they could see those gentlemen had given clear and straightforward advice, and he thought they ought to express their thanks for their kind assistance.

Bishop Chavasse, in seconding, said the resolution was one of the utmost gravity. It formed the second great step in the work to which they had put their hand—the building of a cathedral for that great city. The first step—selecting a site—was one of great difficulty and momentousness, but he ventured to think the selection of the design was no less difficult and equally momentous. It meant selecting a design for a building which in years to come would probably be the chief architectural feature of Liverpool. It meant providing for the Church of England a holy and beautiful house, in which her children for many generations would gather and worship God. It meant a building on one of the highest and most picturesque sites in the city, an edifice which would be seen by every ship that left the Mersey and by every ship that entered it, and which would be a landmark for many miles on the Cheshire side of the river. The committee, he thought he might say, were guided in their selection by three great principles. First, it was their object to select a design worthy of the city of Liverpool; secondly, to build a house of prayer which would help to devotion; and, thirdly, that the cathedral should be suitable for modern needs—a cathedral in which a large number could worship God congregationally, and in which a large number should hear and see the preacher. He believed the nave and choir would be as large as that at Westminster, and there would be seating accommodation for as large a congregation to see and hear the preacher as at St. Paul's itself. In selecting a design to meet the needs of the present day and of generations to come, the committee had done the best thing they could.

The Rev. Dr. Porter asked if this was the best plan, and whether they could not hark back to Sir William Emerson's design of sixteen years ago.

Sir William Forwood replied that the plan of Sir William Emerson was for the site of St. John's Church. It was a Classical design, which the committee thought would be wholly unsuitable for the site now selected, which was considered much more adaptable than St. John's site.

Rev. A. H. Rhodes asked the utmost limit of a congregation that would be able both to see and hear.

Sir William Forwood said that the figures given showed that the number of persons who could see and hear would be 3,000, but the number who could be accommodated for a ceremonial purpose would be much in excess of that.

The resolution was adopted.

Mr. Arthur Earle moved and the Hon. A. Stanley, M.P., seconded a vote of thanks to the advisory architects, which was accorded.

UNIVERSITY OF BIRMINGHAM.

ON Saturday, July 4, the Chancellor (the Right Hon. J. Chamberlain, M.P.) will confer degrees upon candidates for graduation. The Chancellor will on this occasion be attended by a mace-bearer, a specially fine mace having just been presented to the University by Mrs. C. G. Beale, wife of the vice-chancellor. The mace, a large and impressive work of art, was designed by Mr. Philip Webb, architect, and executed by Messrs. Haseler & Co., under the guidance (at Mr. Webb's particular request) of Mr. R. Catterson Smith, late headmaster of the Jewellers' School of Art in Birmingham, and now headmaster of the Municipal School of Art, who has put some of his own handiwork into it. The execution of the mace, says the *Birmingham Post*, has taken a long time and much thought; and the donor, in a letter to the Chancellor, "hopes that it may be thought worthy to be handed down through successive generations as a specimen of good workmanship made in our city." The Chancellor expresses the opinion that "the mace so generously presented to the University by Mrs. Beale is a beautiful work of art worthy of the University, and most creditable to its designer and to the craftsmen engaged on it." The mace, measuring 4 feet 6 inches in length, is substantially wrought in silver, embellished with enamelling and pale parcel gilding. The stem is hexagonal, with a spiral band running round it in relief. At points where this band traverses the front of the stem diamond-shaped medallions are formed enclosing the following emblems in low relief and gilded—a bee, representing industry; a sun, representing motive power; the letter B, standing for Birmingham; the moon and stars, representing time; and the letter

W, standing for Warwickshire. These are repeated along the stem. At the butt end is a steel point intended to give a hold upon the floor, and towards the top are two handles something like the guards of a sword hilt, by which the mace is to be held erect during important ceremonies. Above the handles and the boss is an inverted pallium, slightly domed and enclosed in a hexagonal engrailed frame or border. Upon the pallium is an effective blazon in enamels of the coat of arms of the University. The points of the frame form trefoils filled with translucent enamel, while a fine ruby at the top adds to the richness of effect. The reverse side of this portion of the work bears the inscription in raised decorative lettering, "The University of Birmingham, founded in the year of our Lord, 1900." An elaborately wrought border has for its salient features conventional roses in high relief, and a repoussé and chased wreath of thistle. The rear side of the mace has a projection forming a support when the emblem is laid upon a table, and which also serves as a shoulder rest when the mace is being carried. It may be mentioned that Dr. William Wright, lecturer in anatomy, has been appointed mace bearer. After the mace has been used on the occasion of the next congregation, the Chancellor suggests that it should be exhibited to the people of Birmingham for a short time in the Art Gallery, and that an account of the symbolism of its design, inscribed on parchment, shall be kept as a permanent record in the archives of the University.

The gift of the mace was reported at a meeting of the University council on Wednesday in a letter from the Chancellor to the Principal, when the following resolution was passed:—"That the hearty thanks of the Council be conveyed to Mrs. Beale for her most opportune presentation to the University, through the Chancellor, of an exceptionally handsome mace. They wish to thank her for the care and thought which she has bestowed upon it, and to congratulate her on the artistic merit of the design and execution, and they request that she will allow the circumstance that it has been presented by the wife of the first vice-chancellor to be engraved on some suitable place upon its surface."

THE CITY OF SALONA.

THE buried city of Salona, where Diocletian was born, is four miles from Spalato, where in A.D. 313 he died. It was established as a Roman colony in the first century before the Christian era, and must have been a very large city, for traces of the walls are distinguishable for miles (writes a correspondent of the *Times of India*). Its greatest diameter is along the line of the Castelli bay, but it stretches up the gentle acclivities at the foot of the first range of the Dinarics that separate Dalmatia from Bosnia and Herzegovina. Before the recession of the sea it had a good port and a fine situation, for it borders the southern end of one of the most beautiful tracts in Dalmatia, the Riviera delle Sette Castella. Its opulence must have been a source of envy to the incessant procession of marauders who fell upon this coast. It was raided by Odoacer in the fifth and by Totila in the sixth century, and was finally destroyed by Goths and Croats in 639. From the date of its abandonment it has been left at the mercy of rain and winds and desolating dust. It has to be dug up out of its grave where it has been partly protected but entirely forgotten under 8 to 10 feet of mould. These excavations began in 1847, and they have continued since with the slowness and interruptions so characteristic of dear drowsy Austria. It is hard to understand why so much money and international co-operation are devoted to Babylonia when archaeological treasures of deep and pathetic interest to the Christian world can be laid bare close at hand at very little cost. For the soil over Salona can be conquered with the spade. If it had nothing but its Christian antiquities to show, its tombs of the saints whose names are treasured in the martyrology of the Diocletian persecution, no Christian traveller could possibly pass it by. To move among these tombs, to touch the dust and reverently tread the mosaics of these old basilicas just unearthed from the fields that, half desolated, have protected them, is like one's first visit to the Catacombs. That man, if he be a Christian, is not to be envied who has not felt the tide of emotion surge within him at such a moment. Salona gave to the Church one of the greatest persecutors; but Diocletian disappeared, leaving the victory to the martyrs whose blood and dust make these sanctuaries holy. The episcopal basilica, on a lower terrace than the basilica of the cemetery, is almost entirely uncovered. Many of the little cubes in the mosaic of the apse have parted from the mortar, and something should be done at once to fix and protect them from our insuppressible and contemporary Goth. The pediments of the sixteen columns of the nave are in their place, but the shafts are in fragments. The design is perfect. It is curious to note the portion of the edifice annexed to the church, but outside it, which was set apart for catechumens and for Christians undergoing the canonical penances. The

church covers the site of a former Roman villa, for under a portion of the foundations is visible a handsome mosaic floor delineating one of the muses. The name of the muse—Terpsichore, if I remember rightly—is embedded in the plan of the picture. But the basilica of the cemetery of Monastirine on the upper ground is the one to which visitors mostly flock. Underneath and buried in its walls and all round the plateau are the graves and sarcophagi of the Christian dead. These sarcophagi have the massiveness of monoliths. The tops, sloped like a double roof, have the corners finished in curved pyramidal segments. Great force must have been employed to scatter such dead weights of limestone in reckless disorder over the ground. The entire floor of the basilica is covered with sarcophagi, all desecrated, and underneath the church are family vaults into which you can look. The monogram of Christ is everywhere. The evidence goes to show that the Catholics of the time had men of wealth among them.

THE LATE JOHN JONES BATEMAN.

WE announce with regret, says the *Birmingham Daily Post*, the death of Mr. John Jones Bateman, which occurred on the 13th inst., at his residence, Hawkesford, Four Oaks, Sutton Coldfield. The deceased, who had attained the advanced age of eighty-five, was seized with a chill last Easter, and complications ensued which ultimately caused his death. He was the senior member of the old-established firm of Messrs. Bateman & Bateman, architects, of 83 Edmund Street. He was a Birmingham citizen by birth, and received his training as an architect in the office of his father, Mr. Joseph Bateman, who established the practice as far back as the eighteenth century. The deceased gentleman, who took an active part in the business until Easter last, could remember how in the early days of his professional career he was once employed in assisting to do certain work that had been occasioned by the damage wrought by the mob in Birmingham at the time of the Chartist agitation. Mr. Bateman was the first president of the Architectural Association, in the formation of which he was prominently identified, and many of the buildings in Birmingham and the district were erected to his designs. The Birmingham Workhouse, Queen's College, the Church of the Messiah, Broad Street; St. Cuthbert's Church, Winson Green; The Quadrant, Hyams, New Street; the branch libraries in Gosta Green and Deritend; the Birmingham Fish Market, the Dudley Free Library, School of Art and Art Gallery; the Hockley and Balsall Heath dispensaries, and the picturesque building erected in Broad Street for the Birmingham District and Counties Bank may be mentioned as examples. Many of the larger residences in the district were also erected to the designs of Mr. Bateman, who it may be added was frequently engaged in arbitration and compensation cases between the railway companies and property owners. The last work that engaged his attention in a consultative way was the successful competition design for the town hall, High Wycombe, Bucks.

THE RUSKIN MUSEUM, SHEFFIELD.

THE report for the year ending March 25, 1903, states that the museum committee have pleasure in placing on record a largely increased attendance of visitors at the museum. The museum was open on 313 days during the official year, and the total number of visitors was 58,325, as against 40,580 the year before, an increase of 17,745. The Sunday attendance has been considerably better also, numbering 11,095, compared with 8,996, whilst the total for week-days was 47,230, against 31,584. The averages are as follows:—General daily average, 186; increase, 55; weekly, 1,121; increase, 341; Sunday, 213; increase, 40; week-day, 143; increase, 21. The largest number on any Sunday was 451, against 395; the greatest on any week-day, Whit Monday, 1,609, against 1,310 on the same day of the previous year. The Whit Monday attendance was the largest for any single day during the past six years. The least numbers were:—On any Sunday 47; against 39; and week-day 17, against 20, respectively, compared with last year's figures. The figures for the library and print department are being well maintained. The number of visitors who made application for perusal and study of the works were as follows:—The total for the year was 652, against 668, and the number of works perused 863, against 879. The museum handbook has sold fairly well during the past year, 583 copies being sold, compared with 725. This is a decrease of 142, but many visitors now bring their copies with them. The average sale of handbooks during the previous three years was 587, so that the number sold last year is still well up to the average.

The King has honoured Mr. Charles Davis, of 147 New Bond Street, with the appointment of art expert to His Majesty.



Royal Institute of British Architects.

SIR,—On Monday next will take place the sixteenth general meeting of the Royal Institute of British Architects for this session, when the gold medal will be presented. On Tuesday occurs the annual dinner, and on Wednesday a meeting of the presidents of the eighteen allied societies by invitation of the President of the Institute. These facts have suggested to me the establishment of an annual R.I.B.A. week (in London and elsewhere as might be determined) as is the custom obtaining with other institutions. A special week of this nature could be made a distinct benefit and attraction to members of the Institute, Promoters of special exhibitions dealing with matters connected with architecture and the kindred arts would quickly find it to their interests to make their displays coincide as to time and place with such an event. No doubt further proposals may accrue, but for the nonce a rough programme suggests itself to my mind.

Monday.—Exhibition of prize drawings; visits to exhibitions and displays of handicraft, materials, &c.; general meeting; presentation of gold medal.

Tuesday.—Visits to buildings completed or in course of erection; president's at home.

Wednesday.—Meeting of presidents of allied societies with president of the Institute; special papers and discussions; annual dinner.

Thursday and Friday.—Excursions to places of interest.—Yours faithfully,

BUTLER WILSON,
President, Leeds and Yorkshire Architectural Society.

International Congress of Hygiene at Brussels.

SIR,—May I ask you to allow me a little space in your valuable paper to draw the attention of your readers to this Congress, which—as far as I can make out—does not appear to have received that notice which, in my judgment, it deserves.

The Congress has been fixed somewhat earlier than usual (September 2 to 8, 1903), so as to be more convenient as regards the time of general holidays, and it is to be hoped that when making the necessary arrangements for this purpose all interested in sanitary matters will make a point of including the Congress within their circle of holiday travels.

The general secretary of the Congress is Professor Dr. Putzeys, of 1 Rue Forguer, Liège, Belgium, and the secretary of the English committee is Dr. P. F. Moline, of 42 Walton Street, Chelsea, S.W., who will, no doubt, be pleased to supply all desired information, but for the convenience of your readers I may be allowed to give a few particulars from the programme.

The Congress is divided into seven sections, as follows:—

The first section deals with bacteriology, the second with alimentary matters, the third with building and engineering matters, the fourth with industries and professions, the fifth with traffic, the sixth with administrative matters, and the seventh with colonial matters.

In all these sections various subjects have been selected with a view to elucidating thereon the latest views, and gentlemen have been asked to speak thereon who are known to be experts. In addition to this, so far as time will permit, other subjects may be brought forward for discussion after they have received the sanction of the executive committee.

It would be quite impossible for me to give here all the names of the readers of the various papers or their subjects, but amongst the readers of papers in the first section I may mention such names as Bordet, Denys, Gruber, Pfeiffer, Wassermann, Ehrlich, Roux, Loeffler, Malvoz, Netter and many others, names which speak for themselves and are a guarantee that the subjects to be discussed will be fully and well treated, and that the latest researches and developments will not be omitted from the discussion.

The third section, which deals with the work of the architect and engineer, will discuss the following subjects, viz.:—

The first set of papers will be on the bacterial purification of sewage and trade wastes, and the names of the authors are G. F. Fowler, Launay, Pagliani, Rideal, Rolants.

The second subject to be discussed deals with the advantages and disadvantages of the combined and separate systems of sewerage, and here the following gentlemen have promised to contribute papers:—Buesing, Imbeaux, E. Putzeys and Spataro. It is hardly necessary to point out that the authors in most cases occupy different standpoints, so that the *pros* and *cons* of the various subjects may be fully discussed.

The third question to be submitted deals with the sanitary precautions to be adopted in case of underground water supplies taken from limestone formations, and on this the following gentlemen will speak:—Gravelius, J. A. Howe, of H.M.

Geological Survey; Janet, Martel, Nicolis, Schardt, Broeck, and H. B. Woodward, F.R.S., assistant director of H.M. Geological Survey.

On the fourth subject of street hygiene, which embraces the whole subject of scavenging of towns and the destruction of the refuse by fire, the chairman of the international committee of street hygiene has promised to contribute a paper, to which will be attached the reports from the various members of the committee dealing with their respective countries.

The fifth question deals with the progress made during the last twenty years with the heating and ventilation of public and private buildings, and here papers have been promised by Herscher-Genests, Pfuertner and Van Rysselberghe.

The sixth and last subject is the distribution of dwelling-houses, their permanent ventilation and the decoration of their interiors, on which Bonnier and Nussbaum have promised to speak.

I have not time to-day to deal with the other sections, nor can I do more than draw attention in passing to the exhibition of sanitary objects which will take place in connection with this Congress, but I hope I may have time before long to give a few further particulars concerning the latter.

Those who know Brussels will not require to be reminded of the charms this city possesses in many respects, and that it has only lately shown marked hospitality to the Lord Mayor of London. It is a very interesting town, and everyone ought to greatly enjoy a week spent there.—Yours faithfully,

H. ALFRED ROECHLING.

GENERAL.

Mr. Rowland Plumbe had the honour of being presented to the King and Queen by the Duke of Cambridge on the occasion of opening the additions to the London Hospital, of which he was the architect.

Mr. Bertram Blount, consequent on the death of his partner, has removed his chemical and testing laboratory to 76-78 York Street, Westminster, where he will continue in practice under his own name.

The **General Board** of Cambridge University have been authorised to appoint a University lecturer in electrical engineering, and another in mechanical engineering, as assistants to the Professor of Mechanism and Applied Mechanics, at stipends of 100*l.* a year from the University, supplemented by a share of the fees of the Engineering Department.

The **Civil Service Commissioners** have announced that an open competitive examination for four appointments as assistant civil engineer in the department of the Director of Works of the Admiralty will be held in July next. It is understood that the salary commences at 200*l.* a year, and that assistant civil engineers are eligible for promotion to higher grades.

The **Church** of St. Ignatius, Stamford Hill, was opened on the 11th inst. It is only half finished, but it gives seating accommodation for 650 people. At present the building is 120 feet in length, 40 feet of which is devoted to the sanctuary; but when the designs of the architect, Mr. Benedict Williamson, which we have published, are fully carried out, the church will be 40 feet longer and two towers are to be added in front. The cost of the building is 12,000*l.*

Arrangements have been made for the celebration of the jubilee of the Wiltshire Archaeological and Natural History Society at Devizes next month. The Marquis of Lansdowne, the Marquis of Bath and others are expected to take part in the proceedings. Excursions have been arranged to Avebury and Stonehenge, and Lord Avebury has consented to give a paper at Avebury, which is anticipated with much interest.

The **Director-General of Archaeology**, Punjab, is to start work on the restoration of the Chhoti Khwabagh in Lahore fort.

Mr. W. H. Knowles has been appointed architect, and Mr. J. P. Allen quantity surveyor, in connection with the completion of the Durham College of Science at Newcastle.

An **Open-Air Theatre** at Port Sunlight was used for the first time on Saturday. The building was designed by Messrs. Grayson & Ould, of Liverpool, and is constructed of Ruabon red bricks with proscenium cornices, columns, arches, niches and other dressings of salmon-coloured terra-cotta, richly moulded and modelled, the work of Mr. J. C. Edwards, of Ruabon. The principal pediment is filled with an adaptation of Guido's *Aurora*, which was modelled by Mr. E. O. Griffith. There is accommodation for 3,000 spectators.

A **Laffan's Telegram** from New York says that ruins of a large city containing pyramids and extensive fortifications have been discovered in the midst of a dense forest in the State of Puebla, Mexico. President Diaz is about to send a commission to arrange for early excavation.

The **Drawings** submitted for the A. A. prizes will be on view on Monday next at 56 Great Marlborough Street, W.

A **Design** has been prepared for the cross which is to be erected on Roker Cliff, near Monkwearmouth, in honour of the Venerable Bede. Mr. Hodges, the designer, has undertaken to select the stone, supervise the elaborate carving, and see the cross, which will be 25 feet high, erected for the sum of 400*l.*

Discoveries of much interest have been made at Tintern Abbey in the course of certain works undertaken by the Crown when the latter acquired the ruins from the Beaufort estate. Part of the original and elaborate system of drainage has been disclosed, and, by the removal of old cottages built into the Abbey, gateways and windows formerly hidden have been brought to light. Most interesting of all is the discovery of the lay brothers' staircase. On the demolition of an old cottage and subsequent excavation the workmen found a doorway leading from the lay brothers' quarters to the staircase, and thence by the door named after them into the abbey.

The **Corporation of Maidenhead** received designs from eighty architects in a competition for the erection of a free library.

Messrs. A. B. M'Donald & P. Fyfe, Glasgow, in the competition invited by Hamilton Town Council for plans for the housing of the working classes, have made the following awards:—1st, R. W. Horne, 201 Kent Road, Glasgow; 2nd, W. Inglis, 102 Portland Place, Hamilton; 3rd, F. Southorn, 144 St. Vincent Street, Glasgow.

"**Ancient and Modern Furniture**," measured and drawn on stone, by John W. Small, F.S.A.Scot., will be a reprint of a privately published volume by the author, issued in 1883. It has for many years been out of print and scarce, copies fetching high prices on the rare occasions when offered to the public. The new edition will be an exact facsimile of the first edition, and will be printed from the stone by Messrs. MacLure, Macdonald & Co., Glasgow.

Mr. Edward R. Taylor will retire from the head-mastership of the Birmingham Municipal School of Art on June 30, under the terms of the Corporation superannuation scheme. The Museum and School of Art committee have passed to Mr. Taylor a cordial vote of thanks for his valuable services during his twenty-six years of office as head-master. It is proposed to present to Mr. Taylor a copy of this resolution specially written on vellum and bound.

The **King** has ordered that a copy of "A Description of the Papyrus of Nas-Khem" is to be presented to the West Ham and other libraries in the Metropolis. The papyrus was found in a tomb upon a mummy, near Gournah, Thebes, while an excavation was being made by the King, then Prince of Wales.

The **Abbot of Downside**, on Monday last, blessed the new great bell of the abbey which has been erected as a memorial to Roger Bede Vaughan, Archbishop of Sydney, N.S.W. The bell, which is called "Great Bede," weighs 5½ tons, and is supposed to be the ninth of the big bells of England. Its total cost is 721*l.*, including fittings.

M. Sauffroy, the architect of the Russian church, Rue Daru, Paris, has been nominated as Commander of the Imperial Russian Order of St. Stanislas.

M. Chédanne, architect to the French Ministry of Foreign Affairs, has come to London for the purpose of superintending the arrangements at the French Embassy for the fêtes during the visit of President Loubet.

The **Steining Guardians** have instructed Messrs. Clayton & Black, Brighton, to prepare a full scheme for the erection of new infirmaries, nurses' home, &c., at the new workhouse, such scheme to include the following buildings:—Infirmaries buildings for 300 beds, nurses' home for thirty beds, married couples' quarters, lying-in-ward, two punishment cells and padded room. The architects will also prepare a plan providing for increased accommodation for tramps adjoining the present tramp ward.

The **Ayr Corporation** have voted 600*l.* for the repair of the famous Auld Brig of Ayr, which was the subject of a poem by Robert Burns. The brig is supposed to date prior to 1236.

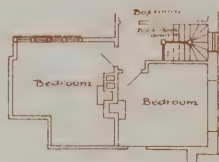
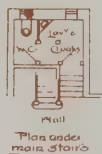
An **International Competition** has been announced by the Austrian Minister of Commerce for designs for a ship lock with a lift of 35.9 metres for the Danube-Oder canal. The boats to be handled are assumed to have maximum dimensions of 67 metres length, 8.2 metres beam and 1.8 metres draft. The designs must provide for thirty lockages in each direction in twenty-four hours. Prizes of 100,000, 75,000 and 50,000 crowns are offered. The competition closes on March 31, 1904.

Mr. Victor Cavendish, as representing the First Commissioner of Works, has officially stated that the plan which it is hoped will be carried out at Spring Gardens is substantially the same as that shown in a plan attached to the report of the Select Committee upon the Public Office (Appropriation of Sites) of 1896 (House of Commons Paper, No. 310).

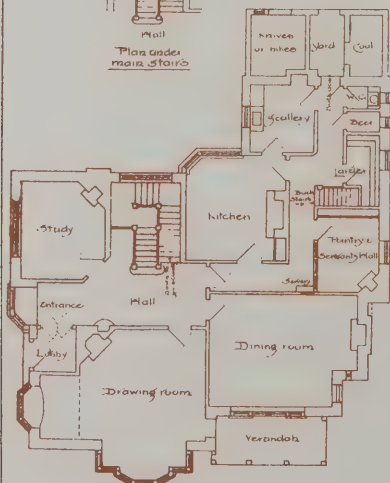


Charles E. Miller, T. W. B. A.
Bournemouth 1903

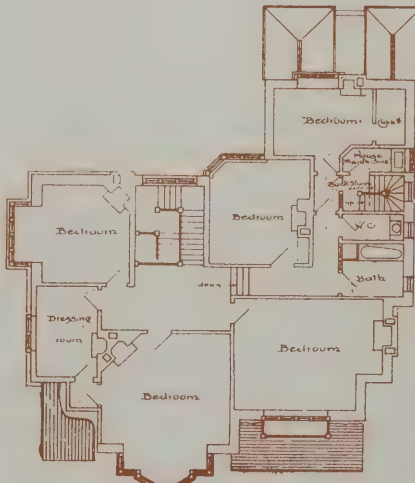
Proposed House at
High Wycombe for
Charles & Skell Esqrs



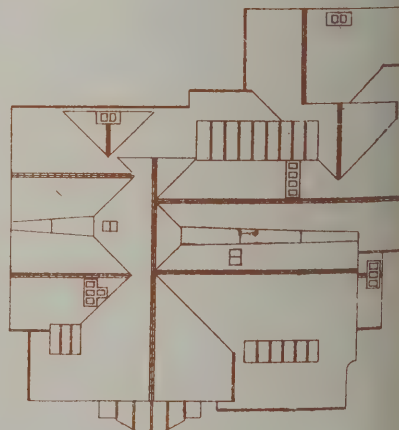
Attic Plan



Ground Plan



First Floor Plan



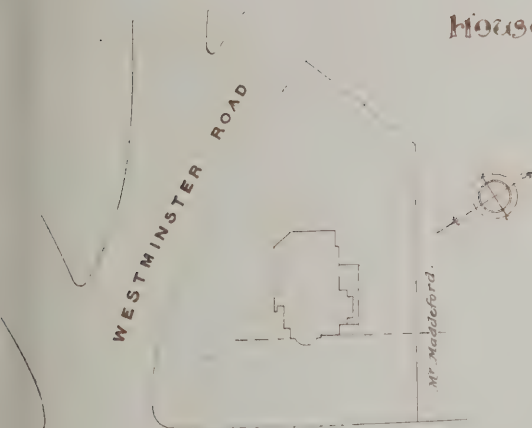
Roof Plan

Charles E. Miller, T. W. B. A.
Bournemouth 1903

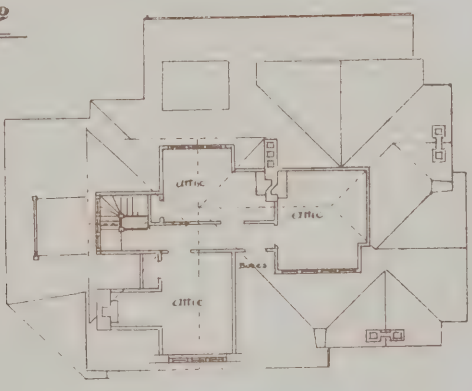
Scale 1" = 10' 0"



House, Branksome Park Bournemouth
for Messrs Maddesford & Co

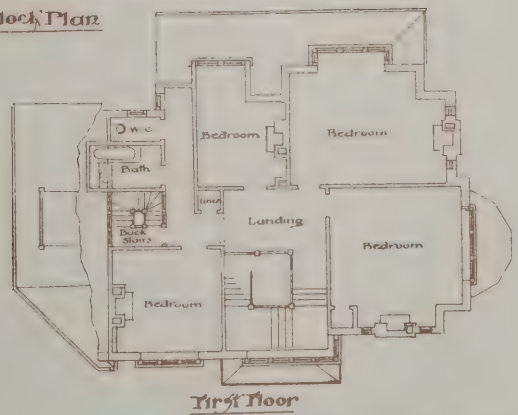


THE AVENUE

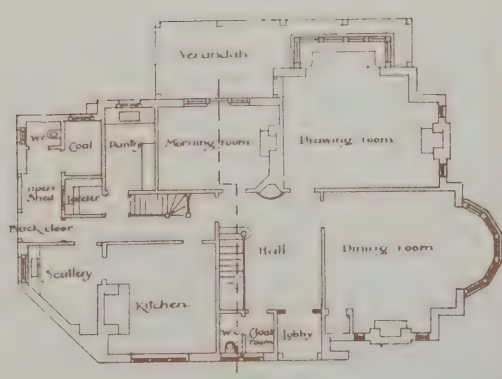


Attic Plan

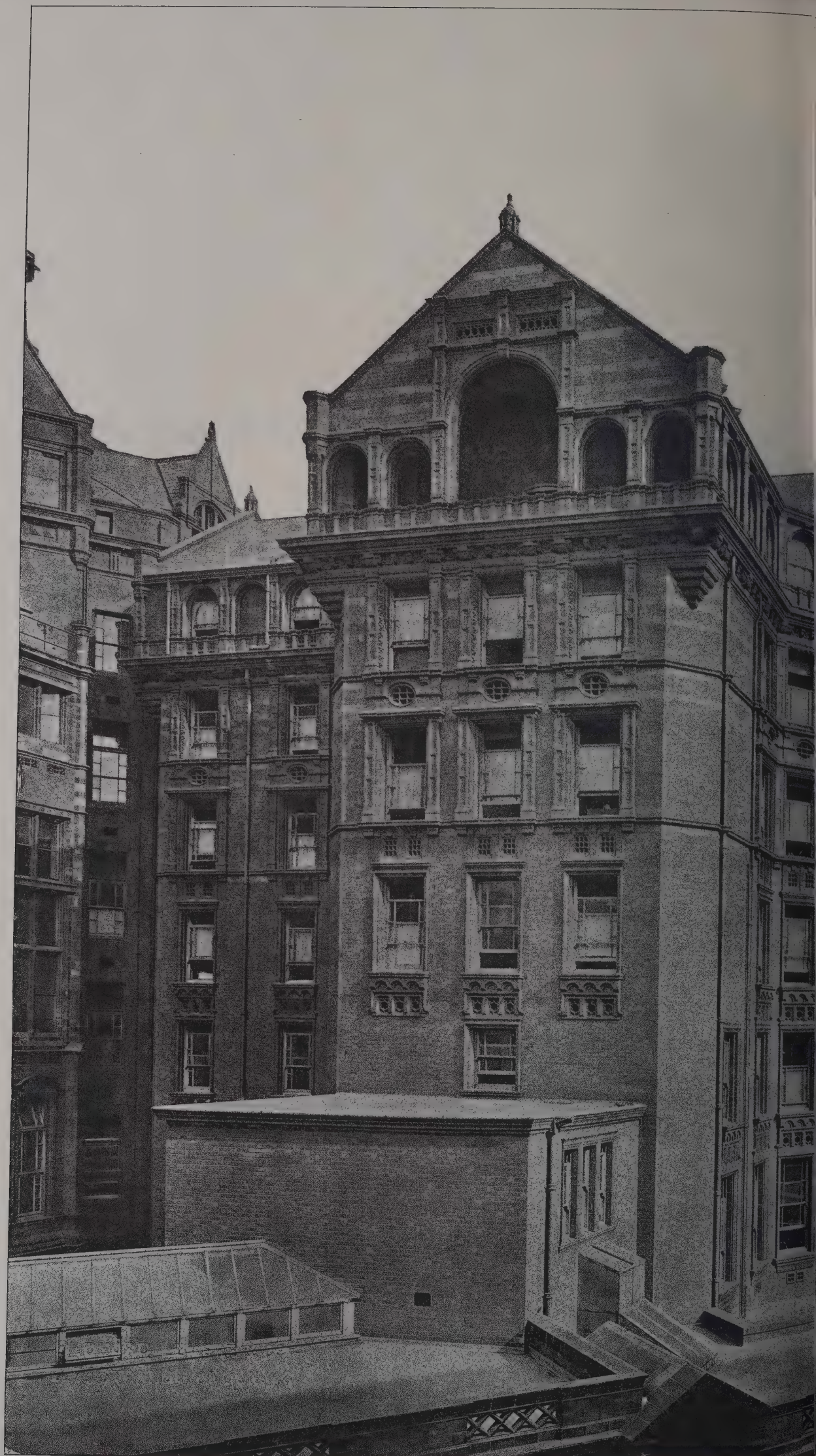
Block Plan
Scale 100 50 0 Feet



First Floor



Ground Plan

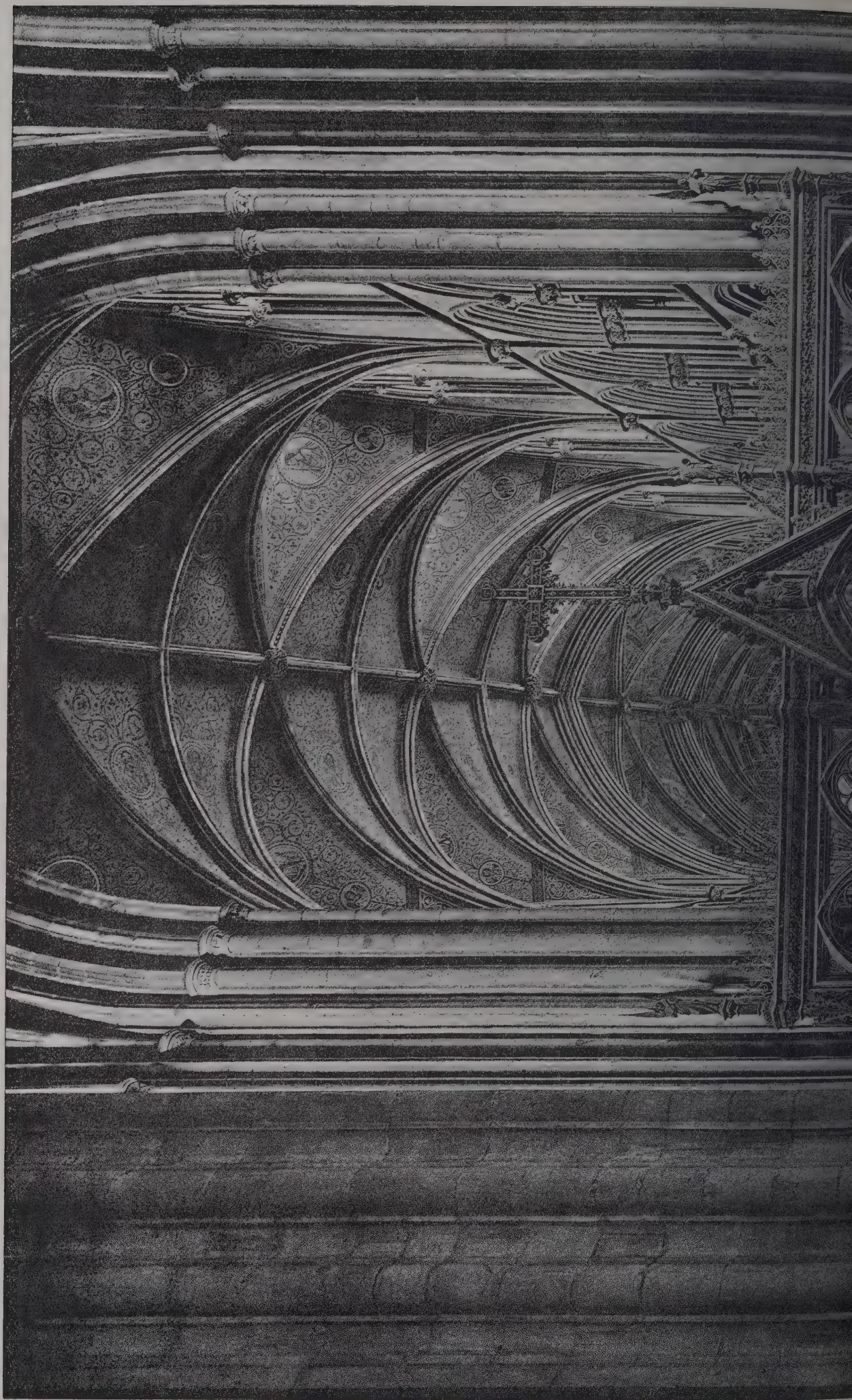


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The Architect, June 19th 1903.



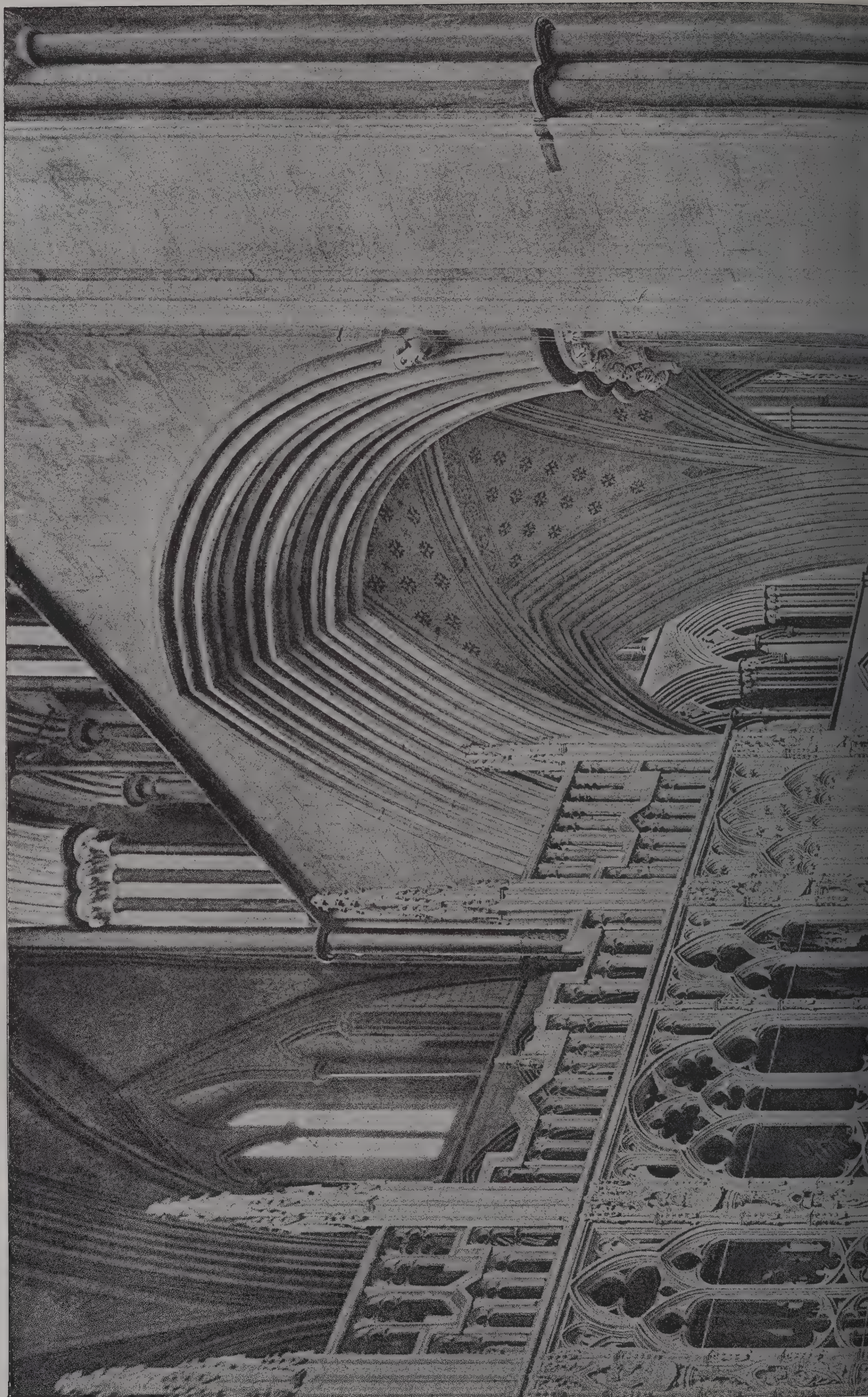


PHOTOGRAPHED BY S. B. BOLAS & CO. 68, OXFORD STREET, W.

T. H. A. PHOTO. SPRAGUE & CO. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

CATHEDRAL SERIES, No. 447.—WORCESTER: THE SCREEN AND CHOIR.

The Architect, June 19th 1903.





PHOTOGRAPHED BY S. B. BOLAS & C? 68, OXFORD STREET, W.

"INK" PHOTO, SPRAGUE & C? LTD 4, S. EAST HARDING STREET, FETTER LANE, E.C.

CATHEDRAL SERIES, No. 446.—WORCESTER: SOUTH-EAST TRANSEPT, LOOKING INTO LADY CHAPEL.

THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

POPLAR—June 23.—Competitive designs are invited for a public library to be erected in Cubitt Town, Poplar, E. A premium of 75% is offered for the design accepted by the Council, which will be deducted from the architect's commission should he be employed as architect in the execution of the work. Mr. Leonard Potts, town clerk, High Street, Poplar.

TAUNTON—July 20.—Competitive designs are invited for a library building to be erected in Corporation Street, at a cost not exceeding 5,000*l.* inclusive. Premiums of 30*l.*, 20*l.* and 10*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. George H. Kite, town clerk, Municipal Buildings, Taunton.

CONTRACTS OPEN.

BARNSELY—June 22.—For additions to girls' high school, Sheffield Road. Messrs. Crawshaw & Wilkinson, architects, 13 Regent Street, Barnsley.

BARNSELY—June 23.—For the erection of six sale shops, dwelling-houses, &c. Mr. Thos. Elliott, Elliott's Buildings, Wombwell.

BARNSTABLE—June 25.—For alterations and additions to Ho'y Trinity infants' school. Mr. J. C. Southcombe, architect, Barnstaple.

BEDALE—June 24.—For the erection of a Wesleyan chapel at Leeming. Mr. A. Shepherd, Leeming, Bedale.

BEDALE—June 24.—For the erection of four cottages at Newton-le-Willows, Bedale. Mr. F. Price, Patrick Brompton.

BEDFORD—June 22.—For the erection of a new chapel, being first portion of scheme known as Bedford Tabernacle, near Feltham and Hounslow. Mr. Percy H. Grove, architect, Alma Road, Windsor.

BRIDPORT—July 4.—For the erection of coastguard buildings at West Bay, near Bridport, consisting of houses for officer and seven men, detached boathouse and watch-room.

Bills of quantities, &c., may be obtained on application to the Superintending Civil Engineer, Portland.

BRIGHTON—June 23.—For the erection of a pumping station in the parish of Falmer, Brighton. Mr. Francis J. Tillstone, town clerk, Town Hall, Brighton.

BRISTOL—For the erection of five houses at Whitehall. Mr. Alfred Harford, architect, 6 and 7 St. Stephen's Street, Bristol.

CANNOCK—June 25.—For the construction of a road bridge over Goldie Brook, Saredon. Mr. Herbert M. Whitehead, surveyor, Penkridge, near Stafford.

CHIPPENHAM—June 23.—For alterations and additions to the goods shed at Chippenham, for the Great Western Railway Company. Mr. G. K. Mills, secretary, Paddington Station.

CHISWICK—For erection of detached villas, Chiswick. Messrs. Palgrave & Co., architects, 28 Victoria Street, S.W.

CLAPTON—June 23.—For providing and laying a new floor, surface drainage in the laundry and for works in connection with the machines and fittings, new automatic flushing grease traps to the kitchen and scullery, alterations and repairs to the women's lavatories, &c., at the workhouse, Clifden Road. Mr. Joseph Johnson, architect, 47 Mark Lane, E.C.

CROYDON—June 30.—For the erection of fifteen rows of cottage dwellings (146 cottages) for the working classes on the Norbury Estate, London Road, Croydon. Particulars may be obtained at the Housing Section of the Architect's Department, L.C.C., 19 Charing Cross Road, W.C.

DEWSBURY—June 25.—For the erection of a boiler-house at the electric-lighting station, Bradford Road. Mr. H. Ellis, town clerk, Town Hall, Dewsbury.

DORCHESTER—June 24.—For painting and repairs at the workhouse and for connecting the drainage of the workhouse with the main drain in Damer's Road and providing new water-closets, &c. Mr. A. L. T. Tilley, architect, South Street, Dorchester.

EALING—June 25.—For the erection of stabling and cart-sheds at the central depot, Longfield Avenue. Mr. Charles Jones, surveyor, Town Hall, Ealing, W.

ELLAND—June 30.—For the erection of a square brick chimney in connection with the refuse destructor and electric-light and power station at Low Fields, Elland, Yorks. Mr. James Clarkson, clerk to the Urban District Council, Elland.

HALIFAX—June 24.—For the erection of a pair of semi-detached villas and appurtenances on the Upper Greenroyd Estate, Shircoat, Halifax. Mr. W. Clement Williams, architect, 29 Southgate, Halifax.

HAMPSTHWAITE—For the erection of a Wesleyan Methodist chapel at Hampsthwaite, Yorks. Messrs. Bland & Bown, architects, Harrogate.

HULL—June 22.—For the erection of a detached villa residence at Hessele. Mr. John M. Dossor, architect, 2 Manor Street, Hull.

HUDDERSFIELD—June 22.—For additions to stables, &c., in St. Thomas's Road. Mr. J. Berry, architect, 3 Market Place, Huddersfield.

ILFORD—June 22.—For the erection of a lodge and convenience at the north-west entrance to the South Park, Green Lane, Ilford. Mr. John W. Benton, clerk, Town Hall, Ilford.

IRELAND—June 22.—For the erection of warehouses in Talbot Street, Belfast. Messrs. Blackwood & Jury, architects, 41 Donegall Place, Belfast.

IRELAND—June 22.—For the erection of two cottages in the townland of Drumurn. Mr. William Crawford, clerk, Rural District Council Offices, Limavady.

IRELAND—June 25.—For the erection of proposed infectious diseases hospital at Purdysburn, Belfast. Messrs. Young & Mackenzie, architects, Belfast.

IRELAND—June 27.—For the erection of a golf house off Hamilton Road, Bangor. Mr. F. C. Doran, hon secretary, Bangor Golf Club, Ward Avenue, Bangor.

IRELAND—June 29.—For the erection of six shops in English Street and Scotch Street, Armagh. Mr. W. S. Jervois, architect, Armagh.

IRELAND—July 6.—For alterations to Castledawson Presbyterian church, Belfast. Mr. Thomas Houston, architect, &c., King's Court, Wellington Place, Belfast.

IRELAND—July 6.—For the extension of the premises of the Nantymoel Industrial Co-operative Society. The Secretary, Nantymoel.

KIRDFORD—June 30.—For removing and rebuilding the east wall, and the erection of a new wall in continuation of and in keeping with the present north wall at the churchyard, Kirdford, Sussex. The Vicar, Kirdford, Billingshurst.

LAMBETH—June 24.—For the supply and fixing iron fire-escape staircases and building works connected therewith at Renfrew Road workhouse. Mr. S. R. J. Smith, architect, 15 York Buildings, Adelphi, W.C.

LANGLEY BRIDGE.—July 11.—For widening Langley Bridge, situated on the main road between Eastbourne and Pevensey, Sussex. Mr. F. J. Wood, county surveyor, County Hall, Lewes.

LEEDS.—June 24.—For alterations and additions to the East Ward Liberal club, Ellerby Road, Leeds. Mr. G. Midgley, secretary.

LONDON.—June 22.—For the erection of a cartshed, office, bothy, &c., at Wandsworth Park, S.W. Particulars may be had at the General Section (Architect's) Department, London County Council, 18 Pall Mall East, S.W.

LONDON.—June 23.—For the erection of the second portion of the new car-sheds at Clapham, S.W., including about 400 tons of steel stanchions, girders and roofwork, for the London County Council. Particulars at the Architect's Department (Highways Section), 19 Charing Cross Road, W.C.

LONDON.—June 24.—For widening and enlargement of Victoria station, for the London, Brighton and South Coast Railway Company. Mr. J. J. Brewer, secretary, London Bridge Terminus, S.E.

LONDON, N.—June 25.—For work at the relief offices, Barnsbury Street, and the register office, Liverpool Road, Islington. Mr. William Smith, architect, 65 Chancery Lane, W.C.

LONDON.—July 4.—For the erection of an orphanage for the St. Pancras Female Orphanage and Charity School, 108 Hampstead Road, N.W. Mr. Goss, 3 Broad Street Buildings, Liverpool Street, E.C.

LONGWOOD.—June 26.—For the erection of a house in Meg Lane, Cliffe End, Longwood, Yorks. Messrs. P. Taylor & Co., architects, Central Buildings, Milnsbridge.

LOUTH.—July 4.—For the erection of the science buildings at the Louth Grammar school. Mr. E. E. Bentley, architect, 1 Pelham Chambers, Old Market Place, Grimsby.

LUTTERWORTH.—June 25.—For sanitary improvements and additions to the workhouse. Mr. W. M. Cowdell, architect, 12 Greyfriars, Leicester.

MANCHESTER.—June 25.—For the erection of brick walls, &c., to No. 2 retort-house, at the Gaythorn gas station. Mr. C. Nickson, superintendent, Gas Department, Town Hall.

MORLEY.—June 25.—For the re-erection of the City mills, Morley, Yorks. Messrs. Buttery & Birds, architects, Queen Street, Morley.

MOW COP.—June 25.—For the erection of the lower part of a tower to St. Luke's Church, Mow Cop, Staffs. Mr. C. Hodgson Fowler, architect, The College, Durham.

NEW MALDEN.—June 22.—For the erection of a small mission church in Burlington Road, New Malden. Mr. Vincent Davison, architect, Market Place, New Malden.

NEWTON-LE-WILLOWS.—June 27.—For erection of two cottages at the water-pumping station, Newton-le-Willows, Lancs. Mr. C. Cole, clerk U.D.C., Town Hall, Earlestown.

NORWICH.—June 22.—For the erection of retort house, coal stores and other buildings at the gasworks. Mr. Thomas Glover, engineer and manager, Bishop Bridge, Norwich.

OXENHOPE.—June 22.—For the erection of a house at Oxenhope. Mr. Thomas W. Bottomley, architect, 16 Prince Street, Haworth.

PADDINGTON.—July 6.—For construction of a retaining-wall on land abutting on Ashworth Road and the Paddington recreation-ground and the supply and erection of railings thereon. Mr. E. B. B. Newton, borough surveyor, Town Hall, Paddington, W.

PELTON.—June 22.—For the erection of a board-room and caretaker's house at Pelton. Mr. Stephen Wilkinson, architect, Mosley Chambers, Newcastle-on-Tyne.

PICKERING.—June 26.—For the restoration of Sinnington Church, near Pickering. Mr. C. Hodgson Fowler, architect, The College, Durham.

PRESTON.—July 6.—For setting one Lancashire steam-boiler, covering the top and connections thereto with non-conducting composition, &c. Mr. James Clarke, clerk, Union Offices, Preston, Lancs.

ROCHDALE.—June 25.—For the erection of car-shed at Bridgefold. Mr. S. S. Platt, borough surveyor, Town Hall, Rochdale.

ROCHESTER.—For the restoration of St. James's Church, Grayne, near Rochester. Messrs. Arnold, Baker & Day, solicitors, The Precincts, Rochester.

ROCHESTER.—June 25.—For repair and painting to buildings and greenhouses at St. Margaret's cemetery. Mr. W. T. Callund, surveyor, 2 South Avenue, Rochester.

ROTHERHITHE.—July 14.—For erection of four blocks of dwellings for the working classes on the Fulford Street area site, Rotherhithe. Mr. Fredk. Ryall, town clerk, Town Hall, Spa Road, S.E.

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SALFORD—June 25.—For the erection of retort-house at the Albion Street gas works. Mr. William W. Woodward, engineer, Gas Offices, Bloom Street, Salford.

SCOTLAND—June 22.—For alterations in connection with their schools, for the Edinburgh School Board. Mr. Carfrae, Queen Street, Edinburgh.

SCOTLAND—June 22.—For the reconstruction of properties in Greenside End, Edinburgh. Mr. Thomas Hunter, town clerk, City Chambers, Edinburgh.

SCOTLAND—June 23.—For the erection of piggery, loose boxes, &c., at Woodilee Asylum, Lenzie. Mr. James R. Motion, Parish Council Chambers, 266 George Street, Glasgow.

SCOTLAND—June 23.—For the erection of a villa in Stotfield. Mr. Charles C. Doig, architect, Elgin.

SCOTLAND—July 6.—For the construction of the goods and minerals stations' buildings on the new Leith lines, for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 302 Buchanan Street, Glasgow.

SHEFFIELD—June 23.—For the erection of University College, Sheffield. Messrs. Gibbs & Flockton, architects, 15 St. James Row, Sheffield.

SHEFFIELD—June 30.—For the superstructure of engine-room, pump-room and boiler-house above ground floor level at the new electric-power station, Club Mill Lane, Neepsend. Mr. S. E. Fedden, general manager and engineer, Corporation Electric Supply Department, Commercial Street, Sheffield.

SHIBDEN—June 29.—For the erection of two houses, Green Lane, Shibden, Yorks. Messrs. Walsh & Nicholas, architects, Museum Chambers, Halifax.

STOCKTON-ON-TEES—June 29.—For the construction of underground conveniences in High Street. Mr. Arthur B. Crosby, town clerk, Borough Hall, Stockton-on-Tees.

STOCKTON-ON-TEES—June 29.—For the construction of a bridge over Lustring Beck in Bishopton Road. Mr. Arthur B. Crosby, town clerk, Borough Hall, Stockton-on-Tees.

STROUD—June 24.—For construction of an underground public convenience, &c., at the junction of George Street and Russell Street, Stroud. Mr. E. Northam Witchell, clerk, Urban District Council, 1 Lansdown, Stroud.

SUNDERLAND—June 29.—For the erection of quarter sessions and police court buildings, fire station, &c. Messrs

W. & T. R. Milburn, architects, 20 Fawcett Street, Sunderland, W.

TAMWORTH—June 27.—For the erection of stables, lofts, harness-room and mess-room in the Leys, and 5 Colehill, Tamworth. Mr. J. W. Godderidge, architect, 4 Bolebridge Street, Tamworth.

THORNBURY—June 25.—For the erection of ten small houses in Upper Rushton Road, Thornbury, Yorks. Messrs. Walker & Collinson, architects, 227 Swan Arcade, Bradford.

TREDEGAR—June 23.—For the erection of a house adjoining the Congregational church. Mr. T. Jones, secretary, 50 Commercial Road.

TROWBRIDGE—June 29.—For repairing, painting, &c., the market hall. Mr. H. G. Nicholson-Lailey, town surveyor, Town Hall, Trowbridge, Wilts.

TRUNCH—June 22.—For the restoration of Trunch Church tower. Mr. Arthur J. Lacey, architect, 6 Upper King Street, Norwich.

TRURO—June 23.—For the erection of a coal-shed at the workhouse. Mr. Fras. Truscott, clerk to the Guardians.

UPPER EDMONTON—June 23.—For the erection of a bandstand and for the supply of 250 or 500 chairs for Pymme's Park, Silver Street. Mr. G. Eedes Eachus, engineer, Town Hall, Edmonton.

UPPER EDMONTON—June 23.—For the erection of a sorting office. Form of contract may be seen on application to Mr. J. Wager, H.M. Office of Works, Storey's Gate, S.W.

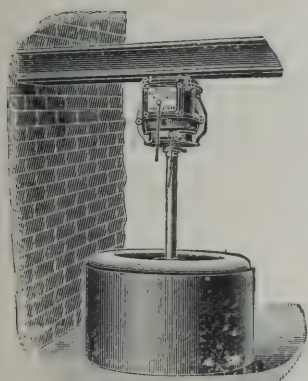
UXBRIDGE—June 30.—For the erection of a store and cart shed and fence walls on land adjoining the waterworks, Waterloo Road, Uxbridge. Mr. William L. Eves, surveyor, 54 High Street, Uxbridge.

WALES—June 22.—For the erection of a pair of semi-detached houses; a block, consisting of house and house with shop; a house with shop, all to be built at Cwmffirwdoer, near Pontypool; and a pair of semi-detached villas near St. James's Church, Pontypool. Mr. D. J. Lougher, architect, Bank Chambers, Pontypool.

WALES—June 22.—For block-flooring and soundproofing the boys' school, Pwllheli. Mr. J. T. Howells, solicitor, Pwllheli.

WALES—June 22.—For the construction of a new water supply, erection of lavatories and additions to the Llangamarch school. Mr. Evan Thomas, clerk, Garth, R.S.O.

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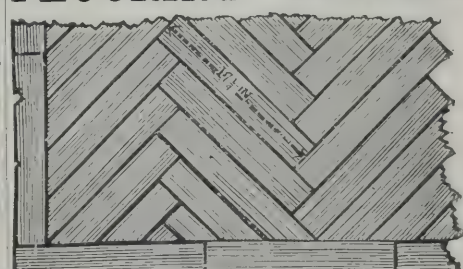
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WALES.—June 22.—For the erection of offices in Lower Church Street, Chepstow. Mr. Tom V. Ellis, Bridge Works, Chepstow, Mon.

WALES.—June 23.—For the erection of the superstructure and other works for the new lunatic asylum at Whitchurch, near Cardiff. Messrs. Oatley & Skinner, architects, Edinburgh Chambers, Baldwin Street, Bristol.

WALES.—June 24.—For additions, alterations and improvements to the Brynhyfryd Board school, Swansea. Mr. G. E. T. Laurence, architect, Chandos Chambers, 22 Buckingham Street, Adelphi, W.C.

WALES.—June 24.—For alterations and additions, &c., to the Peniel Congregational chapel, Nelson. Mr. Thomas Morgan, 11 Shingrig Road, Nelson.

WALES.—June 25.—For alterations and additions to Bethany chapel, Caerau, Maesteg. Mr. W. Beddoe Rees, architect, 37 St. Mary Street, Cardiff.

WALES.—June 25.—For the erection of an infants' school for 300 and a girls' school for 250 children at Georgetown, Merthyr Tydfil. Mr. J. Llewellyn Smith, architect, 50 High Street, Merthyr Tydfil.

WALES.—June 25.—For alterations and additions to the boys, girls and infants' departments of Dowlais schools, Merthyr Tydfil. Mr. J. Llewellyn Smith, architect, 50 High Street, Merthyr Tydfil.

WALES.—June 27.—For the erection of a chapel in Llewelyn Street, Pontygwaith. Mr. R. S. Griffiths, architect, Tonypandy.

WALES.—June 30.—For the erection of a schoolroom and reseat and erecting new galleries at Bethany Baptist chapel, Pembroke Dock. Messrs. George Morgan & Sons, architects, 24 King Street, Carmarthen.

WALES.—July 6.—For erection of 300 workmen's cottages at Glanamman. Mr. David J. Michael, National Chambers, 97 Oxford Street, Swansea.

WATFORD.—For the erection of a household management centre at the Alexandra school. Mr. W. H. Syme, architect, 4 High Street, Watford.

WEST HAM.—June 23.—For the construction of corrugated iron tramcar sheds, West Ham Lane. Mr. John G. Morley, borough engineer, Town Hall, West Ham.

WESTON-SUPER-MARE.—June 23.—For the erection of a shelter and convenience at the waterworks lands. Mr. Hugh Nettleton, surveyor, Town Hall, Weston-super-Mare.

WHITEHAVEN.—June 30.—For alterations and additions to the Roman Catholic schools in Coach Road and Quay Street. Mr. Dees, Somerset House, Whitehaven.

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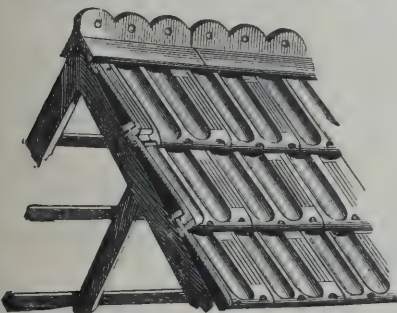
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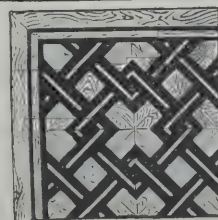


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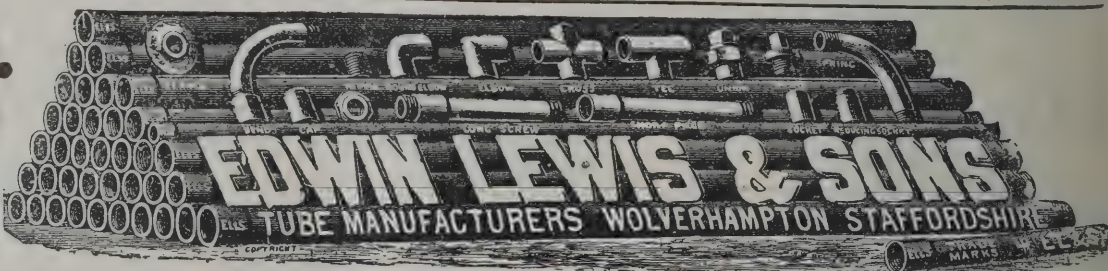
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E. Iles, jun.	150	0	0
J. Sheehan	147	3	0
M. WEBB, 86 Palatine Road, Stoke Newington, N. (accepted)	136	9	9

For repairs to the Commercial Road station, for the London Salvage Corps. Mr. ARTHUR F. BRIGGS, architect, 9 Queen Victoria Street, E.C.

Falkner & Sons	£547	0	0
Mansfield & Son	540	0	0
Ashby & Horner	539	0	0
Colls & Son	515	0	0
HAYWARD & SON (accepted)	492	0	0

NORTH SHIELDS.

For the erection of a female hospital pavilion at the workhouse. Mr. HENRY GIBSON, architect, Wellington Chambers, North Shields.

W. A. FISHBURN & Co., William Street West (accepted)	£4,750	0	0
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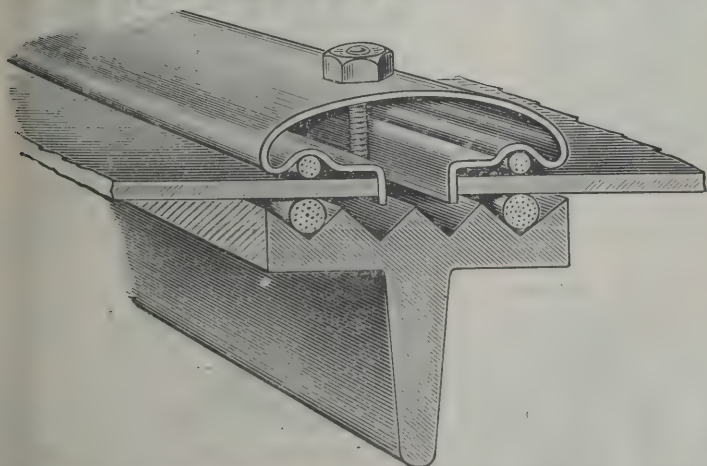
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For Index of Advertisers, see page x.



ROMFORD.

For sewerage and drainage works and repairs in Victoria Road (part of), Heath Park Road, Brentwood Road (part of), Ardleigh Green Road (part of), Factory Road, Catherine Road, Hamilton Road, Margaret Road, Salisbury Road, Starling Lane to Brook. Mr. H. RIDGE, surveyor.

J. Meston	£20,153	10	5
Peerless, Dennis & Co.	11,494	5	0
W. Iles	10,500	15	5
T. Adams	10,276	10	7
G. Bell	10,216	0	0
Free & Sons	10,148	7	4
W. Manders	10,018	3	0
D. T. Jackson	9,919	2	9
B. W. Glenney	9,211	4	6
J. Jackson	9,113	19	0
WILSON, BORDER & CO., Cromer Road, Romford (accepted)	8,545	5	3

SCOTLAND.

For the erection of latrines at Eyemouth public school.

Accepted tenders

J. Wilson & Son, Berwick-on-Tweed, plumber	£69	10	0
P. Edgar, Home Street, Eyemouth, mason	52	10	0
J. Watson, Albert Road, Eyemouth, joiner	15	0	0

For pointing and repairing the walls at Rathven churchyard.

A. MILNE, Buckie (accepted)	£23	12	9
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For reconstructing fireclay-pipe sewers, &c., in Glasgow Road, Ashgrove Lane and Newark Street, Port Glasgow. Mr. JAMES MURRAY, burgh surveyor.

J. Hutcheson	£123	14	6
Public Works Construction Co.	118	7	0
Kirkwood, Reed & Co.	106	19	9
A. Stark & Sons	105	6	6
G. McKay	102	14	2
J. & D. Griffen	94	18	0
D. McBride	94	17	1
W. Pollock	94	16	0
W. REID, Port Glasgow (accepted)	90	0	0

For pipelaying, constructing distributing reservoir and filters, &c. Messrs. THOMSON & WRIGHT, engineers, 22 Rutland Square, Edinburgh

STIRLING & KINNIBURGH, 144 St. Vincent Street, Glasgow (accepted)	£2,512	8	3
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SOUTHAMPTON.

For the erection of new office at Otterbourne waterworks, near Shawford, Hants. Mr. W. MATTHEWS, waterworks engineer.

H. Stevens & Co.	£338	0	0
Musselwhite & Son	326	0	0
Jenkins & Son, Ltd.	323	0	0
H. J. Hood	299	0	0
J. Nichol	283	0	0
G. I. Britten	260	0	0
R. SCANNELL, Bishops Waltham (accepted)	245	0	0

STONE.

For the construction of sewerage works at Blythe Bridge

W. Whitfield	£390	0	0
F. Barke	354	0	0
W. Williams	350	0	0
T. TUCKER, Burslem (accepted)	332	1	6

WALES.

For the erection of a church in Holton Road, Barry Dock. Mr. GEO E HALLIDAY, architect, Cardiff.

First and second sections

A. Richards	£7,098	0	0
W. Button	6,536	15	2
Lloyd & Tape	6,410	19	7
H. S. Rendell	6,368	8	0
A. W. CADWALLADER, Cardiff (accepted)	5,958	18	0

For the erection of lavatories, fire staircases, &c., and providing and fixing new eaves, gutters, down spouts and various other works at the workhouse, Bangor Road, Conway, Mr. T. B. FARRINGTON, architect, Trinity Square, Llandudno.

D. JONES & HUGHES, Llandudno (accepted)	644	0	0
G. Roberts Bros.	639	10	0

For the erection of an infants' school at Abertaf, Abercynon. Mr. A. O. EVANS, architect, Pontypridd.

D. Davies	£3,760	0	0
C. Jenkins & Son	3,700	0	0
Knox & Wells	3,400	0	0
J. Howells	3,130	0	0

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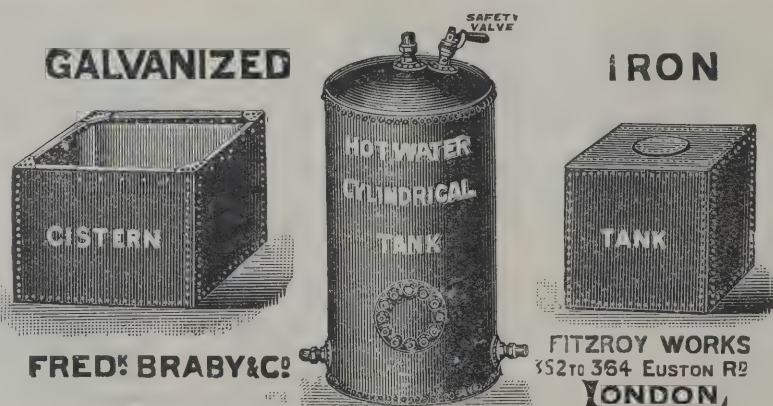
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WALES—continued.

For painting and renovating the interior of two ward pavilions and the interior of the front portion (nurses' quarters) of the administrative block at the sanatorium. Mr. W. HARPUR, borough engineer.

W. E. James	£436	5	0
E. Turner & Sons	324	0	0
Gough Bros	321	0	0
D. Mullens	305	10	0
W. T. Morgan	273	10	0
Cooper Bros., 64 Elm Street *	264	15	0

* Recommended for acceptance.

For the erection of a hall, High Street, Neath Messrs HABERSHON, FAWCKNER & GROVES, architects, 14 Pearl Street, Cardiff.

W. H. Creighton	£4,468	14	0
D. Davies	3,890	0	0
D. Thomas & Son	3,393	0	0
G. Davies	3,363	8	4
J. Goodridge & Sons	3,155	0	0
BENNETT BROS., Swansea (accepted)	3,149	10	7

For alterations and extensions to Emlyn and Clytha Villas, Nanthir Road, Blaengarw.

J. Maddocks	£905	17	0
D. J. DAVIES, Blaengarw (accepted)	870	0	0

For the erection of an infants' school at Blaenau-Gwent, Abertillery, Mon, to accommodate 300 children. Mr. R. L. ROBERTS, architect, Abercarn.

D. Davies	£4,692	0	0
E. C. Jordan	3,700	0	0
N. Bagley & Co.	3,680	7	3
D. W. Richards, Ltd.	3,635	0	0
A. P. Williams	3,615	0	0
D. Lewis	3,597	0	0
J. Newcombe	3,516	0	0
GAEN BROS, Abertillery (accepted)	3,434	0	0
Smith Bros.	3,388	0	0

WEST HARTLEPOOL.

For street works in Colenso Street, Stirling Street and footpath, Upper Alma Street. Mr. J. W. BROWN, borough engineer. Accepted tenders.

J. Burn, West Hartlepool, for Colenso and Stirling Streets.
B. C. Laycock, West Hartlepool, for Alma Street footpath.

WANDSWORTH.

For the construction of a river wall adjoining the public baths, High Street.

B. E. Nightingale	£2,200	0	0
T. W. Pedrette	2,127	2	0
J. Cochrane & Son	1,650	0	0
Pedrette & Co.	1,426	0	6
E. Iles, jun.	1,120	0	0
E. Wall	1,100	0	0
London and County Builders, Ltd.	1,073	5	0
F. J. COXHEAD, Bulwer Road, Leytonstone, E. (accepted)	980	0	0

WORCESTER.

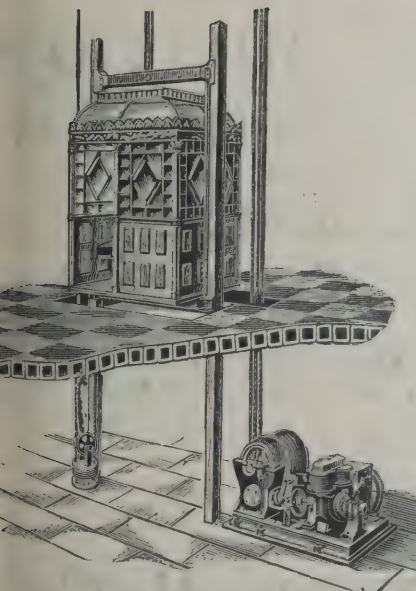
For widening Breedon Cross Bridge. Mr. J. H. GARRETT, county roads surveyor, Shire Hall, Worcester.

J. White, jun.	£2,173	4	0
A. Kelett & Sons, Ltd.	1,854	4	9
W. H. Gibbs	1,845	0	0
Curral, Lewis & Co.	1,645	16	4
H. A. S. Fraser	1,509	0	0
C. Griffiths	1,455	11	1
G. Trentham	1,350	0	0
R. W. Fitzmaurice & Co.	1,339	3	0
G. Law	1,279	18	5
CRUWYS & HOBROUGH, Gloucester and Birmingham (accepted)	1,278	17	8

For rebuilding Ten Acres Bridge. Mr. J. H. GARRETT, county roads surveyor, Shire Hall, Worcester.

Kellett & Sons	£2,599	0	10
J. White, jun.	2,519	4	0
C. Griffiths	2,470	2	0
H. A. S. Fraser	2,460	10	2
Curral, Lewis & Co.	2,138	5	3
G. Law	2,127	6	7
W. H. Gibbs	2,078	0	0
Cruwys & Hobrough	1,999	9	2
G. Trentham	1,889	7	7
R. W. FITZMAURICE & CO., LTD., Birmingham (accepted)	1,779	12	3

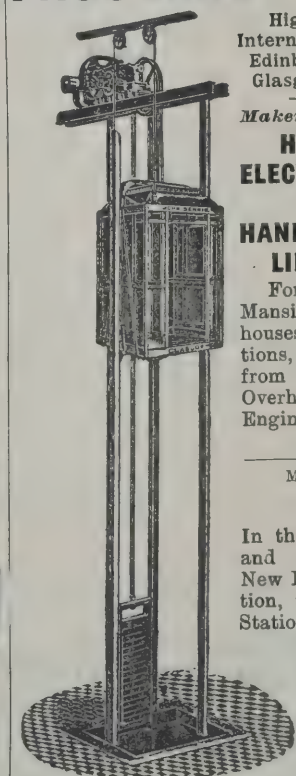
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For the construction of the permanent way of the tramway from Palmerston Road to St. Fittock's Road, Torry
P. TAWSE (*accepted*) £6,534 15 0

BRIGHTON.

For laying pipes for pumping mains from the Falmer works to Brighton, and for the outlaying of a main between the Race Hill and the Warren reservoirs.
A. E. Nunn, Tenterden £3,375 0 0

LONDON.

For repairs, painting, &c., at the Paddington Infirmary, Harrow Road, W., for the Guardians.
J. J. RICHARDS, Brixton (*accepted*).

TRADE NOTES.

THE Wilson Engineering Company, Limited, of 227, &c., High Holborn, W.C., the well-known makers of gas cooking apparatus, are leaving their premises for temporary offices and show-rooms at 77 Great Queen Street, High Holborn, in consequence of the County Council acquiring their old offices for the new street.

MESSRS. ANDREW HANDYSIDE & CO., LTD., of Derby and London, makers of steel bridges, roofs, buildings and structures, have received the contract for the supply of two swing-bridges for the Cardiff Railway Company. One bridge carries two lines of rails and two roadways over the communication-passage of the South Dock, Cardiff, and the smaller bridge carries a single line and one roadway over the entrance-lock.

IN our description of the new out-patients' department of the London Hospital, which was opened by their Majesties on the 11th inst, we omitted to mention that the whole of the staircases in the building were supplied and fixed by Messrs. Alfred Walker & Son, of 7 Upper James Street, Golden Square, W., and Leeds. The same firm also supplied and fixed the main and other staircases at the University College Hospital, London, as well as at the Surveyors' Institute and Prudential Buildings, London. They make a specialty of that class of construction

VARITIES.

MR. A. E. PILLING, town clerk of Devonport, was last week elected clerk to the London Water Board at a salary of 1,500l. a year.

THE new Corporation destructor, which has been erected in Doughty Road, Grimsby, at a cost of 3,500l., was inaugurated on June 13.

THE St Paul's Church Council, Southport, have decided to build a new church at Ecclesfield, where there is now a mission church; also to erect a new school and parochial hall, to cost altogether 5,000l.

THE Hornsey Urban District Council have opened an account for subscriptions towards the 5,500l. required to acquire a strip of well-timbered land between Highgate Woods and Muswell Hill Road. A portion of it has already been purchased as a building site.

A SANATORIUM for consumptives is in course of erection at Winsley, near Bradford-on-Avon, for the counties of Wilts, Somerset and Gloucester. The contract price is 6,877l. It is proposed to erect six blocks of ten beds each, which will be used entirely for the consumptive poor.

THE Lord Provost's committee of Edinburgh Town Council have resolved to recommend that the magistrates and Council petition His Majesty's First Commissioner of Works to give instructions for the maintenance of Holyrood Palace as a Royal residence.

THE report of the Chief Inspector of Factories shows that 90,355 accidents were reported last year as having occurred in factories and workshops. In the cotton mills, however, there was a small decrease, which is attributed to the action of the inspectors in insisting upon safeguards.

A PAPER read by Mr. T. W. A. Hayward at a meeting of municipal and county engineers revealed that since the earthquake of 1884 the water supply of Sudbury had been reduced by about one-half. At Colchester, which is also in Essex, the supply was increased.

THE Edmonton public baths were formally opened last Saturday. There are two large baths, each 90 feet by 30 feet, one of which is covered and the other uncovered. A number of slipper baths have also been provided. The cost, including the erection of a council chamber and additional offices, amounts to about 30,000l.

The ROMAN CATHOLIC CATHEDRAL,
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Bricks were used for the above impor-
tant public works.

THOMAS LAWRENCE & SONS, BRACKNELL, BERKS.

MR. G. HOLT has offered to the Knutsford District Council a plot of land on a lease of 999 years, at the nominal rent of 1s. per annum, for the purpose of a free library. Mr. Carnegie, who has offered a considerable sum towards the object, has expressed his approval.

THE Manchester Ship Canal is to be deepened from the original depth of 26 feet to 28 feet. The sills of the locks were placed 2 feet below the 26 feet depth, so that the work is of a comparatively simple character. The object is to permit of the entry of the larger steamers to Manchester.

THE Stepney Borough Council commenced over two years ago the erection of workmen's dwellings on the Queen Catherine Court area, and these were opened for occupation last Thursday. The buildings have cost over 6,000l. and will accommodate over 200 people.

MAJOR C. E. NORTON, R.E., the Local Government Board inspector, conducted an inquiry on Friday at the Public Hall, Horwich, into the application of the Horwich District Council for powers to borrow 35,000l. for the purposes of constructing a reservoir of about thirty and a half million gallons capacity on land about 10 acres in extent known as Marklands and Wallsuches.

THE contract for the erection of the Little Ilford Congregational church and school has been awarded to Messrs. F. Gough & Co., Hendon, at 4,435l. The block comprises church to accommodate about 724 adults, and the usual vestries, &c., also large two-storey school, the main hall being on the upper storey, and the classrooms and small hall on the ground floor. The architects are Messrs. Baines.

A STAINED-GLASS window in memory of the Rev. W. L. Ker, M.A., was unveiled on Saturday afternoon in Kilwinning parish church. The window, which has for its subject "St. Paul Preaching on Mars Hill," is the work of Messrs. Stephen Adam & Son, 121 Bath Street, Glasgow. Its treatment is broad and effective, and the colour is rich and pure in clear and translucent harmonies of choice glass.

MR. ALFRED MOSELY has just made arrangements for a reprint of the complete reports of the Mosely Industrial Commission in cheap form. Copies may be had at 6d. each net, or post free 9d. It is being produced not only without profit, but at a loss, and solely in order that the public may be enabled to possess themselves of the knowledge gained from the inquiries made in the United States. The Board of Trade has ordered 3,000 copies for free distribution.

WHILE workmen were engaged in stripping an old wall-paper in the room of a house until recently occupied by a solicitor of Woodstock, they discovered in a hole in the wall a cardboard box. On being opened, it was found to contain ten 50l. Bank of England notes. Judging by the dates on the notes, they must have been hidden for years. The notes at present are in the possession of the new owners of the house.

LADY PEARSON, the wife of Sir Weetman Pearson, the contractor, has formed a Voluntary Association of Contractors for Public Works, for the purpose of providing pensions of 5s. a week for navvies on their arriving at the age of sixty-five, or 7s. 6d. a week if they are married. The pensions are not to be paid to all indiscriminately. A certain standard of good character is to be required.

IN three parishes in Buckinghamshire important schemes of restoration are under consideration. At Radnage it is proposed to restore St. Mary's parish church, which was erected in the early part of the twelfth century, while at Bledlow the ancient tower of the parish church is to be restored at an outlay of about 800l. The tower of the parish church at Princes Risborough is also to be extensively restored.

THE Cleveland Bridge Company, Darlington, obtained the contract for the Rhodesia railway bridge over the Zambesi, which crosses half a mile below the Victoria Falls. There was considerable competition by British, Continental and American firms. The bridge, 650 feet long, crosses a deep gorge 360 feet above the water-level. The main span is a 500 feet steel arch. There will be a double line of rails for the Cape-to-Cairo railway.

MR. W. P. HARTLEY has informed the Primitive Methodist Conference that he is prepared to bear the expense of building and furnishing a new ministers' college large enough to provide forty new places, in addition to the existing sixty in the old college at Manchester. The building will be erected next to the present college, and the probable cost is about 10,000l. A chapel will also be erected.

A REREDOS has been erected in the Church of the Resurrection, Brussels, to the memory of the late Queen Victoria. The ceremony of dedication was attended by the British Minister and a representative gathering of English residents in Brussels. The reredos is a specimen of Flemish wood-carving, and the cost has been entirely defrayed by subscriptions, to the amount of nearly 700l., from local English residents.

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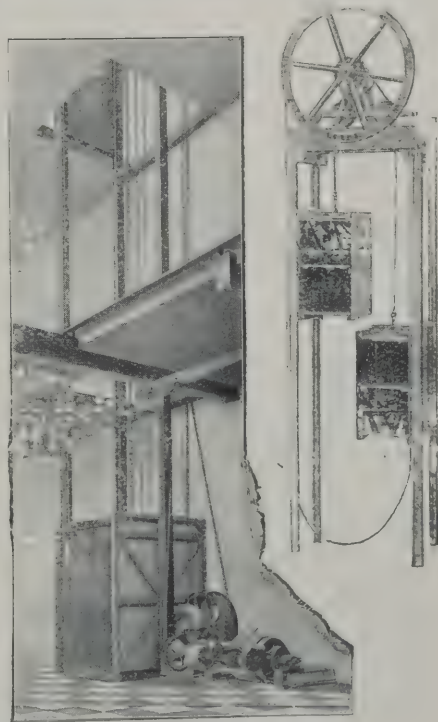
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THE Dean and Chapter of Winchester have placed at the disposal of the war memorial committee a window and space beneath, near the south door of the cathedral, and it has been determined to erect a stained-glass window, with a marble tablet, recording the names of all the men who lost their lives in South Africa during the war, and who were members of any of the Hampshire regular or auxiliary forces.

MRS. HIGGINS, late of Frizington, has undertaken the cost of the restoration of Arlecdon parish church, in Cumberland, estimated at 4,000*l*. There are certain conditions, which include the provision of a peal of bells, already subscribed for, at a cost of 600*l*., by the parishioners, and certain other "necessary alterations," which cost 400*l*. Mrs. Higgins bears the expense of the erection of a handsome tower in memory of her parents.

A MEETING of the members of the Liverpool Cotton Association has been summoned for the 22nd inst. to authorise the directors to proceed with the preliminaries for the building of the new Exchange in Oldhall Street, between Ormond Street and Edmund Street. The directors have already purchased the land at something between 85,000*l* and 88,000*l*., and they advise the purchase of City Buildings at 26,500*l*. Mr. F. G. Briggs has been engaged as advisory architect, and it is proposed to have a competition for the design of the new building.

THE Queen Victoria Memorial at Newbury, which has been presented to his native town by Mr. George Sanger, will be unveiled on the 24th inst. It consists of a full-length figure of Her late Majesty with four recumbent lions. The memorial was fixed under the direction of Mr. Lawrence, of the staff of Messrs. Doulton & Co., of the Lambeth Potteries, and the supplementary works have been carried out under the supervision of the borough surveyor (Mr. S. J. Lee Vincent).

THE Midland Railway Company made an application to the Manchester City Council for a dramatic license for the new Midland Grand Hotel. The city architect in his report to the watch committee called attention to the fact that though the main staircase was more than 6 feet wide it was not provided with a centre handrail in accordance with the by-laws. When the application was considered on the 11th inst the railway company submitted that the ornamental design would be sadly interfered with if the committee exercised their undoubted right of adhering to the strict letter of the by-law. It was hoped that the company's wishes would be met in this case. The application was granted.

THE Stirling Town Council have received a report from the master of works giving the relative costs of different methods of refuse disposal. The probable cost of a refuse destructor of two cells, with boiler and settings, flues, damper, &c., and centrifugal dust-catcher, he estimates at 2,126*l*., with an additional 1,277*l*. for chimney, buildings, &c. The average yearly cost of destroying the refuse he estimates at 686*l*. 12*s*. 8*d*., including 238*l*. 4*s*. 2*d*. as interest and sinking fund at 7 per cent. The return for the clinker he estimates at 23*l*. 13*s*. while the value of the steam generated would be 150*l*., bringing down the yearly cost to 512*l*. 19*s*. 8*d*.

THE Wetheral parochial committee considered on the 10th inst. a sewerage scheme for Wetheral and Corby, and estimated by the engineer, Mr. J. Graham, to cost about 8,000*l*. The following resolution was unanimously carried:—"That the scheme for the sewerage of Wetheral and Corby prepared by the engineer involves an outlay of such a large amount that it would exhaust the borrowing powers of the parish and prevent schemes already proposed for other villages being proceeded with, and this committee request the District Council to sanction the appointment by this committee of an expert to advise on the whole question."

THE Walton-on-Thames Urban Council recently announced the vacancy of the post of surveyor. They received 197 applications for the post, which brings in a salary of 250*l*. a year and the right to take not more than one pupil. The choice was brought down to eight candidates whose names were:—J. G. Carey, assistant surveyor, Heston and Isleworth, aged 30; J. R. Cartledge, assistant surveyor, Barnes, 30; T. Graves, assistant surveyor, Kingston-on-Thames, 31; H. D. Mather, assistant surveyor, Surbiton, 30; H. G. White, deputy surveyor, Cheltenham, 36; R. Wilds, surveyor, East Grinstead, 32; W. Woolam, assistant surveyor, Barnes, 33. The Council on the 11th inst. appointed Mr. Wilds to the post.

THE Birmingham District Tramways Bill, which has been promoted in Parliament by the local district authorities in conjunction with the City of Birmingham Tramways Company, the Birmingham and Midland Tramways Company and the British Electric Traction Company, came before a committee of the House of Lords this week. The promoters are asking the authority of Parliament to construct additional tramways, and also for compulsory running powers over the existing lines in the city. In view of the decision of the City Council to municipalise the tramways the Corporation are strenuously opposing the application of the promoters for power to run



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their cars from the outside districts into the city, and it is upon this point that the Bill will be mainly fought in Parliament.

THE select committee of the House of Commons on the 11th inst. found that the preamble of the Bristol, London and Southern Counties Railway Bill had not been proved. It was proposed to construct a new railway, some seventy-three miles long, from Avonmouth Dock, Bristol, *via* Bath and Trowbridge, to Overton, near Basingstoke, and there to effect a junction with the London and South-Western Railway, thus obtaining communication with London, and providing an alternative route to that of the Great Western Railway, which at present is the only direct line between London and Bristol. The total capital powers sought were 6,000,000*l*.

At a meeting of Ayr Town Council an interesting report was submitted by Mr John Eaglesham as to the state of the Auld Brig of Ayr. The Auld Brig, it is said, was undoubtedly a very old structure. There was a grant by charter, dated 1236, for the upkeep of the bridge, and in 1491 it appeared the bridge had been under repair when James IV. passed through Ayr on his way to Whithorn. About 1867 the bridge had been in a very dilapidated state, and considerable sums had from time to time been expended by the Town Council on its repair. The bridge was again showing signs of decay, partly the consequence of the very repairs that had been carried out on the structure, and on the recommendation of Mr. Eaglesham it was agreed to carry out necessary repairs on the structure at an estimated cost of about 660*l*.

THE foundation-stones of a Wesleyan church to be erected at West Kirby were laid on the 10th inst. The new church, which adjoins the present school chapel, will be 58 feet in length by 41 feet, with the addition of a chancel with accommodation for the choir and organ. There is to be seating accommodation in the body for 345 adults, and in a gallery at the front for 85 adults. Architecturally, the design of the new church is Gothic, and the exterior facing is of local rock-faced stone with ashlar dressings of the windows, doorways, &c. The front will contain a projecting central porch and entrance at each flank. The gable is to be flanked by buttresses finished in octagonal pinnacles. The roof will be partially open, with curved and stained timbers and light pitch-pine ceiling. The pulpit, seating, &c., are to be of pitch pine throughout. Ample provision is to be made for heating, ventilating and lighting, and a vestry with the usual conveniences will be added. The cost of the building, exclusive

of land and architects' fees, will be 3,500*l*. The architects are Messrs. John Wills & Sons, Derby, and the builder is Mr. Samuel Fowler, Bootle.

BUILDING AND BUILDERS.

THE Master Builders' Association have determined to visit Oxford for their annual outing on Wednesday, July 8.

THE Bridlington Corporation contemplate an expenditure of 11,000*l*. on sea defence and groynes works.

IT is reported from Durban that there is a considerable demand there for good men in the bricklaying, plastering and carpentering trades.

A NEW department of a Board school was opened at Tinsley Park Road, Sheffield, on Monday. The plans were prepared by Messrs Holmes & Watson, and the contractors were Messrs Ash, Son & Biggin. The cost was about 10,000*l*.

THE plans and works committee of Edinburgh Town Council have agreed to recommend the magistrates and Council to erect a public washhouse on a site in St. Leonard's to be afterwards fixed.

A GOTHIC chapel for the Wesleyan Methodists at Kenilworth was opened on the 11th inst. Accommodation is provided for 200 persons, and in the adjoining schoolroom for 200 pupils. The cost of erection has been 2,500*l*.

THE Vicar of Hampton-on-Thames is offering free marriage to every couple who will settle down in one of the new working men's dwellings which are being erected there by the Urban District Council.

MR A. G. MALET opened on Tuesday a Local Government Board inquiry into the proposal of the Bolton Corporation to borrow 74,176*l*. for the purpose of repaving certain main roads, 22,795*l*. for other works of paving, 2,398*l*. for the Bradford Street Bridge, and 6,500*l*. for the rebuilding of Toothill Bridge.

THE town clerk of Liverpool has issued public notice in which bakers are advised to apply early for certificates by the Council that their premises are suitable for the purpose. This is in connection with the recent legislation relating to underground bakehouses which comes into operation on January 1, 1904.

THE Crieff Dean of Guild Court have passed plans of a large addition to be made to the buildings of the Strathearn

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Hydropathic The addition principally consists of winter gardens and loggia, to be built to the south of the existing drawing-room. The estimated cost of the addition is about 5,000*l*.

THE Board of the London Missionary Society have accepted the tender of Mr. J. Carmichael (27,730*l*.) for the erection of the new Mission house in New Bridge Street, E.C. It was the lowest of sixteen tenders. The ground floor and first floor will be let as offices, the Society occupying the remainder of the building.

MR. A. SPICER, who laid last week the foundation-stone of a new church at Barry, South Wales, had made the proviso on accepting the office that the funds of the church should be saved from the outlay of providing either trowel or mallet, and that he should use the ordinary workman's tools. Accordingly an everyday trowel and an ordinary mallet were employed.

THE foundation-stone of a new church for Rock Ferry, near Liverpool, was laid on the 11th inst. The church is to be Gothic in style and built of grey brick, with terra-cotta dressings and stone interior dressings, and the roof and seats are to be of pitch pine. The cost will be from 4,000*l*. to 5,000*l*. The architects are Messrs. Grayson & Ould, Liverpool, and the contractor is Mr. Richard Allen, Birkenhead.

THE Government of India have ruled that no new works or alterations or additions to existing works of defence in charge of local Governments, railway administrations, &c., shall be executed until the project has been examined and passed by the Director-General of Military Works, and that Royal Engineer officers only shall be entrusted with the supervision and execution of such works.

A MEETING was held recently of the metropolitan committee on materials and means of paving the streets of London. The committee is the outcome of the conference recently convened by the Westminster City Council on the subject of street paving, the object being to obtain periodically from the various borough councils of the Metropolis information with regard to the life and wear of the different kinds of paving.

THE foundation-stones of a new Baptist church at Acock's Green were laid on the 8th inst. At present only a portion of the contemplated church is being erected, viz. the lecture-hall and rooms for Sunday-schools. The new church will stand at the junction of Yardley and Alexandra Roads, on a freehold

site the gift of Mr. Joseph Walker. The cost of the buildings at present in course of erection, together with furnishing, is about 3,212*l*.

THE Wesleyan general chapel committee, which has submitted to it all cases of proposed extension, have just sanctioned a further outlay of 116,500*l*. on new erections in all parts of Great Britain. These cases comprise thirty-five new chapels, the estimated outlay on which is 92,500*l*. Sanction is also given to the erection of six Sunday-schools at a cost of 4,370*l*; seven ministers' houses, costing 6,520*l*; fourteen new organs, costing 4,140*l*; also twenty-seven alteration and enlargement cases, involving a total expenditure of 8,963*l*.

THE Wandsworth Borough Council resolved at their last meeting "That the attention of the London County Council be called to the destruction of property, the injury to health and the annoyance caused at Tooting by the insufficiency of main drainage, and that the London County Council be requested to consider the advisability of postponing the proposed addition of 9,000 to the population by the erection of dwellings on Totterdown until the Council has provided adequate means for the disposal of sewage and storm water."

THE new hall erected in connection with the Oxtou Road Congregational Church, Birkenhead, was opened on Tuesday. The building is an addition to, and is incorporated with the original church building in such a manner as to distinctly increase its importance as a whole, and it has been erected at a cost of 3,700*l*. The peculiar shape of the land to which the building had to conform has been handled with such skill by the architect, Mr. James H. Cook, Liverpool, as to secure quite a unique effect. Externally the building on its Woodchurch Road and Balls Road frontages is faced with Storeton stone, while internally the rooms have a high cement dado, with smooth plaster above. The woodwork throughout is pitch-pine. The ventilation of the hall and the seven classrooms has received special attention, and the building is heated throughout with hot water by means of radiators. The work of building has been carried out by Mr. Peter Rothwell, Birkenhead.

LAST week the foundation-stone of a new church in North Heigham, Norwich, was laid. The building is to cost 5,000*l*. The present intention is to build the nave, which it is calculated will cost 3,000*l*. The new church will consist of nave, aisles, chancel, western porches, baptistery, two vestries and heating chambers, and the whole building will be erected in a Perpen-



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The Company commenced Business in the REIGN OF GEORGE III., and the following figures show its record:

AT THE ACCESSION OF		INCOME.		FUNDS.	
		£		£	
KING GEORGE IV.	- -	77,413	- -	160,121	
KING WILLIAM IV.	- -	131,423	- -	607,676	
QUEEN VICTORIA	- -	157,973	- -	915,082	
KING EDWARD VII.	- -	700,134	- -	2,237,081	
PRESENT TIME	- -	755,010	- -	2,296,583	

In addition the Company has a Subscribed Capital of One Million Two Hundred Thousand Pounds,

Affording a TOTAL SECURITY for its Policyholders of **£3,496,583.**

Claims Paid exceed £15,000,000.

The New Edition of the Company's Prospectus contains several fresh features of importance, among which are:—

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- 2.—CONVERTIBLE TERM ASSURANCES giving large cover for a very low premium.
- 3.—DEFERRED ASSURANCES FOR CHILDREN giving the benefit of the low premiums applicable to youth and avoiding the risk of the life becoming uninsurable.

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dicular style of architecture. The walls will be built of brick, faced externally with local rubble flints with Monk's Park stone dressings; internally they will be stuccoed. The roofs will be open and constructed of pitch-pine timber, boarded and felted; the nave and chancel covered with Broseley tiles and the aisles, vestries, &c., with Westmoreland green slates. The flooring beneath the seats will rest upon a solid foundation of coke breeze concrete, whilst the paths to the nave and aisles will be laid with small red Staffordshire pressed tiles with simple border; the chancel will be floored with encaustic tiles. At the east end of the chancel will figure a large five-light window, and at the west end of the nave there will be another large window, but of six lights. All the windows, including those to the aisles and clerestory, will be glazed with cathedral glass. A bell-cot is provided upon the west gable for one bell, as it is not proposed to build a tower. The architect is Mr Arthur J. Lacey, of Norwich, and the tender of Mr. G. S. Tinkler, of Norwich, has been accepted for putting in the foundations.

A BOOKLET, entitled "Holidays in Belgium and the Ardennes," by Mr. Percy Lindley, has appeared at a most opportune time. At this period of the year many minds are busy with the framing of plans as to the best way to spend the brief annual respite from work. The problem becomes more difficult after the most apparent modes have been once worked out. It becomes necessary to wander further afield in the search of diversion. However, it often happens that the holiday-maker is oblivious to the advantages of places which lie, so to speak, at his door. Many people will find themselves in this position when they read through Mr. Lindley's charming pages. As he remarks, one drives after dinner to Liverpool Street Station and catches the Continental express for Harwich. The train draws up at Parkeston Quay, almost alongside the steamer. On board one of the Great Eastern Railway Company's splendid boats the traveller may take his night's repose and arrive in the morning at Antwerp. Within easy journey of this town a multitude of interesting places and objects may be seen. The lover of picturesque scenery will find his taste more than satisfied with the Ardennes, where a week at least should be spent. The return journey may be made down the Moselle to Coblenz, and thence by the Rhine to Cologne, where the train can be taken to Brussels and Antwerp. The Great Eastern Railway Company have prepared ample guides to assist the traveller, and it would be advisable for all to apply to them for assistance before making their arrangements.

ILLUSTRATIONS.

UNIVERSITY COLLEGE HOSPITAL.

CATHEDRAL SERIES: WORCESTER.—SOUTH-EAST TRANSEPT. LOOKING INTO LADY CHAPEL, THE SCREEN AND CHOIR.

PROPOSED HOUSE AT HIGH WYCOMBE.

HOUSE, BRANKSOME PARK, BOURNEMOUTH.

ELECTRIC NOTES.

THE Incorporated Municipal Electrical Association will hold its next Council meeting at Bolton on the 20th inst.

THE clerk to the Horwich District Council has informed the Bolton Corporation that his Council consented to the Bolton Corporation furnishing a supply of electricity to Horwich.

GLASGOW Corporation Tramways, since their electrification, have been highly successful, the receipts for the last financial year being 40,374*l.* in excess of those of the previous year.

THE St. Helens electric supply and tramways committee have been considering the question of extending the generating station and erecting additional plant in view of the increasing demand for energy, and they have resolved to extend the present engine-house and to erect gas plant for the purpose of supplying the motive-power for the new machinery.

THE statement of accounts for the past year's working of the Coventry electric-light undertaking has been approved by the committee. It covers the twelve months ended March 31 last, and shows a total revenue of 8,076*l.*, with working expenditure of 3,691*l.*, or a gross profit of 4,385*l.* The total of capital account charges is 4,574*l.*, and the net deficit is 189*l.*—a satisfactory result compared with previous years.

MAJOR PRINGLE, one of the inspectors under the Board of Trade, made the final inspection on Tuesday of the electrical equipment of the new portion of the District Railway Company between Ealing and South Harrow, which will be opened to the public on Monday. The new line is about five miles in length, and brings Harrow, Sudbury and Alperton into direct and easy communication with the City. The trains which are to be used on the new line will be made up of four coaches, with a motor at each end and one in the middle. The seating capacity of each coach is fifty-two.

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Chief Office: 15 NEW BRIDGE STREET, LONDON, E.C.

GEORGE S. CRISFORD, Actuary.

APPLICATIONS FOR AGENCIES INVITED.

THE BUILDING EXHIBITION.

THE International Building Trades Exhibition duly opened on Saturday morning last in a deluge of rain. No formal ceremony took place, but visitors and exhibitors both commenced without interruption the business which had called them together at the Agricultural Hall, Islington. The hall, galleries and minor hall are all practically full, and, considering that the weather on Saturday was so disastrously bad, and also that it was the opening day, the exhibition was extremely well attended. Mr Montgomery occupied the chair at the luncheon, and was supported by a number of well-known architects. Some of the familiar faces we may mention were Col. Edis, Messrs. Arnold B. Mitchell, W. E. Riley, E. R. Robson, Lewis Solomon, H. O. Cresswell, Max Clarke, Maurice B. Adams, Ryan-Tennison, Arthur F. Briggs, Edwin O. Sachs, C. H. Shoppee, Ellis Marsland, Percy Marks, &c. The toast of "Success to the Building Trades Exhibition" was most happily in the hands of Col. Edis, whose speech was listened to with evident signs of pleasure. It is perhaps a good thing that Mr. H. Greville Montgomery is not, seemingly, a bashful man, as the Colonel waxed eloquent in referring to his ability in having produced such a successful gathering together of representative firms. Mr. Montgomery, in his reply, stated that he had been able to arrange that during the week some important visits would be made to the hall by well-known and prominent bodies connected with the building and allied industries. Such societies as the Architectural Association, the Society of Architects, the Institute of Builders, the London Master Builders' Association, the Institute of Sanitary Engineers, the Association of Municipal and County Engineers, and the Institute of British Clayworkers, &c. He had also arranged for a visit of the members of the Union Céramique de France, an important body of French clayworkers. He, Mr. Montgomery, was glad to be able to meet them again this year, and to inform them that this year's exhibition was the largest and best of all those which had preceded it during the twenty-five years which they had been held at the Agricultural Hall, Islington. His thanks were due to those architects who had

come there and supported him to-day, to the authorities who had lent him the valuable and interesting exhibits of Irish marbles, and to Mr. P. A. Gilbert Wood, the managing director of this Journal, for his assistance in the collection of such a splendid collection of architectural drawings, which had been so kindly and generously lent by the architects and artists whose names would be found in the catalogue.

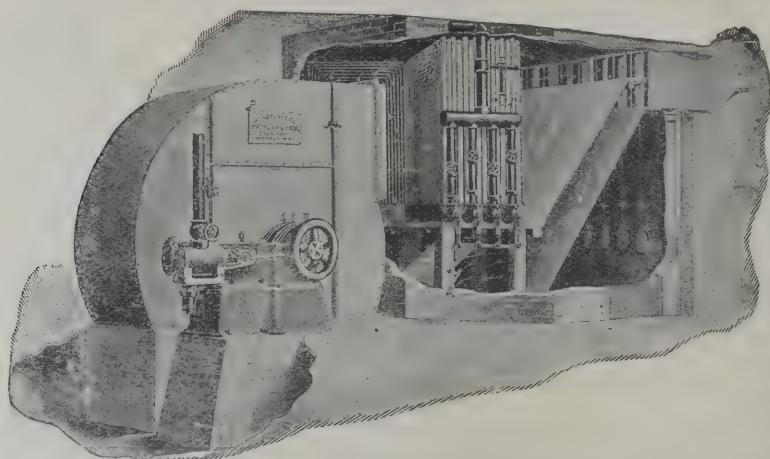
It is absolutely impossible in the small amount of space to refer in detail to all the exhibits. We shall endeavour as far as possible to describe some of the most important in this week's issue, and complete the notice in our issue of the 26th. Before commencing these descriptions we may add that the hall has been well filled each day, and that the exhibitors all seem perfectly satisfied by the results of their efforts.

The Warrington Bond Iron Syndicate, Ltd., of Manchester, are exhibiting at Stand No 45, Row B, their patent wall-tie. This is a particularly strong and effective tie, and the fact that upwards of five millions of them have been supplied, shows that it is rapidly coming into favour. There are three varieties, one for cavity work, one for solid work, and a special flat tie which may be used either for cavity or solid work.

Messrs. B. Ward & Co have at Stand No. 85, Row D, a good exhibit of their granite-concrete paving, which has been extensively used for paving stables, cowhouses, dairies, &c. The firm have acquired the patents of the late firm of Charteris & Longley, and are exhibiting some excellent specimens of wood-block and parquet flooring.

The Rhodes Patent Sash-Hanging Co. have at Stand No 99 in Row E an extremely interesting exhibit of a valuable invention for raising the heaviest sashes instead of the ordinary and usually inefficient smooth-grooved pulleys, worked by sash-cords, chains or wires. This invention enables the largest and heaviest of sashes to be opened and closed by a child. The fittings consist of a cog-wheel or teeth-pulley and steel chains, which are fixed to the sash and frame in the usual way. The chains are chemically treated to prevent rusting, and there are no intricate parts to get out of order.

At *Messrs. Worrall & Co's* Stand, No. 20, Row A, some very good examples are shown of hammered ironwork, a pair of entrance-gates marked 101. 105, of an extremely effective design, and which seem particularly reasonable. The firm is better known in the North of England, but they evidently mean to make a bid for the London work, as we are informed that they are also exhibiting at the Royal Agricultural Show, which opens on the 23rd.



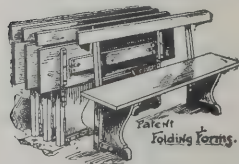
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Increased Revenue.
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Pack away into minimum space.

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For Index of Advertisers, see page x.

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As above, 57/6, or made to order to any size.



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Messrs. L. Lewis & Co., of Shirland Road, W., show at Stand 16 specimens of their improved flexible mastic damp course, made in 3 feet lengths and from 4½ to 18 inches wide, which they guarantee is damp-proof, will not decay or crack or ooze out with pressure. They are also exhibiting their patent flexible mastic roofing felt, 39½ inches wide, which is highly compressed and elastic and is a non-conductor of heat, damp and frost; and their improved flexible mastic slaters' felt, which placed under slates, tiles, zincs and wooden sheetings deadens sound, equalises temperature, preserves wood. This is made in lengths of 11 yards or 22 yards by 39½ inches wide.

In a handsome pavilion erected by *The National Opalite Glazed Brick and Tile Syndicate, Ltd.* (Wm. Griffiths), of Hamilton House, Bishopsgate Street, a variety of the bricks and tiles which are the specialty of this firm can be seen *in situ*. This form of decoration, while highly effective, has the additional merit of being durable and inexpensive. It can be applied to old and unsightly as easily as to new walls, and has very great reflecting power, which renders it of great value for lining tunnels, subways, corridors, &c. It is essentially sanitary and is impervious to bacteria, fungi or vermin. These tiles are supplied in bull noses, angle beads, &c., and are largely used for hospital and similar work, where they are found to answer very satisfactorily.

Messrs. Maughan's Patent Geyser Co., Ltd., Worship Street, E.C., have at Stands 30 and 31 some of their patent steel-clad copper baths, which are constructed with an outside shell and an inside lining of planished copper, with highly-finished tinned surface. The bath is supported by four ornamental malleable iron feet, silver or gold bronzed, and the plug and overflow are nickel-plated. The bath is adapted to any class of fittings; and their patent galvanised enamelled bath is made on similar principles to their steel-clad copper-lined, the only alteration being the dispensing with the copper lining. The steel shell before being enamelled is galvanised both inside and out; the galvanising does away with any rusting, and makes a much finer surface for enamelling upon, enamel adhering better to a galvanised surface than any other. The firm's well-known geysers are also shown in various forms.

The Safety Lift and Elevator Co., Ltd., Rolt Street, Deptford, show (Stand 37) an electric lift, a self-sustaining dinner lift, electric lift controllers, hydraulic valves, &c. The gear of the dinner lift consists of a large hauling wheel, a V-wheel to prevent rope from chafing, and a brake wheel with lever. The boxes are strongly made of well-seasoned yellow

deal or whitewood, and have movable shelves; the guides are of best seasoned pitch-pine, scarfed and jointed; the ropes are of best quality manilla or hemp; no brake or brake line is required; the cages deliver 2 feet 9 inches above the floor level. These lifts are made in a variety of sizes, and are suitable for hotels, clubs, restaurants, flats, &c.

Messrs. James Austin & Sons, Ltd., have at the adjoining Stand in a glass case some capital specimens of their well-known patent sash, balyard, log and blind lines; the latter are made in a variety of colours to suit the decorations they will be used in conjunction with.

At Stand 56 *The London Fireproof Platewall Co., Ltd.*, 60 Watling Street, show the construction of internal partitions of solid smooth plaster (gypsum) plates or slabs, 2 inches, 2½ inches, 3¼ inches and 4 inches in thickness, grouted together, forming one solid partition, fire and sound-proof. The walls shown, although not plastered, have an absolutely smooth surface ready for paper or other decoration. They save time, space and expense, and are supplied and erected by the company either smooth or rough, the latter for setting coat or tiling.

Mellowes's patent "Eclipse" system (*Mellowes & Co., Ltd.*, Corporation Street, Sheffield) is shown at Stand 58. This exhibit consists of a wooden structure entirely glazed on Mellowes's patent "Eclipse" system. The bars which support the glass consist of a steel bar entirely encased in a tin-lead cover, having webs on either side, which are rubbed down on to the glass. A spray of water continuously plays on the roof and effectually demonstrates its watertight properties. The glazing has been in use for twenty-two years and is absolutely waterproof. Messrs. Mellowes recently completed the re-glazing of the Crystal Palace roof, employing upwards of 100,000 square feet of their patent glazing.

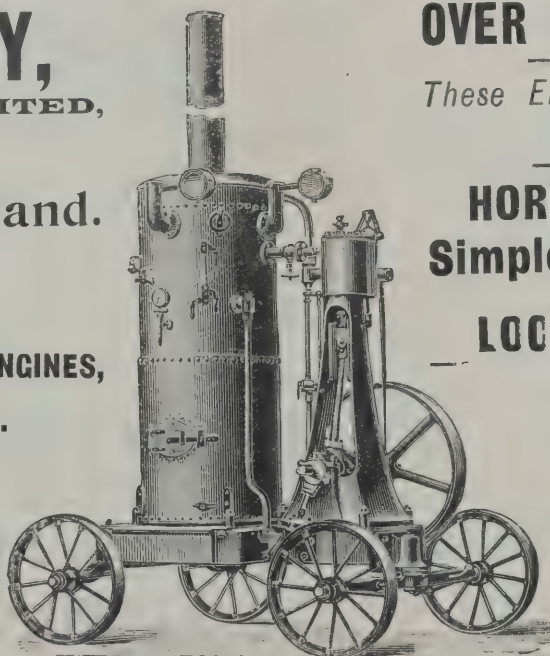
Veronese, Ltd., New King's Road, S.W., have erected in their fibrous plaster a highly ornate pavilion (No. 59), which shows the capabilities of the material to great advantage. Within the building may be seen a large variety of mouldings and other enrichments of a like nature, conspicuous among them being a particularly effective frieze in a design of cupids well executed, and showing considerable artistic feeling. The glazing of the pavilion is provided by the *Cloisonné Glass Company*, 66 Berners Street, who supply the window and roof-light in this highly decorative glass, which, while thoroughly translucent, has the great advantage of looking equally well from the lighted side, so that while strikingly effective when

BROWN & MAY, LIMITED, ENGINEERS, DEVIZES, England.

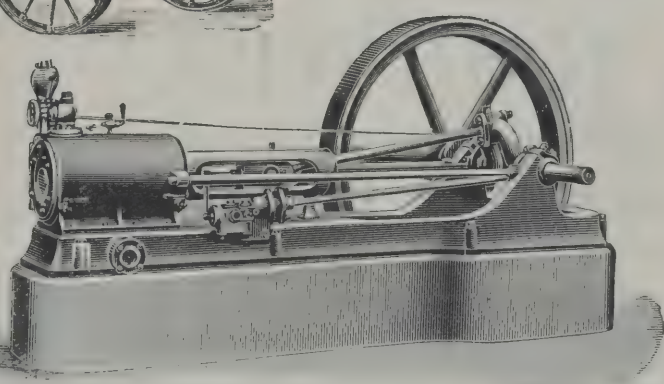
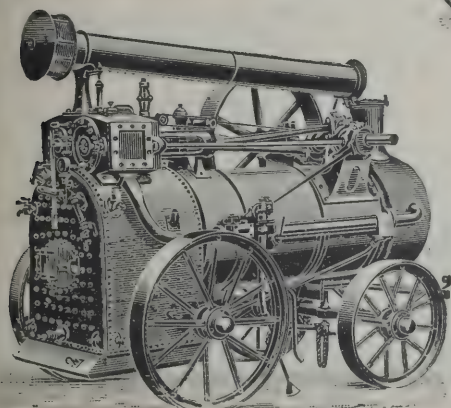
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50 YEARS.

used in windows; it is not less so when applied in panels to walls, &c. In colour and design this material leaves nothing to desire. The electric lighting of this comprehensive exhibit is supplied by *The Electric Fittings Co.*, of 59 Conduit Street, who show some elegant designs in electroliers and pendants, in the panels and shades of some of which they turn to excellent account the decorative qualities of the above mentioned cloisonné glass.

The Decorative Marmorite Co., 55 Queen Street, N.W., show (66) some highly wrought panels in this decorative material, which is a composition of metal and glass, and is solid in colour throughout. Its high polish renders it of great value for the use of facias, trade tablets, wall panelling and shop fronts. It is already very largely used on the Continent with the greatest success. Letters, ornamentation, trade-marks and any other designs are engraved by patent machinery on their own premises at Camden Town, and coloured or gilded as may be required. Conspicuous among the samples shown is a large panel decorated in new art style. It is contended that the material is imperishable, a contention which may be taken as justified inasmuch as the colour itself is solid, while those applied in decoration, including gilding, are burnt in. There is no doubt a wide field for this material for the purposes mentioned above as well as for permanent advertisements, &c.

Messrs. Thos. Wragg & Sons, Swadlincote, have at Stand 69 a comprehensive exhibit of samples of stoneware pipes and connections, among which will be found Hassall's patent double-lined pipes, Hassall's patent single-lined pipes, Stanford's patent pipes, the "Spiralitic" patent joint, Wakefield's patent corrugated socket pipes, Wakefield's patent street gulley, Wakefield's patent insertion pipes and junctions, Jennings's patent joinder or impermeable capped stopper, Emden's patent stopper for making air-tight every kind of inspection arm, and which will not blow out; Gordon's patent syphon, Gordon's improved junction blocks, Hughes's inspection interceptor, tested pipes, Monk's patent chimney-pots, sinks, glazed bricks and blue goods. The "Spiralitic" joint is a recent introduction, and deserves a few words of description:—The joint consists of containing walls of composition, between which, when the pipes are in place, liquid Portland cement is poured through one of the holes made in the pipe for that purpose. The cement not only acts as an important part of the joint to secure water-tightness, but the spiral or screw-like arrangement causes it to act as a key, locking, as it were, the whole constituents of the joint into a

compact whole, thereby greatly strengthening the resistance of the joint to various deforming forces.

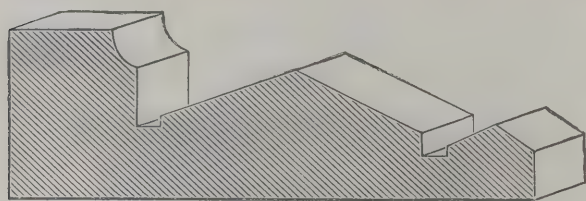
Venesta, Ltd., 20 Eastcheap, shows (70) applications of Venesta boards to the various purposes to which it is adapted as door, wall and ceiling panels, trunks, hat boxes, chairs, seats and backs. This material, which is susceptible of effective decoration in various colours, is made of wood of any description, usually in three plies. It is made in boards up to 60 inches by 180 inches. It is light, strong, hard and waterproof, and is specially useful for fretwork, &c.

The Permanent Decorative Glass Co., Ltd., of 36 Basinghall Street, E.C., Manchester and Lancaster, at Stall 62 are showing examples of their well-known Florite Opal tiling and metal wall decoration, including a large variety of pattern tiles, imitation marbles, granites, ornamental borders, &c. They have also a tiled partition showing several excellent examples of their work. Their process of decoration on opal appears to be quite unique, and architects visiting the exhibition should not miss the opportunity of inspecting these interesting exhibits.

The feature which principally attracts attention in *Messrs. Gibbs & Canning's, Ltd.*, exhibit is a massive doorway in buff terra-cotta, a replica of one recently erected in green terra-cotta in Goole to the specification of Mr. A. G. Atkinson, architect. Other exhibits comprise sections of stone grey terra-cotta balustrading, coping and capping, &c., terra-cotta vases, a display of buff vitreous pavings and gutters, air-bricks, buff terra-cotta facing bricks, salt-glazed sanitary and engineering bricks, highly glazed sanitary ware and fittings, cream glazed (leadless) sinks, salt-glazed garden edging, &c.

Vulcanite, Ltd., 118 Cannon Street, specimens of patent vulcanite roofing for application to flat roofs of wood or concrete construction, and for waterproofing roof tanks, reservoirs, &c.; vulcanite sheet asphalt for roofing sheds, farm buildings, brick kilns, &c.; and vulcanite sheet asphalt for damp-proofing foundations, &c., are to be seen at Stand 19, Row A.

Messrs. Stanley Bros., Ltd. (Nuneaton) exhibit occupies a large space (82) in Row D, where they show some walls erected in their glazed bricks, the colours of which—brown, grey, granite, white, &c.—as well as the glaze are excellent. Here are also to be seen chimney-pots of artistic design, red, buff and salt-glazed, plain, and ornamental roofing tiles, ridges, finials and ventilators, pressed blue bricks, copings, garden tiles, and some ventilating bricks of new and very effective pattern. Other specimens of the firm's productions comprise



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panels, string-courses, window and door heads and jambs of excellent design, ventilating blocks, &c.

Messrs. J. A. King & Co. have a space nearly in the centre of the hall, where they show partitions erected in their Mack patent fireproof slabs. These partitions are 2, 2½ and 4 inches thick. It is claimed that the principle embodied in the patent insures that walls, floors, ceilings, &c., in which the material is employed are fire and sound-proof. It can also be used for the insulation of roofs, the lining of damp walls, &c. The firm are opening works throughout the country for the manufacture of these partitions, which, in consequence of their lightness, strength and durability, have been rapidly coming into favour.

Messrs. Samuel Elliott & Sons, of Caversham (at Stand 97), show a very large variety of mouldings of all sizes, varying from ½-inch to 15 inches in width, of all sections, curved and straight, in many kinds of wood, and adapted to all purposes. Here may also be seen room-doors which are splendid specimens of joiners' workmanship, one of these, in Honduras mahogany inlaid with satinwood, being especially worthy of remark, although those in less expensive woods are not less admirable as regards style and finish. Another important exhibit at this Stand are *Elliott's* patent fireproof tiles for a base, which is a substitute for wooden or metallic lathing, having a suction for hastening the setting of plaster or cement. It is claimed these tiles can be used on wood floors as a base for cement floating for encaustic or other tiled floors; on matchboarded partitions, for lime or cement plastering, causing such partitions to be fireproof and sound-proof; on flats, as a base for any thickness of cement or asphalt flooring. They can be used for bay-window roofs as a base for cement floating and finishing, and for gables to roofs, instead of the usual lathing between the timbering.

Messrs. Sissons, Bros. & Co., Ltd. occupy a special position (No. 11) where, on a screen, they show some charming examples of wall decoration in Hall's washable distemper in conjunction with their white Japan paint. In these schemes of decoration the colours are of the utmost delicacy and bear ample testimony to the value of the distemper as a decorative material, to say nothing of its hygienic qualities, which are, of course, obvious. It is perhaps scarcely necessary to say that the distemper can be had in any colour.

Mr. Joseph Fishburn, of High Wycombe, is again showing (102) his labour-saving winch, which is so named because of its adaptability as a means of lifting or lowering by hand-power articles or material of almost every kind with great despatch

and safety, and by its use a considerable amount of labour will be avoided. In building operations ladders are only necessary to allow the staff and workmen to reach the work, and hods are not necessarily required, ordinary wheelbarrows, handbarrows, or porters' baskets, buckets, or receptacles being used—one ascending while the other descends. To painters, plumbers, plasterers, tilers and slaters sending up or serving material to lofty altitudes, and where steam hoists, winches, or cranes are employed it will be found a useful auxiliary.

Messrs. Bolton & Laughlin, of Henley Road, Ipswich, show at Stand 105 a comprehensive assortment of their red Suffolk facings in light, medium and dark shades, best white Suffolk facings, best brimstone facings, rubbers red and white, red and white arch bricks, red and white moulded headers, stretchers and returns, carpenters' fixing bricks, string-courses, coping bricks, panels in white and red rubbers, &c.

Samples of worked freestone from Castle Bytham quarries are shown at Stand 107 by *Messrs. Joseph Boam, Ltd.* These samples show the stone from both the lower and the upper beds worked and in the rough. Prominent among the exhibits is a window, one of those which is about to be placed in the new library at Barnet. Specimens are also to be seen here of Castle Bytham lime, a stone lime, grey in colour and very strong. When slacked it is claimed that it will carry at least six parts of sand to one of lime, and will then make a stronger mortar than chalk or Bedfordshire lime.

The Weldon Quarries are represented at Stand 113, where Mr. John Rooke is showing specimens of the stone. The Weldon Quarries have long been famous in the Midlands for the quality of their stone. Many fine buildings of historical interest, e.g. Kirby Hall, Lyveden, Rothwell Market House, &c., bear testimony to its excellence. This is admitted by all judges of stone who have seen the sharp carvings and undercuts, mouldings and angles in those buildings, and a feature of this exhibit is a date panel of the year 1696, which was taken from Kirby Hall, and in which the cutting is as sharp as if it had only been executed yesterday.

The chief feature of a Stand (152) where are also shown Blackman's ventilating fans, Keith's patent hot-water boilers, registers, ventilators, &c., is undoubtedly the *Keith Light*, shown by *Messrs. James Keith and Blackman Co., Ltd.*, of Farringdon Avenue. This light is obtained by burning ordinary gas at high pressure obtained by means of Keith's patent automatic compressor, which is generally worked by the ordinary water service, either from the street main or from

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a cistern. It uses an extremely small quantity of water, and, we understand, meets with the approval of water companies and committees. It can also be worked by electric motor. It is silent and absolutely automatic in operation; the pump portion working in a water seal is frictionless, and requires no leathers, packings nor lubrication. It gives a steady unvarying pressure of gas, irrespective of the number of burners in use at the time, and being entirely automatic, the whole action starts or stops on the mere turning the gas taps at the burners on or off. It can be placed anywhere with safety. The water for driving need scarcely be taken into account; if charged at 7d. per 1,000 gallons the cost of it is only about one penny for each thousand cubic feet of gas compressed. Great economy of gas results from securing perfect combustion of the gas by these patent compressors and burners, which raise the pressure of the gas to 8 inches of water column and mix it with about five times its volume of air. We understand that burners of 300 candle-power and 150 candle-power, with 8 inches pressure, pass 10 and 5 cubic feet of gas per hour respectively, and give a clear, steady, white light costing, with gas at 2s. 6d., only a penny an hour for 1,000 candle-power. These burners can be instantly adjusted to suit the quality of coal gas in any district, so as to get the proper mixture of gas and air to give complete combustion. In combination with these burners Messrs Keith show their patent electric lighter for gas-burners, which should prove a useful adjunct.

Mr. John Tann, 11 Newgate Street, shows (153 and 154) a selection of his "Anchor Reliance" safes, doors, locks, &c.; fire and burglar-proof bent steel safes without joints at the corners; dwelling-house safes, commercial fire and fall-proof safes, book and deed safes, thief-resisting plate safes, fire and thief-resisting jewel safes. Strong-room and bullion-room doors, party wall and warehouse doors are also to be seen here.

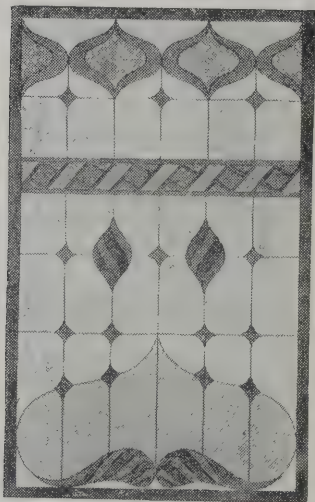
Ripolin, Ltd., show in Bay 3 results of applications of paint to various materials. A conspicuous object at this Stand is a panel delicately tinted in flat Ripolin, the effect of which is eminently artistic and pleasing. Ripolin, Ltd., are introducing a new filling, which they strongly recommend for use with Ripolin, whether glossy or flat, for which it prepares a beautifully smooth, hard surface to which the finishing coat can be applied to the great economy of the latter.

The Wood-carving Co., Birmingham, show at Stand 64 some beautiful designs in Saracenic and fretwork fittings in

arches, window-heads, &c., and notably an elaborate doorway in Oriental style, the work in which is particularly graceful and refined. This firm has executed a quantity of work for various railway and tramway companies, and details of some of this are shown here; a prominent object in this stand is a staircase with massive handrail and specimen balusters in various designs handsomely carved and otherwise worked up.

In our issue of November 7 last we gave a description of the new system (Messrs. Möller & Pfeifer's) which had been adopted by Messrs. Eastwood & Co., of Belvedere Road, who have erected an office in these bricks in Bay 9, where they are showing Kent stocks, which were made, dried and burnt in three days. Messrs. Eastwood have found this system to work so satisfactorily that they have largely increased their works at Teynham, in Kent, and erected others, in their various brickfields besides acquiring all rights for the whole of the United Kingdom. These tunnel dryers, which may be said to form the base of the system, are suitable for drying all kinds of bricks and tiles, as well as for porous ware, slabs and pipes of every shape and description. The extension of this system of drying has been more rapid than that of any other in the history of the brick and tile industries, the number of installations having been as follows:—In the year 1895, 1 drying apparatus was erected; in 1896, 20 were put up; in 1897, 50; in 1898, 92; in 1899, 140 were erected. At the end of 1902 over 250 had been erected, and this rapid extension results from its many and important advantages, and, above all, from the fact that the process is entirely independent of weather. The brick, tile and allied industries can be carried on uninterruptedly throughout the entire year, and with complete independence of atmospheric or climatic conditions. Among the advantages which the system offers we may mention the following which, however, do not exhaust the list:—(a) Drying can be carried on regularly and continuously throughout the year; (b) there is great saving of labour and consequently a greatly reduced cost of production; (c) the goods are faultless in shape and improved in quality; (d) a clear and uniform colouring and a freedom from all inequalities is insured; (e) a greater production of the kiln, and a saving of fuel is secured; (f) rapidity of production is greatly increased; (g) the best boiler supply water is obtained through the vapour arising from the material to be dried being liquefied in the condensation heaters. New brick and tile works following Möller & Pfeifer's system are cheaper to erect

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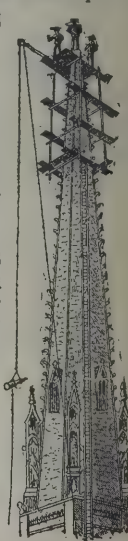
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than similar works with other drying appliances. All mechanical fittings, ovens or kilns, and in particular the whole building itself, are smaller in proportion than those working under other systems. All particulars can be obtained at the office here or at Belvedere Road. The following great increase in weight-bearing strains obtained by the new system is worthy of note, *i.e.* Conyer stock, made by machine, dried in dryer and burnt in kiln, 194·7 tons per square foot; ordinary hand-made, 125·9 tons per square foot; increase, 68·8 tons per square foot. We understand that moulded bricks are being made on this system out of ordinary Kent clay with good results, and that a visit of inspection to Messrs. Eastwood's works at Conyer will be paid on the 27th inst. by the Incorporated Association of Municipal Engineers.

The *Ellkay Patent Bath Syndicate, Ltd.*, of Orchard Street, S.W., are showing a contrivance which will be found of the utmost utility in hotels, flats and other positions where the economy of space is an important consideration. It provides a full-size plunge bath, having hot and cold water and waste connection in perfect form and complete for fixing in a bedroom or other place, conveniently folding up for enclosure within an ornamental cabinet which resembles a wardrobe in appearance. The door of the cabinet contains a mirror, and forms a very attractive piece of furniture. The woodwork can be made to match any other in the same room. The cabinet is arranged to contain bath mat, bath towels, bath gown, sponges, soaps and other bath requisites. The bath is specially counterpoised so as to be easily lifted into position, and when closed provides a safety sink to take away any water which may be left in the bath or drip from the taps. The cabinets can be also supplied with a spring mattress to fix on to the top of the bath, forming a very comfortable single bedstead for emergency use.

In the arcade on the right side on entering, *Messrs. Wm. Oliver & Sons*, of Bunhill Row, occupy some 60 feet of wall space with their fine display of timber, comprising fine specimens of all the choicer woods—mahogany, sequoia, pines of various descriptions, walnut, teak wainscot, oak, birch, &c. An item of their exhibit, too, which deserves attention is the pair of handsomely panelled doors in oak. These doors are conspicuously good, whether regarded as from the point of view of workmanship or from that of the beauty of grain of the wood from which they are made.

In the Gallery (7) *Mr. C. E. Johnson*, of Hoxton Street, shows some good specimens of timber in mahogany, wainscot

and American oak, teak, walnut, birch, whitewood and all descriptions of hard woods in logs, planks and boards, 2 feet 5-inch white wood planking, kauri, Oregon, pitch and yellow pine; yellow and white in planks and deals; oak, teak and pitch-pine flooring for secret nailing, hardwood mouldings and electric casings, lavatory seats, &c.

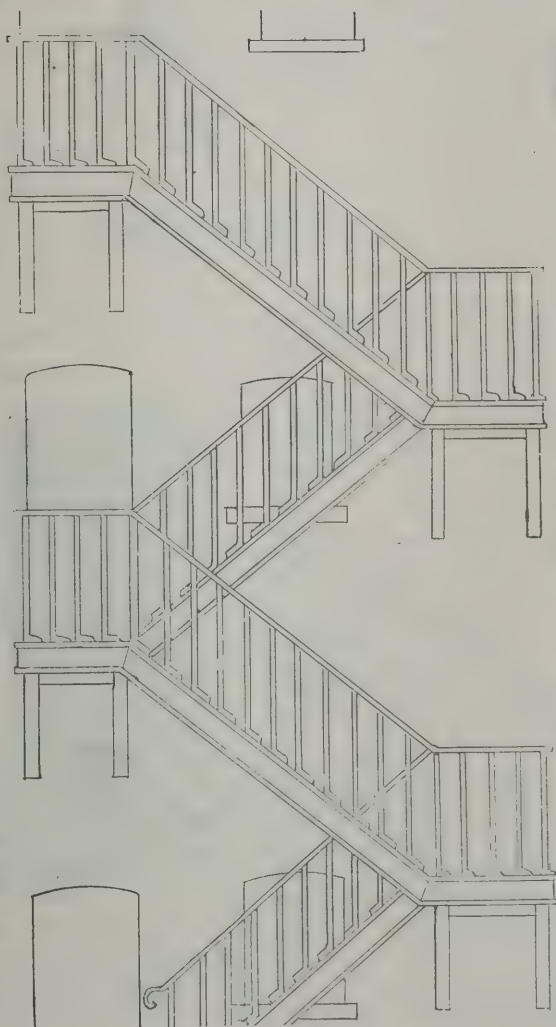
The Empire Stone Co., Leicester, show in Bay 7, Gallery, a doorway and two windows of excellent colour and workmanship. They are made to imitate yellow Mansfield and Portland stone respectively. A flight of steps in fancy and plain flagging is also shown, specimens of grooved and channelled stable floors, &c.

The Acme Wood-flooring Co., Ltd., Gainsborough Road, N.E., have a very fine display in Bay 9, Gallery, of Duffy's well-known system of dowelled paving and flooring, the latter plain and polished and made in the following woods:—Kauri pine, East India teak, pitch pine, jarrah, maple, oak, Swedish redwood, karri, &c. In the adjoining Bay they show West Australian jarrah and karri planks; red gum planks from the Mississippi Valley, U.S.A.; yellow deal planks from Sweden; paving blocks in jarrah, karri, red gum and deal; worn paving blocks from the streets of London. They also show and explain the system of dowelling which they employ and its many advantages.

Messrs. Wilson & Stockall, Bury, Lancs, are represented in the Gallery, Bay 13, by two of their ambulances, which, as regards utility, convenience and finish are of a high order of merit. One is a patent brougham ambulance for modern isolation hospitals. It closes up like an ordinary brougham, placing patient in position. There are doors at the side and back, opaque windows at the sides which prevent the patient from being seen from the street, but the patient can see outside; the other is a patent accident ambulance (van pattern) which will convey two injured persons in a recumbent position at one time.

The adjoining space is occupied by *Messrs. Defries & Sons, Ltd.*; Houndsditch, who show their "Equifex" disinfectant cleaner. This appliance enables water from a main water-supply to be automatically mixed with an exact proportion of disinfectant, antiseptic or deodorant solution. The disinfectant can be cut off at will or readmitted without stopping the current of water. We understand that the automatic working of the apparatus has been found in the disinfection of public streets, markets, abattoirs, stables, ships, waggons, &c., to effect a saving of 80 per cent. on the cost of labour, and the complete utilisation of the disinfectant effects a still further economy. The "Equifex"

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odourless tank waggon for emptying cesspools is an apparatus which acts by creating a vacuum in the cylinder through the action of the large pumps, either by the motion of the wheels or by the handles. The exhaust from the cylinder is passed through the disinfectant cylinder, where it is broken up, disinfected and deodorised, first by a disinfectant spray and then by perforated baffles, through which it is led, these baffles being kept wet with disinfectant-deodorant solution by the spray. The "Equifex" steam disinfectant is a machine which has been adopted by the home and colonial governments. For absolute disinfection it is worked with saturated steam at 10 lbs. pressure (239 degs. Fahr.). The chamber consists of a cylinder of mild steel, made without steam jacket, so as to avoid risk of superheating. The cylinder is lagged with non-conducting composition and wood, with brass bands, to reduce loss of heat by radiation, and, as usually supplied, is furnished with doors for infected and disinfected articles respectively.

Mr. W. E. Farrer, Cannon Street, Birmingham, occupies Bay 17, Gallery, with an automatic alternative distributing apparatus for small bacteria beds, such as are required for use at large public buildings, as asylums, isolation hospitals, barracks, &c. Distribution is provided for by means of an automatic tipper discharging alternately into two sets of light perforated cast-iron channels supported about 1 inch above the filtering medium. Torfit urinals, by the use of which flushing is rendered unnecessary; an improved apparatus for flushing sewers, closets, &c.; a patent lattice-gear penstock or sewerage valve, a rust-collecting chamber for the base of sewer ventilating columns, &c., and a selection of his sluice, air and other valves are also shown.

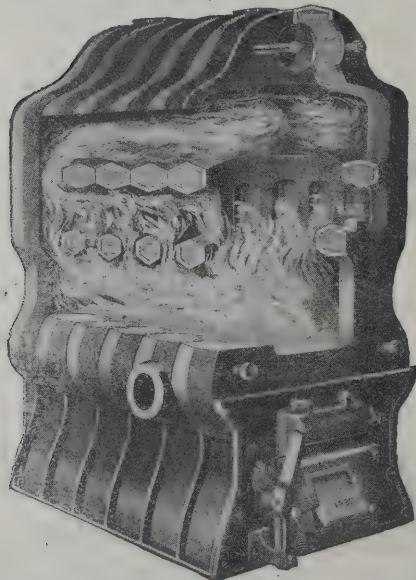
Messrs. Mather & Platt, Salford, have a stand in the Gallery, Bay 19, and exhibit a model of their automatic mechanical sewage distributor which, according to the analytical report by Inspector Leigh, on samples from Farington sewage works, Preston Rural District Council, gives admirable results. A model may be seen here of their patent gravity filter, which consists of a large circular iron tank, open at the top, and resting on a cast-iron chamber in which the filtered water collects before its discharge through the outlet-valve. The collecting-chamber is separated from the filtering-tank by a dished iron plate into which a large number of brass nozzles of special design are screwed, the object of which is to insure the effective use of all parts of the quartz bed during filtration, and a proper distribution of the water used for washing out. On this plate rests the quartz bed in graded layers, passing from the coarsest

at the bottom to the finest at the top. The filtering-tank is fitted, at a few inches above the surface of the quartz bed, with an annular channel communicating by a number of openings with the tank, and into which open the inlet-valve for unfiltered water and the wash-out discharge valve. This annular channel affords a free outlet for the wash-out water, and is a marked improvement on any former arrangement, there being nothing whatever to impede the free discharge of the wash-out water. A third model to be seen here represents the Archbutt-Deeley water-softening apparatus, all the mechanical operations in connection with which are very simple, and the labour involved is light.

The Patent Victoria Stone Co. occupy a large space in the south-east corner of the Gallery with a stretch of their well-known paving, on which is erected a particularly handsome monumental porch in yellow Mansfield tint, with moulded caps, sills, brackets, and heads and carved enrichments. This is, we believe, a replica of doorway erected at Clarence Gate. A flight of moulded bracketed steps and landing, some bold balustrading, which we understand is a portion of a large contract in hand for a mansion being erected in Surrey, vases, terminals, &c. As an object-lesson in the value of the stone as regards wear, three flags are shown which were respectively removed—one from London Bridge, where it had been in use fourteen years, subjected, as we are told, to a daily traffic of 126,000 passengers, giving a total of 640,000,000, in spite of which it only shows scarcely appreciable wear; another taken from the entrance hall of the South Kensington exhibitions, which had been traversed by 20,000,000 visitors, and this only shows wear to the extent of 1-32 of an inch; and the other from the corner of Commercial Street, Whitechapel, where it had lain for five years, gives equally satisfactory results. Among the many important works which this company have in hand we may mention the following:—Architectural stonework, staircases, &c., for the electric-power station at Southwick, near Brighton; stonework for the boulevards, recreation-grounds, refuse-destroyer and other work for the Tottenham Council; balustrading, &c., for mansion at Burgess Hill; mansion and new schools, at Ogmere Vale, South Wales; several blocks of mansions at Clarence Gate, the Carnegie Library at Hartlepool, Kynoch's new premises at Birmingham, new brigade offices and married quarters at Shorncliffe Camp, Great Western Railway stations on the new Ealing and High Wycombe lines, staircases for innumerable public buildings, police-stations, &c.

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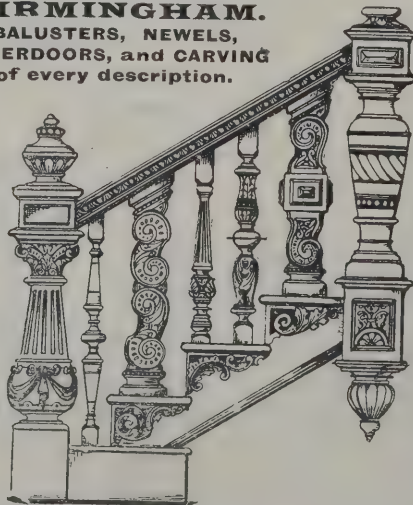
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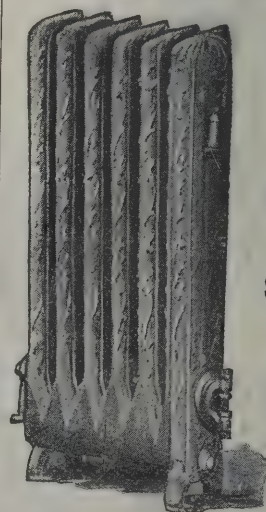
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In an attractive glass case in Gallery 8, Row D, *Messrs. W. F. Stanley & Co., Ltd.*, Great Turnstile, have arranged a large number of their well-known drawing, surveying and scientific instruments, including protractors, compasses, scales, rules, aneroids, theodolites, inclinometers, gradiometers, levels, telescopes, &c.

Close by (Stand 14, Row D), *The Clee Hill Granite Co.*, Ludlow, show graded samples of the stone from which the company derives its name. The tough nature of this stone renders it invaluable for road-making, either as setts for paving or as macadam. It wears remarkably well under heavy traffic, and consequently produces very little dust in dry or mud in wet weather, thus providing a pleasant and economic road stone, a property which has commended itself to engineers and surveyors all over the country.

Messrs. Field & Mackay, of Titterstone Quarries, Ludlow, are also showing specimens of Clee Hill stone at Stand 14, Row B.

At *Messrs. Norton & Gregory's* (Westminster Palace Gardens) Stand, Gallery 22 and 23, Row D, is to be seen a new black-line process for the reproduction of architectural and engineering drawings, &c. The results produced by this process can only be characterised as admirable, every line being perfect and the colour not less so. Drawings can be reproduced on paper or linen as may be desired, and the reproductions can be coloured as readily as the drawings. In addition to the beautiful appearance of the prints, this process possesses a great advantage in the rapidity with which the work can be turned out as compared with other "black-line" processes. We may add that *Messrs. Norton & Gregory* undertake architects' perspectives, which they execute from plans and elevations, and some of their work in this department may be seen here. Another exhibit at this Stand is in quite a different category, namely, the "New Idea" spring hinge, which is very simple, and appears to possess all the advantages claimed for it, *ie* it prevents the door from sagging; it is capable of such perfect adjustment that it closes the door quickly and gently without noise or vibration; it is neat in appearance; it admits of the door fitting closely against the jamb; it holds the door in perfect alignment; it is easily and quickly fixed; it is practically impossible for the hinge to get out of order, and obviates the necessity of cutting away floor for bedplate, or the removal of door for repairs.

Specimens of high-grade Limmer asphalte are shown at Stand 36, Gallery, by *Messrs. Bradshaw & Co., Ltd.*, 52 Queen Victoria Street. Other exhibits at this Stand consist of samples of refined bitumen for asphalte and electrical purposes, sample asphalte cauldron, contractors' trestles, sample of improved limestone tar-paving for playgrounds, &c.

At an adjacent Stand, that of *Messrs. W. Salter & Co.*, of Harrow Road, samples of Seyssel asphalte may be seen. *Messrs. Salter & Co.* are asphalters to H M Government, the Admiralty and War Office, and testimonials speak well for their workmanship, &c.

The Columbian Fireproofing Company, of 37 King William Street, have erected (Stand 55, Row C) a building which exemplifies their method of fireproof construction, which consists of special ribbed steel bars from 1 inch to 2½ inches in depth, suspended in steel stirrups over steel joists, and 3½-inch, 4-inch and 5-inch heavy ribbed bars, between main girders or resting on the walls. By the use of the heavy ribbed bars the ordinary steel joists are eliminated. These ribbed bars are in every case surrounded by and completely embedded in concrete, composed of the best Portland cement, sand and furnace slag or cinders. These ribbed bars being, by their special shape, adapted to the concrete, utilise the full strength of the concrete and thereby furnish a fireproof floor, so far in excess of the requirements for strength, that it is practically impossible to break it down. The exhibit shows a 15-foot floor with a 15-foot span, formed of 4½-inch steel-ribbed bars spaced 20 inches apart, and embedded in 5½-inch concrete; the roof is of Mansard form, with dormer windows formed of bars and concrete. The method of construction is exceedingly simple, and the result eminently satisfactory. We have so recently referred to this company's system of fireproof construction in connection with the Exhibition at Earl's Court that it will be fresh in the memory of our readers. Steel and concrete sewer conduits are also shown.

Messrs. Freeman & Hines show (Gallery, Bay 11) samples of their new patent aluminium baths, which present a very bright and attractive appearance; the Freeman patent double seal drain pipe—the advantages of this new double seal pipe joint are many, among others we may mention that it requires no skilled labour and very little cement; it is a locking joint insuring concentric fitting and absolutely close abutting of the pipe ends; the pipes are manufactured in stoneware and also in Midland ware; space will not permit of our reference further at present to its many advantages; Hassall's patent w.c. suites, which, it is claimed, give a perfect flush with a 1½ gallon discharge; some good designs in mosaic and art tiles, &c.

Belgium has a reputation for building stone, and there is no more interesting variety than the "blue limestone." The title gives no indication of its value. The large example shown by the agents, *Messrs. Chas. Vandekerkere & Co.*, in the Minor Hall, at once is suggestive of strength. Looking at it, we are not surprised to find its crushing strength is 4,250 lbs. per inch. It lends itself to all varieties of tooling, and takes an excellent polish. It has been more used than any other stone in Polaert's Palace of Justice in Brussels, which the Belgians consider to be the greatest of modern buildings. It is no less excellent in buildings on a small scale, and the Belgian artists employ stones of different colours to serve as foils and to bring out its effect. It is a most interesting addition to the building stones which are readily obtained, for the prices are moderate. We may mention that the stone is suitable for steps, landings and other use where strength is indispensable.

Messrs. Ewart & Son's extensive exhibit at Stand 20, Row A, contains a well-arranged display of their well-known "Victoria" ventilator, "Empress" smoke curer and "Prince" cowl, an assortment of agate and other baths, several specimens of their Geysers, one of which is in practical work. Among these the "Lightning" is of great power, supplying water at the rate of eight gallons per minute. A feature of the exhibit was the attractive display of nickel bath-room fittings and bath seats. *Messrs. Ewart* show also their "Euston" and "Ideal" radiators, which are self-contained, and are useful for heating halls, offices and rooms where there is no flue. These are said to be very economical in the consumption of gas—an important consideration.

Velvrl paint, specimens of which are shown by *The Velvrl Co., Ltd.*, of 29 New Bridge Street, E.C., at Stand 67 in Row C, contains no lead or linseed oil. It is supplied in various colours, such as stone, red, green, slate, brown, black, white, &c., as well as in metallic colours, as gold, bronze, aluminium, &c. This paint, which is easy to work, can be used for iron and bridge work, gasworks, inside work in steamers, wood and stone work, &c. It is claimed that it is not affected by atmospheric influence, and is perfectly waterproof and non-corrosive, while its covering powers are about equal to that of ordinary paint. It has, we understand, given perfect satisfaction when tested as a waterproof covering for the haunch of an arch, to prevent percolation of moisture from breeze cement penetrating and discolouring stone.

Messrs. Brown & Co., of Glasgow, are showing at Stand 104, Row F, their patent Simplex window fittings, which can be fitted at small expense to any existing window. In consideration of the new Act which makes it compulsory for all windows to be so fitted that they will open inwardly to prevent accidents, these fittings should meet with approval from architects, builders and property owners; they are inexpensive and easily fitted. One of the great difficulties in many of the patent windows invented has been in dealing with the sash or balance weights; this has in this patent been obviated, as the application of this patent to an ordinary window allows the sash with both weights not only to rise and fall, but to open inwardly, arresting and re-engaging the weight automatically as it is opened and closed. It is claimed that there is therefore now no need for dispensing with the ordinary window, no awry, lop-sided openings, no drooping and dragging sides, no need of tramway roller to aid lifting, no obstruction limiting the rise of sash, no dividing of sash stiles creating draughts, no tricky springs or bolts, no obstructions to blind screens, no formidable eyesore to the view—both weights remaining in action—the sash rising and falling full length, equally balanced, and at the same time opening inwardly like a casement. *Messrs. Brown & Co.* have appointed as their London agents the well-known firm of Nettlefolds, and also O'Brien, Thomas & Co.

Velure is shown by *Messrs. C. Chancellor & Co.*, Clerkenwell Road, at Stand 14, Row A. Velure is a new and perfected Japan paint, superseding varnish, with remarkable spreading, elastic and weather-resisting properties. It is sanitary and washable, and it is claimed that it will not crack, chip, peel, blister or fade. It is stocked in 120 colours and any shade can be matched. Samples of *Stripso*, another specialty of this firm, are also shown. This is a paint or varnish remover which has satisfactorily withstood the tests of time and experiment, and been proved to be an efficient labour-saver.

Silicate cotton, otherwise known as mineral or slag wool in its raw and various manufactured forms, is shown by *Messrs. Frederick Jones & Co.* at Stand 44, Row B. The valuable qualities which this material possesses for fire, sound and heat proofing are too well known to need any special reference here, but another feature of the exhibit, namely, "Hercules" partition blocks and slabs, is worthy of note, as the following advantages are attributed to it, namely, that it is cheaper than brick partitions, economises space, possesses great strength and lightness, is absolutely fireproof, is rapidly erected, is a sound-deadener and a vermin repellent, and is free from complexities. It is supplied in slabs 3 feet by 1 foot 6 inches, by 2½ inches to 4 inches thick.

The Enderby and Stoney Stanton Granite Co., Ltd., of Narborough, whose Stand in the Gallery is No. 20, show samples of granite of excellent texture and colour, which is now meeting with considerable success as a building stone, for which it seems very eminently suitable, and the price, we understand, is right. Dressed granite in the form of spur stones, kerbs, channels and specimens of various kinds of dressing, setts, broken granite and granite chippings are also to be seen at this stand.

In view of the rapidly extending use of lifts, the principal exhibit at Stand 9RB in the Gallery is the model of an electric lift, which is shown by *Messrs. Joseph Richmond & Co., Ltd.*, of Kirby Street, E.C. This lift, which is electrically controlled and operated, is on the press-button principle. The main switch controls the movements of the lift, and is fitted with a pendulum which tends to break the main circuit by returning to its central position. Current flowing through solenoids causes the lift to move upwards or downwards respectively. These are connected directly with the positive main; but the negative is connected up through two contacts, the flexible wire cords, the gripping contacts and the small switches. An insulating piece and an insulating spring, keeping the wire cord in tension, separate this cord into two parts. The former is fixed to the car and travels with it. Each floor is provided with a button, which if pressed closes the small switch of that particular floor, the circuit through the main switch is thereby closed, and the lift begins to move. At the same time the main current energises the solenoids, which lock the press buttons in whatever position they may be at the time. The lift ascends or descends, as the case may be, until the insulating piece breaks the current. By this time the lift is opposite a door, which it automatically unlocks. Each door is provided with a circuit-breaker operating in the main circuit. The lift can, therefore, only operate when all the doors are shut. The action of the pushes inside the car, of which there are as many as there are floors, is similar. After closing the door the passenger presses the button of the floor he wants to proceed to. The lift then ascends or descends until the insulating piece breaks the circuit. In the unlikely event of two persons on different floors pushing buttons simultaneously, the car will travel to the floor farthest from that at which the cage was at rest. Other interesting items are a model of self-sustaining dinner lift, of which the mechanical motion is unique, the heavier the weight put on the gear the greater the self-sustaining power, and one of a street orderly bin, of great interest to surveyors to

public bodies. The bin automatically empties into cart by means of a handle, and thus assures thorough cleanliness. From a health point of view, as well as for its simple character and effective working, the bin should certainly be adopted universally and at once.

The Hard York "Non-slip" Stone Co. have paved Bay 5 in the Gallery, South Side, with their non-slip hard York stone flags, which, in addition to presenting a neat and pleasing appearance, fully justify their title as regards firmness of foothold. This stone is eminently workable, as is exemplified by worked specimens which are shown here, "Non-slip" stone channelling, platform coping with a distinctly defined edge, stone steps, moulded and spandrel and stone landings, &c., go to make up an interesting and in its way instructive exhibit.

Messrs. Geo. Wragg, Ltd., Salford, show some capital stained and leaded windows at Stand 75, Row D, casements and sashes in steel and bronze, window gearing, mosaics, enamels, jewellery, metalwork. In iron, brass, copper, aluminium, pewter, silver, &c., for interior and exterior decoration, such as gates, rails, vanes, altar rails, lecterns, communion plate, vases, &c.; gas and electric-light fittings, repoussé work, bronze founding, &c.

The Desolle Electroplating Co., Ltd., Cornhill, exemplify at the adjoining stand their system of electroplating in copper, bronze, brass and nickel, and exhibit ornamental ironwork, &c., treated by the process.

At 24 A *Messrs. Potter & Co., Ltd.*, 66 Victoria Street, have a concrete fireproof floor, 12 feet between supports and $4\frac{1}{2}$ inches thick. In the construction of this floor no steel joists are embedded. It is strengthened with $\frac{1}{4}$ -inch corrugated tension rods, and it is claimed that it possesses five times the strength of an ordinary concrete floor. Other exhibits comprise a specimen of steel lath bracketed for plaster cornice, and a specimen of wood attached by secret nailing to concrete floor.

Messrs. Mark Fawcett & Co., 50 Queen Anne's Gate, are to be found under the North Gallery, where they are showing their familiar fireproof floor, of which they have a full-sized example. They also show samples of the various materials which are used in its construction.

Messrs. Candy & Co., Ltd., Newton Abbot, show, special position No. 4, a large selection of glazed bricks of various descriptions, but of uniformly excellent quality and colour, granite vitrified paving bricks and channels, buff architectural terra-cotta, stoneware sewerage pipes, gullies, interceptors, &c.

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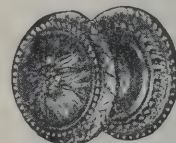
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Mr H Blackwell, of Fleet, Hants, shows Stand at 22 A a variety of crowding and bearing-off barrows, hack caps, pallet boards for hack and steam dryers, loo boards, seed and postal boxes, and all kinds of nursery trays and sample boxes, and such like useful brickmaking appliances.

Patent chequer bricks form the staple exhibit in Stand 95, Row E, by Messrs. Joseph Place & Sons, Ltd., Darwen, who attribute to them the following excellent points:—Increased strength, decreased solid on floor-level, rubbish cannot lodge on supporting walls nor between the chequers, 4-inch pipe can stand anywhere and still have free draught, supporting walls tied together and lateral movement prevented, broken or damaged chequers may be lifted out at any time and replaced without disturbing the rest, and they claim that they possess the following advantages—free draught, cannot choke, bottom strengthened, walls supported, repairs easily made. Specimens of salt-glazed and enamelled bricks are also shown here.

Messrs Towers & Williamson, Little Bytham, are showing (Stand 111, F) samples of their Adamantine clinker for paving stables, fire brigade stations, abattoirs, coachhouses, yards, kennels, cattle markets, and for floors of every description. These clinkers have been supplied, we understand, to the Royal Mews, Windsor, Sandringham, and also to their Royal Highnesses the Dukes of Connaught, Cambridge, and the late Prince Leopold and others. Fire-bricks and other fire goods are also to be seen at this stand.

The specialty exhibited by Messrs. Colthurst, Symons & Co., Ltd., of Bridgwater, at their Stand 90, Row E, is their patent interlocking Roman tile, whose gripping propensity seems to have caught architects and builders, and to have established the tiles in favour. The patent renders nailing unnecessary, as they so clip each other as to prevent stripping even when used in most exposed situations or in the most boisterous weather. Each tile has two grooves on its upper surface to prevent drift. Other tiles of Broseley type are shown as well as numerous ridges, finials, pier-caps and other samples, all of which have the excellent colour associated with this firm's goods.

A pavilion of pleasing design, erected entirely in the fire-resisting material which is their specialty, serves for exhibit and office for The British Uralite Co., Ltd., of 50 Cannon Street. This valuable invention, the progress of which we have watched with interest since its inception, and in commendation of which we have written on many occasions, is now so well known as to require no further description. It is, however,

interesting to note that it is now recognised as a reliable fire-resisting building material, and has been accepted by The Fire Offices Committee of London as a first-class roofing substance. Within the pavilion are exhibits demonstrating the various purposes to which it can be applied; for instance, there are samples of uralite for roofing, ceilings, partitions, &c; samples painted with Ripolin and other paints; samples coloured with Hall's distempers; others veneered in oak, maple, mahogany, walnut, teak, sycamore, &c; a fire-resisting uralite deed safe; a fire-resisting uralite despatch box; models of uralite roofs, as used in Great Britain and the Colonies, &c. We noticed that the effective lettering employed here was by the Brilliant Sing Co., Ltd., of Gray's Inn Road.

Messrs Shanks & Co., of 81 New Bond Street, are represented at two Stands, Row D, 84, and Bay 1, and show many of their well-known make of baths in the several varieties, as plunge, spray, canopied and tubular, in fireclay and porcelain enamelled iron; water-closets and supply cisterns, improved kitchen and scullery sinks, lavatories in vitro-porcelain and fireclay, &c.

At Stand 85 The Asbestos and Asbestic Co., Ltd., 27 Billiter Street, have on view numerous samples of asbestos, crude, fibrised and manufactured; in the latter category may be mentioned sectional pipe and boiler covering, asbestos and other deadening materials, asbestos packings, asbestic fireproof plaster, Manville registered fire extinguisher, &c.

Messrs. G. Tucker & Son, Loughborough, have arranged, at 87, D Row, a good businesslike display of architectural terra-cotta in door jambs, lintels, cornices, capitals, panels, copings, &c, as well as some excellent specimens of their red pressed facing bricks, red sand stocks, special bricks for sewers, red paving tiles, red roofing tiles, &c.

Messrs. Hall & Co., Ltd., of Croydon, who seem to have offices and wharves nearly all over the South of England, the names of no less than fifteen towns being given in this connection, are showing a varied assortment of slates and tiles at Stand 79, Row D. Among the green slates shown are samples of Precelly randoms for mansions and schools, as used at the Royal School of Art Needlework, Kensington; Precelly rustics, a popular slate, suited to country houses and mansions. These slates can be mixed in seven colours and will vegetate a beautiful green of varied shades if in suburban and country districts; Precelly peggies, a small slate, suited for turrets and Mansard roofs; Tilberthwaite green slates, very fine Westmoreland slates, such as we understand are used on most Govern-

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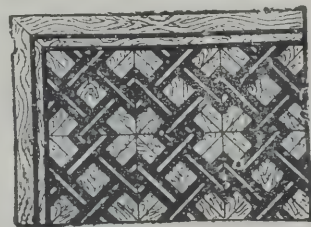
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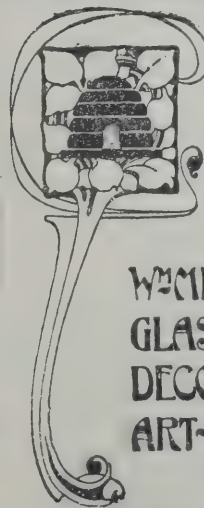
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ment buildings; Buttermere slates, a beautiful green, even in colour and texture; Elterwater slates, which are particularly suited for domes, as they will go round any roof and are even in colour; Bettws-y-Coed, Bangor, Carnarvon and Portmadoc slates, &c. The sample roof is covered with the well-known Keymer tiles, which can be had in either mouse or red colours.

An effective exhibition of mezotil, a new and attractive mural decoration, is shown at Stand 78, Row D, by *The London Tablet Co.*, of Sydenham, whose proud boast it is that product is the result of a combination exclusively English, namely, that it is made in England by English capital and English labour. This wall covering consists of sheets of zinc of the normal size of 5 feet by 2 feet, enamelled and decorated in various styles, the designs hitherto employed being chiefly in imitation of tiles. There are signs of deviation from this tradition, and there is no apparent reason for adhesion to it, perhaps, but we think that the excellent tile designs are the best of those shown here. As a clean, bright and inexpensive wall decoration this material deserves more than cursory attention. It is of course non-absorbent and vermin-proof.

The stand of *The Patent Indurated Stone Co., Ltd.*, must needs arrest attention alike by reason of its conspicuous position and its attractive exhibits. Prominent among these is an elaborately carved tablet in a warm buff colour, which admirably illustrates the susceptibility of this material to ornamentation and the ease with which it works. A beautiful pair of vases and pedestals of elegant design carved by Mr. C. H. Mabey also command attention; while not less excellent in their degree are a moulded corbel (terra-cotta colour) as used at the Fox public-house, Wilson Street, Finsbury, and warehouse adjoining in Scrutton Street, a ball terminal (yellow Mansfield) and moulded corbel (red Mansfield) as used for villas at Reigate, sections of moulded cornice and a moulded step as supplied to the Portland estate, a portion of moulded staircase (partly grooved treads) as executed for building in High Holborn, W.C., window heads and sills as supplied for the Western Electric Company's Works, North Woolwich, and moulded caps, ball and spike terminals, strings, neckings, entrance steps, staircase, all as executed for the Urban District Council of Hampton.

Sam Deards, Ltd.—At Stand 29 in Gallery, Mr. Sam Deards has on show two recent improvements in his patent

system of glazing, viz, a self-locking steel bar for glass roofs, when affixed to iron structures, which saves the making and drilling of all holes along the ridge, purlins and canopies, as well as the cost and use of nuts, bolts and screws. The new section bar is formed with a deeper web, so as to carry glass up to 11 feet long, when needed, the same being covered entirely with thin-tin lead of uniform thickness; but the cap for holding down the glass is quite independent and separate, so that should repairs be needed at any time, it can be not only removed but replaced without any injury whatever to the existing lead-covered bar. In this one particular it is unique. The indent for holding down the capping is on a level with the glass, so there is no fear of its ever becoming loose. The other new patent is *Sam Deards's* patent simplex glazing bar, which is so formed as to make a gutter on either side of bar to receive the glass, and also to turn down over and on to the glass, while the centre core of the wood bar is carried above the glass and admits of planks being placed upon outside of glazing to carry the workmen when repairs are needed, and to obviate the risk of breaking or injuring the glass. The principles of this glazing have been subjected to the test of two streams of water playing upon it on the outside during the run of the exhibition, and have attracted the attention of visitors. *Sam Deards's* patent coil boiler for heating 1,000 feet of 4-inch pipes is also on show. This well-known coil boiler has carried off, we understand, all the premier medals of the contests in which it has been engaged.

At Stand No. 132, wall space, *Messrs Bratt, Colbran & Co.*, patentees and sole manufacturers of the "Heaped" and "Valley" fires, 10 Mortimer Street, W., have a splendid exhibit of their well-known designs in wood and iron mantels, copper and brass interiors, wrought-iron dog stoves, antique door furniture, hand-painted "Mortimer" tiles, &c. Their new patent "Heaped" and "Valley" fires are shown in action, and these have been much admired by all who have seen them for their extreme simplicity, cleanliness and heat-giving capacity. The "Heaped" and "Valley" fires are being fixed throughout three London hospitals, and are in great demand for public buildings, offices and dwelling-houses.

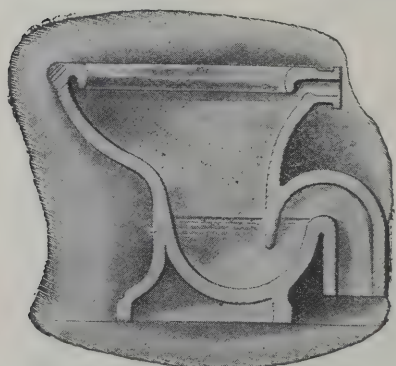
Mr. F. A. Fawkes, Chelmsford, at Stands 48 and 49, shows a very handsomely designed fumed oak mantel with pewter inlay, and a pine mantel enriched, of broad artistic effect. Also a section of a room, showing the application of his well-known and appreciated enriched joinery, picture and

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dado rails, skirtings, cornices, doors and over-doors, all of excellent workmanship.

Mr. E. J. Smith, of Grosvenor House, Camberwell, is showing in the North Gallery (3, Row A) some very fine samples of Venetian, Florentine, canopy, duchesse, flounced lace and roller blinds, adapted for houses of all kinds from the cottage to the mansion, as well as for shops, hotels, &c. The diplomas for gold medals and other documents exhibited also at this stand attest to the value and excellence of the work done and materials supplied in various parts of the country.

Messrs. C. B. N. Smevin & Co., Back, Hatton Garden, fill two Bays (23 and 24) in the North Gallery with a very fine collection of seasoned woods for builders, cabinetmakers, carvers, &c. The varieties of wood shown comprise mahogany, wainscot, teak, oak, kauri, sequoia, whitewood, birch, ash, pitch-pine, yellow pine, Oregon, Carolina and deal, maple floorings, &c. Many of these woods are exceptionally fine specimens as regards the width of the planks and their fine grain. A notable feature of the exhibit is the curly pitch-pine arranged round the pillars of the bays.

In the Arcade *The Coalbrookdale Co., Ltd.*, of Queen Victoria Street, are exhibiting some attractive specimens. The Bostel patent combined sunk and lifting fireplace, which is made so that the fire burns either sunk in the hearth, or it can be tilted up to burn with the bars raised. The advantages of this combination are great. No air duct has to be provided through the hearth, yet there is no difficulty in getting the fire to light or to burn up when required. The grate when tilted up induces a quick draught, and the fire soon becomes a glowing mass of smokeless fuel; the bars are then lowered to the sunk position, bringing the fire well forward so that practically the whole of the heat generated is given out into the room, and the gases as they pass into the chimney are quite cool. Combustion is slow; the fire will burn for hours without any attention or additional fuel, and the coals burn away to a powder, which falls into the pan below the bars and is easily removed.

The Emdeca Metal Decoration Co., Ltd., have at Stand No. 57, Row C, an elegant exhibit in the shape of a Corinthian temple, the pillars of which are made of metal, while the interior walls are of thin-gauge zinc sheets, stamped out and stuck on to the surface whatever it may be, plaster or wood. They are made in all the best tile designs, having the effect of majolica tiles, and it is claimed that they last just as long for the decoration of bath-rooms, lavatories, and in all places

requiring to be kept clean where water splashes about, the cost being, we understand, one-half or a quarter the price of real tiles. The ceiling is covered with stamped steel made of solid Bessemer steel sheets, and yet the cost is said to be as cheap as paper, with the further advantage that a perfect ceiling is made without the use of any plaster. The general effect of metalwork for interior decoration is certainly very fine.

The *Globe Granite Co.* are showing at Bay 8 some capital specimens of red bricks, glazed bricks, broken granite and granite setts, as well as concrete work in the shape of flags, coping, heads and cills, kerbing and channelling, door pediments, steps, pillar heads, &c., the whole of which are well deserving of inspection.

Messrs. *Newell Brothers* show at Stand 24, Row A, samples of opal tiling, which is claimed to be of a very cheap and durable character, and made in England, with the view of affording the poor man the luxury of glass tiles for lavatories, &c., equally with the rich.

No visitor to the Exhibition will fail to devote a portion of his time to the attractive Stand (71, Row D) wherein Messrs. *Geo. Jennings, Ltd.*, of Lambeth, have arranged a number of their well-known sanitary appliances, among which will be found some admirable specimens of fitted baths. These are shown in many forms and styles of decoration, and vary in price from 7*l.* or 8*l.* to ten or twelve times those prices. A large variety of closets is shown, including the "Century Syphonic," an ornamental as well as useful adjunct to which is the semi-circular porcelain flushing cistern, which advantageously replaces the old and somewhat unsightly iron tank with which we have had hitherto to be satisfied. Lavatories in extensive variety, adapted, as we are told, for palaces, mansions, villas, hotels, restaurants, factories, &c., may be examined and admired here. A new bath-valve, Jennings's patent duplex, attracts a good deal of attention, as by its means the water can be supplied to the bath hot, cold or blended, while all fear of scalding the bather or spoiling the enamel through the inadvertent turning on of the hot water first is obviated. Other exhibits to be seen here comprise urinals, housemaid's sinks, vegetable, salad, poultry, fish and kitchen sinks, wash-up, bed-pan and slop sinks for hospitals, and other cognate items.

Messrs. *Clark, Hunt & Co.*, of Shoreditch, are well represented at two stands. At the first they are showing in action (Wall space 142) Bailey's patent Geyser hot-water supply, a description of which we gave on its introduction. This very

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useful arrangement, which will be found of the greatest utility, consists of a small portable range for fixing in workmen's dwellings or small flats, where economy of space and small initial cost are of paramount importance, and provides a supply of hot water over a sink without the need of a feed cistern and hot-water tank. The cold-water supply pipe is in direct connection with the boiler, and is controlled by a stop-cock over the sink. The outflow pipe from the boiler terminates with a brass nozzle below the stop-cock. When the stop-cock is opened cold water flows into the boiler and causes a rapid discharge of hot water through the nozzle below the stop-cock. When the stop-cock is closed the discharge ceases, leaving the boiler full. The sink may be any reasonable distance from the range; the impetus of the discharge partly empties the outflow pipe, leaving but little "dead" water. This system, which is automatic and dispenses with the need for supply cistern and hot-water tank, has attracted a considerable amount of attention and should be greatly used. At this Stand is also shown a range with independent steam-cooking apparatus, suitable for hotel and restaurant use, where it should prove of great utility. In Bay 11 Messrs. Clark, Hunt & Co. are showing a very handsome kitchener, the Middlesex, finished in bright nickel with buff tiles, &c. This kitchener has a patent lifting fire of great simplicity, and other modern improvements. The Francombe's slow-combustion warm-air stove is an attractive stove, which has an independent setting into which it fits, the space behind acting as a warm-air chamber. Other exhibits at this stand comprise builders' brasswork, consisting of brass door-handles, knockers, postal handles, lock furniture and finger plates in various finishes, antique copper lock plates, also in white metal, German-silver, gun-metal, Florentine, silver and copper bronzes, electric bells, telephones, &c., the "Roy" patent fanlight opener, "Telo" casement stay, "Dean's" invisible casement stay, "Reading" fanlight opener, general mill furnishings, "All wrought steel" pulleys, "B.B." wood pulleys, "Smith's" pulleys, best oak tanned belting, "Condensed" hide belting, &c., &c., "Ward's" patent lift and force pumps and combined air-valve, best London-made brick moulds, hand-power mortice machines.

The Simplex Steel Conduit Company exhibit galvanised, enamelled and brass-cased conduit and fittings for electric wiring of buildings, outhouses, car sheds, stables, mines, &c.,

where the electric wires are placed in positions where moisture is nearly always present, and where there is likely to be any damage done to the wires in exposed positions either by mechanical or physical means. The system, which has been thoroughly brought up to date and standardised, is a method by which the wires of an electric installation are completely protected by the steel conduit and fittings. It supersedes the old method of wood casing, and can be erected with less labour, and the first cost compares favourably with the wood system. The conduits are shown enamelled, galvanised and brass cased, and arranged for screwed or socket junctions. There are some eight grades of conduit and 1,000 fittings, comprising couplings, normal and sharp bends, tees, inspection bends and tees, branching, intersection and tee-jointing boxes, switch and ceiling rose boxes, distribution switch and fuse boards, &c. The stand is built up of the simplex conduits, and the black enamel of the tubes against the dark polished oak panels on which samples are mounted presents a very fine appearance. In the front of the stand is a five-way distribution fuse board of the company's make, which controls the lights on the stand. The tubes connected with the outlets of this case rise vertically in front of the stand and then join a run of tube from the back in each case, thus forming five rows of tube to which the company's ceiling rose, pendant and lampholder fittings are connected. A large number of the accessories shown are arranged with lamps in place, and the stand is thus well lit at night. The back part of the stand has a roof of woodwork mounted on a tube framework, which also carries a show case containing the most improved and up-to-date fittings for use with the system. On the under side of the roof are fitted a number of ceiling roses, &c., and on the large panel at the back are various samples of the material very neatly and carefully arranged.

Mr. G. W. Riley makes a display in the Gallery of some well-made and capitally-designed rustic work, including five summer-houses, one of which is on the revolving principle for the open-air treatment of consumptives, and a number of garden seats, chairs, vases, &c., of an ornamental as well as a useful character.

In the Minor Hall one of the first exhibits to claim notice is that of Mr. Mark Gentry, who has brought a capital selection of his "M. G." red facings, red rubbers, red-moulded bricks, terminals, ridges, finials, &c., all of which exhibit the beautiful colour which one has come to associate with goods which emanate from Mr. Gentry's works

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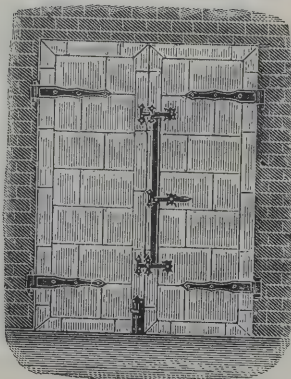
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The Architect.

THE WEEK.

WE referred last week to a magisterial decision from which it would appear that railway premises come within the scope of the Metropolitan Management Act and the other Acts relating to buildings in London. Another case has since been heard which shows that dock companies have no more claim from exemption than ordinary traders. The Bermondsey Borough Council summoned the Surrey Commercial Docks Company for neglecting to give notice respecting a new workshop which was to be erected. Section 76 of the Metropolitan Management Act says that "Before beginning to lay or dig out the foundation of any new house or building within any such parish or district, or to rebuild any house or building therein, also before making any drain for the purpose of draining directly or indirectly into any sewer under the jurisdiction of the vestry or board of or for any such parish or district seven days' notice shall be given." The company maintained that they were exempt from this section by reason of their special Act, 1894, which gave them power to enlarge the docks and erect new buildings, and that it had been decided that a specific Act repealed a general Act. The magistrate, Mr. PAUL TAYLOR, held that there was nothing inconsistent in the Borough Council, whose duty it was to look after the interests of the public, having building notice. He therefore decided in their favour, and imposed a penalty of 5s. and 5s. costs. The two decisions are of extreme importance, and will tend to more uniformity in the application of building and sanitary regulations.

As a rule, not many actions arise between insurance companies and employers over cases under the Workmen's Compensation Act. But one has been just heard in Glasgow which suggests there is no advantage in disputing claims on account of trivial defects. In Scotland the system of separate contracts prevails, and Mr. ROBERTSON, slater, had undertaken to do work at a school in Glasgow. The operations were in charge of a competent workman named MACNEILL. He selected the plant. One day he took with him to the job two sets of $3\frac{3}{4}$ slings, which were adapted to carry the double scaffold proposed to be used. He also brought an old $2\frac{1}{2}$ rope, which had originally been constructed to carry a single seat, intending to use it for a guy rope. MACNEILL and his men suspended their double scaffold by two of the $3\frac{3}{4}$ slings fixed in the usual way to the rafters, and led through a hole in the roof. When it became necessary to shift the scaffold one of the slings was unfastened and led through a new hole made in the adjacent roof, and this supported one end of the scaffold in its new position. But the other $3\frac{3}{4}$ sling was left where it was. For some unexplained reason it was not shifted, nor was it lengthened, nor was the other shortened to suit it, nor did MACNEILL make use of the other $3\frac{3}{4}$ slings, although they were on the roof. What he did was to take the old $2\frac{1}{2}$ rope, which he had brought for the express purpose of using as a guy rope, to make a fresh hole in the roof, and then to fasten this $2\frac{1}{2}$ rope to the rafters and use it to support the other end of his scaffold. He did this in the face of a remonstrance from one of his men, who thought the $2\frac{1}{2}$ rope should not be so used. Upon the scaffold so supported MACNEILL and another man had been working for some time when the $2\frac{1}{2}$ rope snapped. MACNEILL was thrown to the ground and killed. His widow sought compensation, and was awarded 274*l*. When the employer applied to the Scottish Employers' Liability and General Insurance Company, Ltd., they repudiated liability on the ground that the insured, in terms of the arbitration clause of the policy, had forfeited his claim under it, as he had failed to fulfil the conditions of the agreement as regards the providing of efficient plant and the taking of all reasonable precautions for the avoidance of accidents. One of the conditions in the policy was, "The employer shall provide efficient ways, works, machinery and plant, and shall cause to be taken all reasonable precautions to employ compe-

tent workmen and to prevent accidents." The case was left to the arbitration of Sheriff FYFE. His Lordship said that the company could succeed only if it could be held that an employer was in breach of his policy merely because, in addition to a supply of sound and suitable ropes, he happened to have also in his store an old rope, which a workman, who should have known better, used for a purpose for which it was never intended. In his Lordship's opinion such a contention was untenable. An employer was entitled to assume that a workman would not deliberately risk his life, and he thought that an employer complies with the third condition of this form of policy when he engaged competent workmen and provided for their use efficient plant, both of which the claimant here did. He did not think that an employer could be held responsible for the use—or rather the misuse—of the plant by the workman, or for his failure to use it at all. Judgment was therefore given in favour of Mr. ROBERTSON for 290*l*. and costs.

It will be remembered that in last July there were serious accidents caused by the balustrade of All Souls Church, Langham Place, yielding to the strain of a rope bearing flags suspended between the Langham Hotel and the church. One of the ladies injured sought on Tuesday to recover damages for her injuries. It was contended for the plaintiff that no steps were taken to ascertain the strength of the balustrade, in which cracks were visible. The man who fixed the rope said he had looked for flaws in the stone, but had found none. It was usual on occasions of rejoicing to hang a rope with flags between the two buildings, and no sign of weakness was betrayed. But on the day in question there was what meteorologists call a strong breeze, but which defendant's counsel termed a miniature cyclone. On one side it was stated that the strain on the balustrade equalled three tons, which was six times what it could sustain. The jury assessed the damages at 600*l*., and as there are similar cases awaiting settlement the danger of such a mode of display should be enough to make people careful. In all such circumstances it is usual to allow servants or labourers to take charge of the operations. When only a thin rope with a few light flags are strung between two windows the worst that can happen could hardly be injurious to a spectator, but with a heavy rope and large flags the contingency was different. The church, too, was known to be an old one, and should have inspired caution.

In the old explorations architecture was necessarily the foremost in importance, then came sculpture and pottery. Inscriptions were copied, but the value attached to them depended on the information they conveyed. The vast interest aroused by the writing on the wall in Knossos is evidence that in late years importance is attached to the forms of lettering. Writing in general, which includes the lettering of the stonecutter, has now become a very prominent branch of inquiry. By tracing the forms of a variety of alphabets it is anticipated that knowledge will be gained about the relations between the languages of antiquity, and it may be with those of a later time. This will explain the interest which in Germany has been attached to the discovery of an inscription in Aramaic found in a well near the temple of Eschmun, where excavations are in progress by Dr. WINKLER and Dr. LANDAU. Aramaic might be called the Italian hand of antiquity. In Assyria cuneiform letters were used on the clay tablets, but for any abstracts or endorsements Aramaic was used. It is also met with in many of the later papyri of Egypt. There is no doubt it was in favour with the Jews. It was believed, however, that its use had not extended so far as Saida in Sidon. It is presumed that what has been discovered is only a part of a long inscription, but as there are eighteen lines with letters of large size the find is of importance. Although a concession was granted to carry on excavations, it is not supposed to comprise the removal of such a relic, and it will therefore be necessary to obtain new authority from Constantinople in order that the inscription may become available for the use of scholars in Europe.

MASTERS OF ART: POETS AND COMPOSERS.*

THE motto under which ALFRED STEVENS sent in his design for the Wellington Memorial was "I know of only one art." He may have wished to suggest his competence in architecture as well as in sculpture, or perhaps desired to explain why he designed grates and fire-irons instead of noble groups like *Courage and Cowardice, Truth and Falsehood*. The idea he expressed was, however, an old one, which can be traced back to CICERO, and it was also adopted by some later æstheticians as a principle. If the arts serve a common purpose, there must be unity amongst them. While in theory it may seem to be desirable to place all the arts on the same footing as if they were only one, in practice they have been regarded in a different way. Each artist still tries to obtain supremacy for the one he follows. To an Egyptian architect the sculptors and painters appeared as only humble assistants. At the Parthenon PHIDIAS evidently considered it was the architect's business to make arrangements to display the work of the sculptor. At the Pœcile, MICON and PANÆNUS also regarded architecture as no more than a means to provide suitable surfaces for their great wall-paintings.

Without going back so far, we have in the history of the French academies evidence of the struggle for exclusiveness without any concern for effecting unity. When the Academy of Fine Art was founded in 1655 all the advantages were seized by painters and sculptors. It was not until 1671 that architecture gained recognition, and then it was forced to be a separate institution. The Governments experienced continual opposition in their endeavour to secure an appearance of unity. In the Academy of Fine Arts there are now representatives of architecture, painting, sculpture, engraving, medallion engraving and music. But in spite of the supposed union it is well-known that in 1900 there was a difficulty in obtaining for architecture acceptance as one of the fine arts in connection with the International Exhibition. In England art has been long identified with painting. The Royal Academy, from the time of its formation, has been mainly occupied with the interests of painters, and in some of the exhibitions it was not easy to discover examples of any other art. The indefiniteness of our notions about what is art is also suggested by the Exhibition of 1851. It was intended to display the "industries" of all nations. The few paintings that were seen won admittance simply as exemplifying the processes of some colour manufacturers. Architecture could only gain a footing in the big glass house in the form of ecclesiastical metalwork and embroidery. But sculpture was held to be one of the industries, and consequently a great many examples were assigned places.

The recognition of music as one of the Fine Arts equally with painting, sculpture and architecture on the podium of the Albert Memorial was therefore an innovation. We may attribute it not to the power of any subtle scheme of æsthetics, but rather to the circumstance that the PRINCE CONSORT had composed some chorales, and that his countrymen had acquired more general reputation in music than in any of the other arts. But by admitting music it became necessary to accept the art which in most cases inspires sweet sounds. Indeed, all the arts may be said to be no more than pictorial or melodious language forming substitutes for words. Picture-writing was an early discovery, and few musicians would have the courage to describe their pieces, like MENDELSSOHN, as "Songs without Words."

The combination of the *belles-lettres* and music was serviceable to Mr. ARMSTEAD, the sculptor. It enabled him to arrange his composition as if it were a pendant to his representation of the painters. By comparing the two prints it will be observed that the poets occupy the central part in one and the Italian School in the other. HOMER appears enthroned, like RAPHAEL among the painters, and we have also with apparent symmetry a slight difference in the number of poets on either side of the bard. German and English composers are made to balance those belonging to the Italian and French schools.

The supremacy of HOMER could be justified by the declarations of most of the men surrounding him. VIRGIL

paid him the high compliment of imitating the "Iliad" and the "Odyssey" not merely in outline, but in details. The Roman poet was by his contemporaries charged with plagiarism; and indeed he had so humble an opinion of his own work when compared with his predecessors, he gave instructions for burning the "Æneid" after his death. At a subsequent time the renown of HOMER became merely a vague tradition. VIRGIL was not only estimated by the Italians, and all who came under their influence, as the greatest of poets, but as a wonder-worker, a magician. It was therefore in accordance with the spirit of the age when DANTE followed his guidance in his great journey. He spoke of him both as his master and as the model from whom he derived that beautiful style through which so much honour came to him. But it was not considered disloyal to VIRGIL to describe HOMER as the sovereign poet, and to represent him with a sword in his hand as if he were a warrior minstrel. MILTON has also lauded the ancient poet whose blindness was a bond of sympathy. CORNEILLE, like VIRGIL, is supposed to have sought after the Homeric spirit. GOETHE not only made a study of the old poet when in his prime, but he endeavoured to extend the Homeric spirit by introducing some of the characters of the great epic in the second part of "Faust." It is remarkable that no tribute can be ascribed as coming from SHAKESPEARE. In *Troilus and Cressida* the fall of Troy is retold; the English view, however, is taken, and it was always in favour of HECTOR rather than ACHILLES. Hence Mr. ARMSTEAD suggests that SHAKESPEARE was listening to other music than that of the Homeric lyre. The introduction of PYTHAGORAS in the group is not easily explained. The first of the philosophers—the introducer of the "unity in variety" theory of beauty—is more mythical than HOMER himself. His ideas were exalted and mystical. For that reason he censured HOMER for his disrespectful familiarity towards the gods. But he is credited with having discovered the chords of music in a village smithy, and on that account at least is entitled to a position among the figures. He also enjoyed the harmony of the spheres in addition to poetry. CEKVANTES may also seem out of place, for he was not a poet; but no native poet could so worthily represent Spanish literature. CHAUCER has related some of the old legends in his own way, for his genius seemed to be competent to deal with the remote as well as the near. PIERRE CORNEILLE also utilised Classic themes, and French Governments have acted wisely in insisting on the performance every year of some of his dramas in the subsidised theatres. Although they may seem tame productions to a modern English playgoer, there must be power in the works of a man of whom NAPOLEON said, "S'il vivait, je le ferais prince." MOLIÈRE as a writer of comedies may not be considered as exemplifying Homeric influence, but it is well to remember he received an excellent education in the Classics. Although the manuscript has been lost, he translated almost the entire work of LUCRETIUS, and it is not unreasonable to imagine that he also was indebted to the "Grecian MERLIN."

After hearing a course of lectures, especially if there are instrumental illustrations, on Greek music, it is difficult to resist the conclusion that music was not always the most human of the arts. There is no apparent connection between the old combination of sounds and the oratorios, operas, symphonies and songs of our times. The figure of St. AMBROSE we see in the relief corrects that belief by recalling the debt of modern to ancient music. The erection of Christian temples, which brought crowds within a building, exercised an effect on music. The congregation joined in the singing of psalms, and according to the account which was given by St. JOHN CHRYSOSTOM there was delightful harmony, especially when there were ascetics present, although there was no instrument to accompany them. These ancient musical services were not without their effect on the evolution of ritual. But the airs which were derived from the Greeks indirectly were exceedingly simple when compared with the arrangement of them which, if not made by St. AMBROSE, the Bishop of Milan, was carried out under his direction. St. AUGUSTINE testified that when he heard this new psalmody he wept, but as his was a severe nature, he also says that he wished to stuff his ears and those of the entire Church against what appeared to him luxurious innovation. At this distance

* See Illustration.

of time it is difficult to determine the respective shares of St. AMBROSE and Pope GREGORY I. in the improvement of ecclesiastical music. But harmony having a footing in the Church was sure to prevail afterwards in the world.

At least six centuries had to pass before GUIDO of Arezzo came as the successor of St. AMBROSE. There was some sort of notation known to the Greeks, and which probably was adopted in Christian churches, but it required many years practice before a student of music was able to use it. GUIDO invented a new system which was easily acquired, and it received the sanction of the Pope. It was soon adopted in monasteries and churches. Then there was another interval of 500 years, and PALESTRINA appeared. Unlike GUIDO, he was a layman; he found employment in the Papal chapel, for which he composed several works. In the course of the eleven centuries which had passed from the time of St. AMBROSE, many airs which were overflorid had found their way into Church services. If words are disregarded it is not always easy to discriminate between sacred and profane music, for the principal factor is one of association. The Council of Trent, however, judged it was necessary to have a reform. Three model combinations of airs for six voices which could be used for the celebration of Mass were ordered from PALESTRINA. One of them alone obtained approval, and, as the "Mass of Pope Marcellus," is still occasionally heard. Henceforth, says RANKE, the historian, "music, which speaks a language more direct, more impressive, more adapted to ideal expression than any other art, became the interpreter of the emotions, and thus subjugated all minds to her empire." With PALESTRINA the primitive system of Church music may be said to have reached its perfection.

Soon afterwards St. PHILIP NERI endeavoured to attract people to musical performances which were independent of Church services. They began in a small way in his own oratory, and to them may be traced not only the great oratorios, but even operas. It was not necessary to have the severity required in Masses. They were at first allied to the ancient mystery plays, the difference being that the words were sung instead of being spoken. The practice has had an astonishing effect on music. CLAUDE MONTEVERDE of Cremona, in the beginning of the seventeenth century, was inspired to produce something resembling the semi-religious works of the oratory. It was an opera on the subject of ORPHEUS and EURYDICE. In it, as in others of the time, there was a very strong line of demarcation between the songs and recitatives, which in course of time was less defined. MONTEVERDE is therefore well entitled to his place in the history of music or in any collection of portraits of composers. CARISSIMI, who stands near him, was another seventeenth-century musician, but he gained his renown as much by his Masses as by secular music. Then there is a gap, and we come to ROSSINI, who died as lately as 1868. He probably realised that he was the last of a great race and that new combinations were to follow, for after he had finished "William Tell" he ceased to write for the stage. His "Stabat Mater," like all his works, abounds in melody, but it does not interpret the subject properly, and indeed the best parts of it are sometimes performed with applause in London music-halls. Like all musicians, ROSSINI was often indisposed to exertion, and he cared little about altering his notes, but his gift of melody seemed unlimited, and in his operas, at least, he rarely failed to be expressive as well as delightful.

JOSQUIN-DESPRES stands alone as the representative of Belgian music, and brings us back to the fifteenth century. Belgium at that period produced several eminent composers who made their way to the courts of Germany and Italy. JOSQUIN-DESPRES is sometimes claimed as an Italian, because at an early age he went to Italy and obtained an appointment in the papal chapel. Afterwards he was director of music for the French King LOUIS XII. He left France and died in Belgium. His remains lie in the church of St. Gudule, Brussels. Dr. BURNEY asserts that JOSQUIN is entitled to be considered as the father of modern harmony and "the inventor of almost every ingenious contexture of its integral parts."

A spectator who is acquainted with the history of LULLI would imagine on first seeing the figure that he was comparing one of his new buildings with its plan, or was

examining a building site and trying to imagine its altered appearance when his schemes would be carried out. At the time when the part of the district between the Boulevard and the Rue Saint-Honoré was being transformed he was able to acquire both houses and land. MOLIERE lent him 11,000 livres to begin building. He was a hard man in his dealings with contractors, and if we believe LA FONTAINE his architect would have been very glad if LULLI were earlier called to a better world. By birth he was an Italian, and he was engaged as a guitar player in the French court when a boy of thirteen. He gradually rose to be director of music for LOUIS XIV. LULLI is credited with the creation of French opera. As a composer there is much difference of opinion about his merits. The pieces by him which are sometimes introduced in modern concerts are not impressive; but his contemporaries were charmed with his works, and he was able to amass a fortune of about 2½ millions of francs. GRÉTRY, who is seen standing behind him, was a philosopher as well as a composer. He may be considered as the precursor of the modern comic opera. RAMEAU wrote a treatise on harmony in 1722. He had previously been known as an organist and composer of Church music. He was fifty-three when he finished his first opera, and during thirty years he was accepted as the foremost of French musicians. Unlike LULLI, he encouraged others and used his influence to bring about the creation of a school of composition. MEHUL may be called the revolutionary composer. His *Chant du départ*, *Chant de victoire* and *Chant du retour* were sung by the revolutionary troops and were heard all over the Continent. But songs of that kind were not acceptable to all amateurs, and he published some of his works under an Italian name. His style was peculiarly French, but his "Joseph," which was brought out in 1807, is the only opera of his which can now command any attention. AUBER, who stands in the corner, is perhaps the most characteristic exponent of French music. His ambition was not high, and he was satisfied as long as he was sufficiently sparkling to please Parisian auditors. If he believed another composer's style was successful he endeavoured to assimilate it in his next work. He was as successful in opera as SCRIBE in comedies, and on that account he was severely criticised. But his "Masaniello," "Fra Diavolo" and "Crown Diamonds" have contrived to keep some slight hold on the stage, and that is much in so changeable an age.

On the other side of the poets we find the German and English composers. Music is the true universal language, and the works of the former are more familiar to Englishmen than those by their own countrymen. JEAN-SÉBASTIEN BACH has, except for a few people, blotted out the reputation of his father and uncle, who were also able musicians. He was a most productive composer, and if it were not for the efforts of musical societies it is doubtful whether, owing to their number, all his works would have been available for use. He could be terribly in earnest. But in his most serious passages he sometimes introduced a succession of auxiliary notes which might be compared with gold threads running through a piece of sombre embroidery. GLUCK, like WAGNER at a later time, was the cause of an operatic row in Paris. The Italians were supposed to be the sole possessors of the art of opera composition in the eighteenth century. GLUCK dared to enter into competition with them. He had taught MARIE ANTOINETTE in Vienna, and through her influence he was asked to compose an opera for Paris. But his "Iphigenie" excited the anger of the opponents of the Austrian alliance, and there was a battle between the pro-German and the pro-Italian parties which seemed to be an omen of the Revolution. One song in his "Orfeo" moved even the composer to tears when it was first heard from the lips of a male contralto and it has lost none of its effect after 140 years. As to HANDEL little need be said, for his oratorios form a national institution in England. There was a good deal of the Englishman in his character, and he was worthy of a grave in Westminster Abbey. GOETHE in his old age was able to relate how he had seen and heard MOZART at a concert when the musician was only seven years old. He was very prim, with powdered hair, a court suit and a sword. MOZART, in fact, was an infant phenomenon, and one can hardly think of him as ever arriving at maturity. There seemed to be no limit to

his capacity for music, and no man who was in the world for only thirty-six years has produced so vast an amount of melody that is likely to become immortal. It is to be hoped composition was a reward to him, for he never was justly remunerated for his pieces. HAYDN could claim that he came to England, was heard, and conquered. On his second visit he was created a doctor of music by Oxford University, and was one of the guests of the Prince Regent. He was no less successful in Paris. NAPOLEON showed his respect for him by giving orders that during the bombardment of Vienna his house was to be respected. Indeed, he seems throughout his life to have been one of the happiest of all musicians. He alone could say he had a band at his command in order to try the effect of any fragment of a composition. Behind him we see the refined MENDELSSOHN and WEBER, who was the pioneer of Wagnerism. HAYDN remarked of the young BEETHOVEN that he liked his first manner, but that the second was too tormented to please him. The elder musician had few causes for trouble, but nature made BEETHOVEN a self-tormentor. It is because of their subjectiveness, as being expressions of the mental condition of the composer, that his works are now appreciated. It is owing to their personal character that so many of his compositions failed to be understood by his countrymen.

If measured by quantity or science, the few English composers cannot be regarded as rivals to their companions. TALLIS was connected with the Chapel Royal in the time of EDWARD VI. and ELIZABETH, and his productions consist of Church music. ORLANDO GIBBONS was another royal official. But in addition to chapel music he composed some madrigals. HARRY LAWES was a gentleman of the chapel in the reign of CHARLES I., and remained in the king's service until the king's execution. Then he found employment as a teacher and as a composer of song music. He wrote the music for MILTON'S "Comus," and the poet in one of his sonnets addressed him as follows:—

Harry, whose tuneful and well-measured song
First taught our English music how to span
Words with just note and accent, not to scan
With Midas's ears, committing short and long;
Thy worth and skill exempts thee from the throng,
With praise enough for Envy to look wan;
To after age thou shalt be writ the man
That with smooth air couldst humour best our tongue.

The words reveal the state of music in the seventeenth century. Finally, HENRY PURCELL was also a chorister, but he felt the attraction of the theatre, and composed the songs introduced in several plays. He died in 1695 at the age of thirty-seven, and his grave in Westminster Abbey is indicated by an inscription saying that he "is gone to that blessed place where only his harmony can be exceeded," a compliment which was inspired by the humble notions of music which then prevailed.

ARCHÆOLOGY AND TREASURE TROVE.

ANYONE who read the report of the proceedings before Mr. Justice FARWELL, which we published last week, would find no difficulty in anticipating the decision. A judge equally with the simplest auditor likes to have a novel case well fought out, and it was evident that the arguments which he heard were one-sided. The theory set up on behalf of the Trustees of the British Museum was not a plausible one, but, having relied on it, common sense required that it should be properly upheld. To suppose that the sea once overspread the field where the articles were found was not extravagant, for the greater part of Ireland, as well as of Europe, at one period or another was the bed of the ocean. The only difficulty that arises would be the time when land was sea, and *vice versa*. Geological depositions are commonly so gradual it is impossible to arrive at a decision respecting their chronology unless there are objects which will serve as a standard. The late BEETE JUKES, who was Director of the Geological Survey of Ireland, in speaking of soils, says:—"Certain districts, now high dry land, were formerly deep sea, in which certain beds were deposited, including the remains

of creatures that lived in the sea. The time when these things took place was a very remote one, and the interval occupied by them a long one—hundreds, thousands or millions of years, as the case may be. We have not yet arrived at any satisfactory union of the history of the pre-human and human periods, and possibly no very satisfactory union may ever be arrived at." A process which is so slow and unequal can hardly come within the purview of a Court of Law, where even an error of a day may affect the result of an action.

The British Museum authorities were not satisfied with supposing that the gold ornaments were at one time lying in the sea. They introduced a more untenable proposition by saying the objects were the offerings of some Celtic chief to a sea-god. If a fact of that kind could be demonstrated it is possible the decision would be in favour of the Trustees. According to the view of the Crown lawyers, which is an ancient one, treasure must have been hidden in the earth or in some private place in order to be considered as treasure trove. If it were voluntarily cast away its character would be changed. The theory was no doubt ingenious, but risky. All depended on the kind of testimony by which it was supported. Again and again Mr. Justice FARWELL asked to have some proof of the existence of a marine deity to whom votive gifts might be made. It should have been anticipated that evidence of the kind would be demanded, and something ought to have been done towards supplying it. There would be, we acknowledge, some difficulty. In this country we give great attention to the mythology of Greece and Rome, and of late years there is a close investigation of what savages in all parts of the world believe concerning the unseen powers. It is impossible to appreciate WAGNER'S operas without some acquaintance with Scandinavian and early German mythology. It is now allowable to speak of ODIN, THOR and FRICKA without being considered a pedant. But the Celtic Pantheon is regarded with indifference, if not with contempt. It is probable that in Germany some followers of the Brothers GRIMM are to be found who have systematised the subject. But we should have thought that among the staff of the British Museum there would be a scholar or two who could explain that the Celts had also their representative of NEPTUNE or POSEIDON—it might be more exact to say their NIÖRDHR—and that he was a very terrible being whom it was wise to conciliate. The old belief in this matter was expressed in one of the poems of THOMAS D'ARCY M'GEE, the Irish statesman who first proposed the federation of the Canadian States:—

Long, long ago, beyond the misty space
Of twice a thousand years,
In Erin old there dwelt a mighty race
Taller than Roman spears;
Like oaks and towers they had a giant grace,
Were fleet as deers:
With winds and waves they made their bidding-place,
The Western shepherd seers.

Their ocean-god was *Manannan MacLir*,
Whose angry lips
In their white foam full often would inter
Whole fleets of ships:
Crom was their day-god, and their thunderer
Made morning and eclipse:
Bride was their queen of song, and unto her
They prayed with fire-touch'd lips.

If a few passages relating to MANANNAN MACLIR which are to be found in ancient writings were quoted at the trial, Mr. Justice FARWELL might have taken another view of the case. As to his lordship's doubts about the want of records of the custom to present votive offerings to the sea-god, that also can be explained. All our readers are doubtless aware of the controversy which at one time took place concerning the "Poems of Ossian," which were introduced in an English form by JAMES MACPHERSON. Without entering into the question, we may say that OSSIAN, whose poems, it may be mentioned, were much admired by NAPOLEON and are recommended to modern transcendental students by EMERSON, was not a Scotsman but an Irishman, his right name being OISIN. BURKE told HUME, the historian, that the Irish people were acquainted with the poems although in a somewhat different version. There is

no doubt the poems are based on some antique legends, if not faithfully translated from them. Dr. HUGH BLAIR, who was then Professor of Rhetoric in Edinburgh, investigated them on a plan which was sketched out for him by DAVID HUME. Now, one of the peculiarities which struck Dr. BLAIR was the absence of everything suggestive of religious ceremonies. As he points out:—

The invocation of a Supreme Being, or at least of some superior Powers who are conceived as presiding over human affairs, the solemnities of religious worship, prayers preferred and assistance implored on critical occasions, appear with great dignity in the works of almost all poets as chief ornaments of their compositions. The absence of all such religious ideas from Ossian's poetry is a sensible blank in it; the more to be regretted, as we can easily imagine what an illustrious figure they would have made under the management of such a genius as his, and how finely they would have been adapted to many situations which occur in his works.

It is possible that the poems held a mirror up to nature in that respect. There was a period of transition when the old Pagan beliefs seemed to become less worthy of acceptance, while the new Christian creed, which imposed the supposition of the perdition of ancestors and an abstinence from all that helped to make life worth living, was looked upon with aversion. The doubts are expressed in the very ancient Irish poem in which the unconverted OISIN in a conversation with PATRICK, the missionary, asks:—

Where now are the royal gifts of gold,
The flowing robe with its satin fold,
And the heart-delighting bowl?
Where now the feast and the revel high,
And the jocund dance and sweet minstrelsy,
And the steed loud-neighing in the morn,
With the music sweet of hound and horn,
And well-armed guards of coast and bay?
All, all like a dream have passed away;
And now we have clerks with their holy quails,
And books and bells and eternal psalms,
And fasting—that waster gaunt and grim,
That strips of all beauty both body and limb.

In the interval, as it were, between Paganism and Christianity there probably would be a silence about rites and ceremonies which were still continued to be practised. There yet prevails along the coast line in Ireland more terror of the sea than is usual with islanders, and this may be one of the consequences of hereditary influences. In our enlightened days votive offerings on the part of those who have to go down to the sea in ships are not unknown. We are doubtful whether the gold ornaments which were brought into Mr. Justice FARWELL's court were ever used for that purpose, but they were not ill-adapted to serve on an occasion when destruction by wave-power seemed inevitable. At any time between 300 B.C. and 500 A.D. at least, the casting of them into the waters would not be considered ridiculous.

The question of the origin of the ornaments may here be raised. Mr. Justice FARWELL attached much importance to the record of an incursion of Norsemen about A.D. 850, when the objects, he believed, were likely to be concealed. We hear a great deal concerning similar invasions of Ireland, but it is overlooked that often they were only acts of retaliation. The Irish kings or princes must have found it monotonous to rob their neighbours and to be robbed by them. Occasionally they varied the sport by more distant raids. When victorious they brought back spoils of which the value was long remembered. There are numerous references to them by the old historians. In the Annals of the Four Masters it is recorded as an event of 90 A.D. that—

Criomthan Nia-nair, sixteen years monarch of Ireland, died after his illustrious foreign expedition. It was from that expedition he brought home the noble spoils: the golden chariot, the golden chess-board studded with three hundred sparkling gems, and the *ceth-criomtham*, which was a parti-coloured shirt, interwoven with gold. He also brought with him a battle-giving sword, having various figures of serpents engraved upon it and inlaid with gold; a shield embossed with bright silver; a spear which gave an incurable wound; a sling from which no erring cast could be thrown; two hounds linked together by a chain of silver, together with many other valuable rarities.

The descriptions often recall the "Arabian Nights," but historians at all times claim the privilege of exaggeration. What is certain is that works in the precious metals found their way from other lands to Ireland. The Irish marauders did not always restrict their attacks to Denmark and Norway. NIALL of the Nine Hostages died at Liège, and his nephew and successor, DATHIE, was killed by lightning at the foot of the Alps. It is therefore easy to explain how objects have been brought to light in Ireland which cannot be considered as of purely Celtic workmanship. One of those which it was sought to remove from the British Museum is a boat. It is doubtful whether a boat was an accepted model by Irish goldsmiths, but from a very early date boats seem to have been commonly represented in various materials in Denmark. In some instances we see them alone, while in others they are associated with sea-serpents or similar enemies. It is therefore possible the boat in question was by a Danish artist, and the chains, collars and brooches may also have been of foreign workmanship. If that is the case there is no reason why Ireland should be allowed to monopolise them.

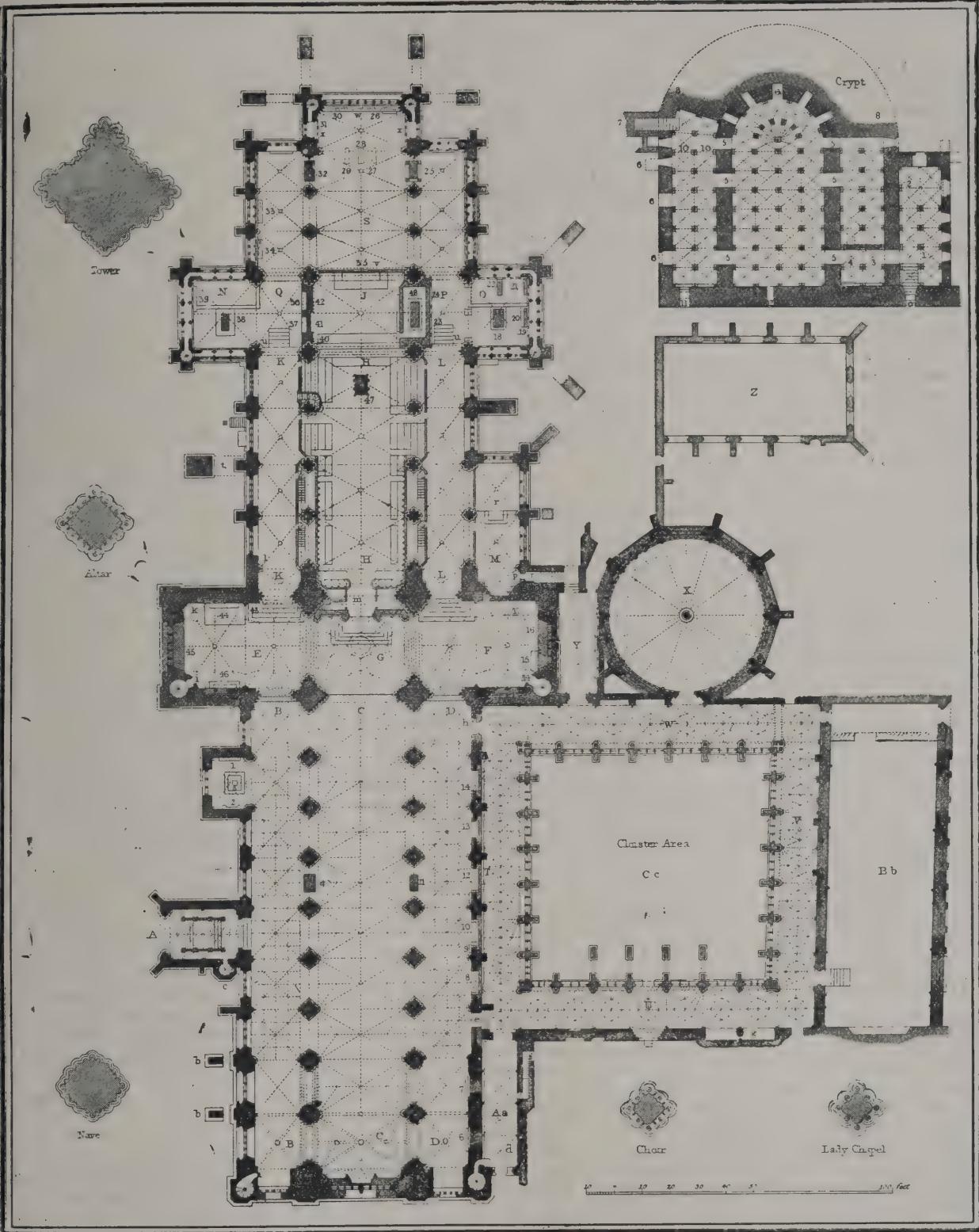
In the various articles which have appeared in this Journal concerning the ornaments since they came to England we have taken that view. England, Ireland and Scotland should be considered as one country, of which the principal museum is in Bloomsbury. There may be advantages in having examples of ancient workmanship in Dublin or Edinburgh when they are likely to be local products. But in the majority of cases the British Museum is the most fitting receptacle. It is not so much a local museum as a cosmopolitan one. Students from every country go there, and the collections should be equal to all requirements. From what was said in Court by Mr. Justice FARWELL, by counsel and witnesses, it must be plain that the gold ornaments are puzzles to acute minds, and present problems which have yet to be solved. They are likely to receive far more attention in London than in Dublin. The recent discussions and investigations in connection with the tiara of SAÏTAPHERNES are enough to show that in the case of antique work it is often well to obtain information from remote places; and properly used the ornaments found in the field near Limavady may be the means of opening out a new chapter in archæology, and of giving a fresh impulse to the study of Celtic and northern art. In Dublin, where there is an excess of goldsmiths' work, they are likely to strengthen the delusion about the wealth of Ireland in the ages before the English arrival.

A NATIONAL WELSH MUSEUM.

A COMMITTEE of members of Parliament representing Wales have been considering the subject of a Welsh national museum. They have arrived at the following conclusions:—It may be decided: (1) To promote the creation of a museum similar in type to the British Museum; or (2) to promote a museum the funds and property of which may be equitably distributed between the national college centres of the principality. If the former course be taken it will involve—(1) The obtaining of a charter of incorporation, which would provide for the creation of a governing body and executive committee; (2) the selection of a site for the proposed building; (3) the purchase of the site and the erection of a building of adequate dimensions; (4) the appointment of a permanent staff of officers and servants. The selection of a site is, in the present state of Welsh feeling, a matter of difficulty, but experience shows that it is not insurmountable. The choice might be left—(a) to a committee of the Privy Council—the course taken in regard to the national colleges; (b) the University Court; or (c) a body of representative men elected in proportion to the population of each county by the Welsh county councils. If it be decided that it is expedient to take the second course suggested, it could be effected by a charter constituting a Welsh museum with a governing body with power to distribute either the available funds or the objects and books purchased or given to the museum among the national college centres, according to a defined and equitable scheme for museum purposes. It is not considered necessary at present to go into the details of any such project. The next step recommended to be taken is to convene a meeting between the Welsh members of Parliament and representatives of the University Court, the national colleges, the central board and the Welsh county councils.



NO. 451.—CATHEDRAL SERIES: WORCESTER.—TRIFORIUM WEST END OF NAVE.



No. 452.—WORCESTER CATHEDRAL.
GROUND PLAN, SITES OF MONUMENTS, &c.

- ▲ North Porch.

BB North Aisle of the Nave.

CC Nave.

DD South Aisle of the Nave.

E North Wing of Western Transept.

F South Wing of Western Transept.

G Plan of the Tower.

HH Choir.

KK North Aisle of the Choir.

LL South Aisle of the Choir.

M Vestry.

N North Wing of the Eastern Transept.

O South Wing of the Eastern Transept.

P and Q Aisles to the Lady Chapel.

T, U, v and w Cloisters.

X The Chapter-House.

Y Arched Passage to the Deanery.

Z The Guesten Hall.

Aa Arched Passage from the Prebendal Houses to the Cloister.

bb Buttresses detached from the Walls.

c Stairs to a Room over the Porch.

d Stairs at S.W. angle of the Church.

e Doorway from the South Aisle of Nave to the Cloister.

f Staircase to Apartments over Passage Aa.

g Lavatory in the Cloister.

h Doorway from South Aisle of Nave to the Cloister.

i Staircase at N.W. angle of the Transept.

k Archway.

l A Bay Window projecting from the Wall.

m Organ Screen.

o Doorway and Stairs to the Crypt.

p Archway in the Vestry.

q Stairs to a Room over a Passage, v.

r Chantry Chapel.

s Stairs to the Crypt from the outside.

tt Flying Buttresses.

uu Steps from the Aisles of the Choir to the Lady Chapel.

v Altar Screen.

w Site of the Altar to the Virgin Mary.

NOTES AND COMMENTS.

AFTER long waiting there is at last a memorial of CHARLES GARNIER in Paris. Placed beside his opera-house it may seem to be supererogatory. But it can be considered as an inscribed plaque on a large scale which is adorned by sculpture. Hereafter the New Zealander or the visitor from Central Africa when he journeys to Paris will be able to identify the name and appearance of the designer of the gorgeous theatre. The red granite of Scotland and the blue granite of Corsica have been united in the masonry. The figures of Labour and Posterity were modelled by M. THOMAS, a comrade of CHARLES GARNIER in Rome. The bust of the architect has been reproduced from a model by CARPEAUX, whose group of dancers imparted unnecessary notoriety to the building. All the work was carried out under the direction of M. PASCAL, who has had a share in the construction of the building. There were five addresses. M. CHARLES NORMAND read his father's discourse; M. MOYAUX spoke as representative of the Société Centrale des Architectes, M. PASCAL as an associate of GARNIER; M. LARROUMET gave a set oration, and M. CHAUMIÉ, as Minister of Fine Arts, testified to the admiration of France, and he might have added of other countries, for the architect. M^{me}. GARNIER expressed her appreciation in a few words and the interesting ceremony was over.

M. LÉON BONNAT on Saturday entered on the three-score-and-ten period of human life, and all lovers of painting will wish that his days may still be long in the land. Among French portraitists he holds the foremost place. In any exhibition his heads are easily recognised from their strong relief. It might be said he models rather than paints, for none of his countrymen have displayed work so massive as to recall VELASQUEZ. The art is well concealed and many people suppose his portraits are produced without much trouble, which it is needless to explain is a mistake. His reputation as a portrait painter is comparatively recent. Thirty or forty years ago he was not much known. One of the reasons was that BONNAT was trying his hand, and to some extent succeeding, in other forms of art. A native of Bayonne, he spent his youth in Madrid, where he could hardly escape the influence of VELASQUEZ. He obtained an allowance of 60% a year from Bayonne, went to Paris and studied with LÉON COGNIET, whose portrait many hold to be M. BONNAT's masterpiece. Although he failed to gain the great prize, he went to Rome. Then he had a turn in the East, and after meeting with varying success in high art and genre, about five-and-twenty years ago he startled the public with his portraits. He has not been spoiled by success and he continues to study as if he still had a career to make.

FOR a long time difficulties have been arising in the metropolitan police courts in endeavouring to discriminate between drains and sewers. Sooner or later all drains are supposed to be connected with sewers, but the question arises whereabouts in the length of the drain does the responsibility of the owner of the house or houses drained come to an end and that of the local authority commence. Recently the owner of two houses in Fulham was threatened with proceedings in the Courts by the Council for some irregularity. He carried out the works ordered and then sought to recover the money in the Courts. His two houses formed one block, and had a gutter running along under the eaves, which carried a portion of the rain-water from the roofs of both houses into a down pipe, into which also flowed the slops and bath-water of one of the houses. The down pipe discharged into a gully, and from thence into the pipe in question, which communicated with a main sewer. Mr. Justice WRIGHT held that the pipe was a sewer, and gave judgment for the plaintiff. The Fulham Council brought the case before the Court of Appeal. But their Lordships, without calling on counsel for the plaintiff, dismissed the appeal. The effect of that dismissal is calculated to increase the taxes on the ratepayers in the Metropolis by a halfpenny in the pound. It is no wonder therefore that representatives of twenty-one metropolitan borough councils waited on the President of the Local Government Board, asking that the Government should deal with the subject. Mr. LONG admitted that the

question did not affect merely the local authority and the private owner, but it might seriously interfere with public improvements. Certainly in regard to a sewer which a local authority had to maintain they ought to be masters, both as to the situation of the sewer, its construction, and everything connected with it before they should be called upon to be responsible for it, and much less to be responsible for its maintenance. That was a very serious difficulty, and it could be only remedied by the intervention of the Government. In conclusion, the President said he fully accepted the situation, and asked the deputation to be content with his assurance that he would give to the solution of the matter his most careful and earnest consideration. What is desired is a clearer definition of the difference between a drain and a sewer, for by the late decision eaves-gutters might be considered as sewers.

WHAT can be done by a firm local authority has been exemplified in Birmingham. The city is not so wealthy as others in the provinces, and economy in all public undertakings is therefore a necessity. Birmingham has still slums and unhealthy houses, and it was indicated that some of them would have to be dealt with as a condemned area. A week or two back we mentioned how it was stated in Portsmouth that improvements could only be accomplished by paying six times the value of the property demolished. A commercial transaction of that kind would be impossible in Birmingham. The value of the property would be accurately determined, and an exorbitant price would not be obtainable. The owners of the threatened property must have a misgiving that they might be losers instead of gainers through the improvement, and they have endeavoured to evade the day of reckoning by patching up their property. The housing committee, under the guidance of Mr. NETTLEFOLD, lately visited about one hundred houses in the objectionable area. We are told that the extent of the repairs was in most cases very evident, amounting often to practical rebuilding; roofs are stripped, ceilings taken out and replaced, privies removed and w.c.'s substituted, damp courses put in, the floors laid with 3 inches of concrete, and so on. In one yard alone the owner is spending as much as 850%, in another 320%, while the expenditure on individual houses ranges from 8% to 25%, where the changes do not extend to actual reconstruction. A very great improvement was manifest in some cases where houses have been demolished to make an opening to the street. The housing committee members and the Lord Mayor frequently gave expression to their satisfaction with the work done. Another gratifying feature is the wholesome effect upon the householders themselves, the cleanliness of the surroundings and furniture suggesting that the housewives were endeavouring to co-operate with the landlords in the general improvement. There is another side to the undertaking—the rents have been increased. But it is better that the tenant should pay from 3d. to 1s. extra for better accommodation than that Birmingham should be saddled with the cost of an improvement of a partial kind.

IN addition to the medals which are awarded in the Salon, prizes are offered for the benefit of young artists. The Minister of Fine Arts presided at the last selection of candidates. The Prix National has this year been awarded to M. ALBERT GUILLOUX for a group in plaster, *The Ghoul*, and a marble group of *Eve Finding the Body of Abel*. Both works have been purchased by the State. The two travelling "bourses" for architects have been awarded to M. GASTON MUNIER, who has exhibited a view of the Temple of Philæ, and to M. GASTON RAPIN for a study of the church and cloister of the old Abbey of Cadouin (Dordogne). The successful painters have been MM. AVY, GRAVE and MICHEL BENNER. The studentships in sculpture have been won by MM. ANTOINE BOURLANGE and ALIX MARQUET; and in engraving to M. C. F. BOURGEAT.

ILLUSTRATIONS.

THE MASTERS OF ART: POETS AND COMPOSERS.

CATHEDRAL SERIES: WORCESTER.—NORTH CLOISTER.
THE CHAPTER-HOUSE. SOUTH DOOR IN CLOISTERS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Institute of Architects was held on Monday evening last, Mr. Aston Webb, R A., president, in the chair.

Mr. ALEXANDER GRAHAM, hon. secretary, announced the decease of Mr. Edward Woods, the oldest railway engineer in the country. He was born in 1814 and elected President of the Institute of Civil Engineers in 1886. He had been connected with the Institute of Architects since 1877, when he was elected an honorary associate. The decease of Mr. Robert Walker, who was elected a fellow in 1893, was also announced, and a vote of condolence and sympathy with the relatives of the two late members was passed.

Presentation of the Royal Gold Medal.

The PRESIDENT said:—As you all know, we are met together to-night to present the Royal Gold Medal for the promotion of architecture, annually given by His Majesty the King to "some distinguished architect or man of science or letters who has designed or executed a building of high merit, or produced a work tending to promote or facilitate the knowledge of architecture or the various branches of science connected therewith." The mode of selection is that a name is brought forward by the Council and submitted to the general body of members of this Institute, after which it is submitted to the King for his gracious approval. Amongst those to whom the medal has been awarded, and who are now no longer amongst us, are Professor Cockerell, the first recipient in 1848, Sir Charles Barry, Owen Jones, Sir Gilbert Scott, Viollet-le-Duc, Sir James Pennethorne, George Edmund Street, John Pearson, Baron von Ferstel, F. C. Penrose, H. Schliemann, Charles Garnier, Baron von Hansen, R. M. Hunt, Lord Leighton. In selecting a recipient for this honour it has almost become an unwritten rule to select in rotation an English architect, a foreign architect and a literary man with architectural instincts. This year we have somewhat departed from this rule, and, as you know, our Institute has selected, with the full approval of His Majesty the King, Mr. Charles Follen McKim, of New York, and Mr. McKim has returned us the compliment by crossing the Atlantic especially to receive the medal in person to-night; and here he is, I am glad to say, safe and sound with us this evening, and very heartily we all welcome him. I have said that in selecting Mr. McKim we have somewhat departed from our rule, for we cannot claim him as an English architect, we have not selected him for his literary attainments, and least of all can we consider him as a foreign architect. No, we have selected him as a highly distinguished American architect, a very near relation of ours and a representative man, in order that we may show to him personally and to the whole world of American artists our high appreciation and admiration of the great work that marvellous country is doing on the other side of the world, an appreciation not only of what they are doing, but also of what we expect them to do untrammelled by traditions, full of youth, energy, imagination and initiative, and supported by almost boundless resources; and [we] are confident that as time goes on they will not only develop fresh types and plans of buildings, but that they will, though still mindful of the past, clothe those buildings in a language that will be distinctly their own. As I have already said, this selection has met with the full approval of His Majesty the King; and I venture to hope the presence here to-night of the Ambassador himself from the American people to our Court may be taken as setting the American seal on this selection of ours also. And now I must introduce you to Mr. McKim a little more in detail, in order that not only those present, but also those who read these proceedings may fully understand our choice. I may say my facts may be depended upon, for I have received them from the best authority—Mr. McKim himself. He was born in Chester Co., Pennsylvania, fifty-six years ago, and at eighteen entered Harvard University with a view to becoming a mining engineer. A year later, finding the work uncongenial, he entered the office of Mr. Russell Sturgis, architect, of New York, and in the autumn of the same year the atelier Daumet in Paris, where he was prepared for, and admitted to, the Ecole des Beaux-Arts, remaining till the outbreak of the war some three years later. During this time Mr. McKim also travelled in Europe, and visited England in 1869, where, he tells me, through the kindness of Mr. Phenè Spiers, Mr. Florence and others, he was able to make profitable use of his time, as far as cricket matches would permit. He also was made an honorary member of the Architectural Association. Returning to New York in 1870, Mr. McKim entered the office of the well-known architect, H. H. Richardson, and in 1872, at the age of twenty-five, commenced practice on his own account, being joined in 1877 by Mr. Wm. Rutherford Mead, and in 1879 by Mr. Stanford White, and since that time they have continued their practice as McKim, Mead & White. In 1887 they were appointed architects to the new public library of the city of Boston, now a famous building. In 1889 two fellowships in the

School of Architecture, Columbia University, known as the McKim fellowships, were established; in 1891 made a member of commission of ten architects from throughout the United States to design the World's Columbian Exhibition at Chicago; in 1894 appointed architect to the new Capitol building of the State of Rhode Island; in 1897 the American Academy of Architecture in Rome was incorporated under the laws of the State of New York and Mr. McKim was made president; in 1899 he was elected a member of the Academy of San Luca, and in the same year was appointed to serve as a member of the first Municipal Art Commission of the city of New York; in 1901 Mr. McKim was appointed a member of the park commission for the improvement of the park system of the district of Columbia, and assisted in drawing up the magnificent scheme, photos of which are exhibited here to-night. Here is to be an avenue 1,600 feet wide and 1½ mile long architecturally treated at various points, with great public buildings incorporated in the scheme. The cost is put at some three to four millions, some half of which has already been voted. A Bill has also passed Congress for locating the memorial. Mr. McKim was elected president of the American Institute of Architects in 1901 and re-elected in 1902, and in the same year appointed by President Roosevelt to restore the White House and also as architect for the new Army War College. Of the buildings erected some idea may be gained from the splendid series of photographs and drawings Mr. McKim has kindly shown us here to-night. He seems equally at home with a palace or a bungalow, with a university or a railway station, with laying-out a great park scheme or arranging a charming little formal garden. In all I think you will find true artistic feeling, nobility of plan, breadth of treatment, absence of unnecessary or meretricious ornament and a suitability of purpose. The style, based largely on Italian examples, shows the influence of French training, and while founded on traditional lines appears to me to show just that amount of individuality required, and without which the best work must be dull and uninteresting. Then, again, Mr. McKim has set all us architects an example by the opportunities he has given to painters and sculptors to further adorn his works. The decorations of the Boston Library by Mr. E. A. Abbey, who I am glad to say is here to-night, and by Mr. Sargent, who would have liked to have been here but is still abroad, is a case in point, and are well illustrated by photographs here to-night. And now, Mr. McKim, it only remains for me to present you with this medal as an English token of our admiration and esteem of yourself and your colleagues. May you long live to still further adorn your country with your works.

Mr. McKIM, in response, said:—I am no speaker, and if I were it would be quite beyond me to adequately express to you my appreciation and deep sense of obligation to His Gracious Majesty King Edward and to the members of this Royal Institute of British Architects. The broad philanthropy which created this medal, not alone for British subjects, but that it might help and encourage the successful development of the art of architecture in other countries, was characteristic of the most gracious Queen whose memory we, next to you, hold in veneration. That it should have a second time within a single decade come to our shores is indeed cause for felicitation, since it attests, in lasting form, the progress and achievement your eminent body has been pleased to recognise in the work of your younger colleagues in America. The medal which you do me the high honour to bestow on me may be given in virtue of my accidental Presidency of the American Institute, but is, I feel, to be regarded in a far larger sense than as a personal recognition of the ties which unite the builder's art on both sides of the Atlantic. As a spur and incentive, and as a token of the friendship and respect that for many years have been growing up between our two bodies, I accept with grateful pride this medal, tendered as to my countrymen by the Royal Institute. I accept it for the whole profession in the United States, and I accept it for my associates of twenty-five years, to whom I owe everything. As the bearer of many messages from across the seas, I cannot let such an occasion as this pass by without at least briefly advert to the ties which have united us in the past, and which must render the development of our future of something more than passing interest to you. I will add also a word concerning recent events on our side of the water. The early buildings of the New England coast, dating back to the eighteenth century, and more rarely to the seventeenth, from the once vice-regal town of Portsmouth to Charleston, S.C., have happily descended to us, despite political revolutions. Notwithstanding their simpler forms, both of construction and design, made necessary by slender means and the circumstances of transplantation, they still reflect the mother country in their excellence of construction as well as sound and correct taste. Precisely the most interesting, and in their sphere the most admirable, architectural monuments of my native land, private dwellings and public buildings alike, are those that most strongly recall their English prototypes. Our obligations, for instance, to Sir Christopher Wren are very imperfectly understood even at home, yet the

cities of the Atlantic seaboard, especially in New England, abound in examples showing the influence of his school. The struggle of these landmarks for existence in the advancing tide of commercial prosperity before which they are gradually being swept away, is a melancholy daily spectacle. Not alone deplorable in the loss of historic monuments, but for the lessons they invariably teach of sound proportion, simplicity and good manners. Happily some of the best examples remain to us. At the seat of Government, for instance, our Capitol, and the home of the President, the White House, are both singularly animated by a pure taste and devoted love of beauty, not to mention the City Hall and the old Department buildings of the city of Washington. Of these, for our information at home, as well as yours, let us gratefully acknowledge that the Capitol, though enlarged and changed since, was originally designed by one William Thornton, the White House by a certain James Hoban, while the City Hall and old Department buildings were the creation of a man of the name of Hadfield—all Englishmen. I can well remember the thrill of surprise and pleasure which I experienced on my first visit to England, more than thirty years ago, in the discovery of a strange familiarity in the appearance of things, and in the sense of not being after all so far from home. Though I did not understand it then, the reason, as has been shown, was not far to seek. I will venture to refer to one more building, of the era which we call early and you ingloriously late, albeit of the period of Adam—the Octagon. Our Institute, which has urged upon Governments—national, state and municipal—the duty of preserving historic monuments, has itself recently secured possession of one of the historic houses of America, known from its shape as the Octagon, and designed by the same William Thornton, architect of the Capitol. Here in the early days was dispensed a liberal hospitality by President Madison, whose home it was. Under its roof, too, the Treaty of Ghent was signed. The house was finished in a manner befitting its importance, and to-day is in an excellent state of preservation. Thus the expressed desire and often recurring efforts of the Institute to secure for itself a permanent home has been accomplished after nearly half a century of existence. May it typify to those who assemble in it, as well as to the people of the city of Washington, the spirit of public service. The Institute has ample reason for felicitation in both the increase and betterment of our own schools of architecture, in Harvard, Columbia, Penna, Cornell and Chicago universities, as well as in the admirable and still older foundation of the Institute of Technology in Boston. The movement to endow an American Academy of Fine Arts in Rome on the general lines of the French Academy in the Villa Médicis is not new. Till now dependent for support upon the insufficient means at the command of the incorporators (members of the Institute), the number of scholars has of necessity been small, and the conveniences for work not such as would be afforded by an older, well-equipped and well-endowed institution. Nevertheless, in spite of its vicissitudes, such has been the quality of the work and men turned out, so strong the conviction of those most deeply interested in the need for an institution offering a post-graduate course intended only for those who shall be already technically well equipped, that a Bill for the incorporation of the American Academy in Rome by Act of Congress, and asking the protection of the United States Government, was introduced in 1901 by the late Senator McMillan. The persons named as incorporators, besides the leading architects, painters and sculptors, include the great universities and technical schools, represented by their presidents, the Secretaries of State and War, the Librarian of Congress, the Government architect, and a considerable number of names of men chosen from the community at large known for their interest in art and art education. This Bill passed the Senate, and was favourably reported to the House, but owing to the legislative conditions prevailing in the latter body during the closing weeks of the session, it failed to become law. I am happy to say that it will be reintroduced in the coming fifty-eighth Congress, and is considered to have every prospect of success. Indeed, we seem to be living in a new age, not only in our private enterprises, but in our relations with the Government. It was no small thing that a committee of the United States Senate, under the leadership of the deeply mourned Senator McMillan, called into consultation, officially, the Institute and accepted the advice of its committee in the formation of a commission to prepare plans for the improvement of the park system of the district of Columbia, including the location of public buildings. Following this lead have come frequent requests from Government officials on the various and often perplexing problems of their departments, so that, informally and unofficially, there has come to pass a seeking for expert advice as gratifying as it has been unusual. The forces which have brought about plans for the improvement of the National Capital are acting throughout the land. Not only in the Atlantic seaboard city of New York and the cities of the lake region like Buffalo, Cleveland and St. Paul, but even from far-away Seattle, on the Pacific coast, comes

the news of attempts to treat the city as a unit and to develop a municipality as a consistent work of art. It is worthy of note also that as the star of progress takes its western way, the effort at improvement is made with increasing vigour in both enthusiasm and money. As evidence of the times, and amongst the measures voted by the last (fifty-seventh) Congress for new buildings to be erected within the district of Columbia alone, I will quote the substance of a single paragraph from the Report of the Senate Commission of the District of Columbia, dated March 14, 1903:—"The fifty-seventh Congress, besides the restoration of the White House, authorised the construction of the Army War College and the Engineer School of Application; a building for the National Museum; the Union Railroad station; (an office) building for the use of the members of the House of Representatives; a municipal building for the district of Columbia, and a Hall of Records. The cost of these buildings completed will approximate not less than fifteen millions of dollars, or over three millions sterling." I cannot close even these brief remarks without an expression of appreciation for one whom your eminent body so recently did honour. After nearly half a century of successful endeavour, during which Mr. Hunt held aloft the banner and fought the battles of the Institute, and in the fullness of his powers, at a time when his influence was greatest, he was suddenly taken away. Ladies and gentlemen, I have to thank you for the great patience and forbearance with which you have listened to these fragmentary remarks that but poorly express my appreciation of the great honour which you have seen fit to confer upon me.

Mr. CHOATE (American Ambassador) in congratulating Mr. McKim, said he spoke in a threefold capacity. Firstly, as a personal friend; secondly, as a Harvard man representing the university who was so proud of Mr. McKim; and thirdly, as the official representative of his country who shared with the architect the lasting honour conferred upon him. In speaking before a body of professional men his Excellency said he understood the difficulties of a layman, but he believed he could make a few remarks without coming into conflict with technical criticism. It was his good fortune to have known Mr. McKim from boyhood, and it was no exaggeration of the esteem of the architect's friends and fellow countrymen in view of his whole souled devotion to the art which he pursued, and of his enthusiasm from the beginning for the profession he had so highly honoured, to say that they all expected thirty years ago that he would be the recipient of some of the highest honours, not only of his own countrymen, but also from his professional brethren throughout the world. As a Harvard man he rejoiced in being present at the English recognition of his countryman's merit. This pride of the university could be understood, because Harvard bore the same relation to American life as a training at Oxford did to that of Great Britain. Harvard was proud of her son whom they had honoured that night. She had already conferred upon him one of her honorary degrees, and it was believed that one day she would confer upon him the highest degree known to her records. As a representative of his countrymen he had no hesitation in saying that if the bestowal of the gold medal had been left to the vote, and the whole American people had been asked who among her distinguished sons was most worthy of the honour, by a practically unanimous vote they would have selected Mr. McKim, and if they had called for the vote of Congress as representing the power and judgment of the whole community, they too would have selected him, because with their approval he had been associated with nine others to form a commission, and had taken an important part in the presidential commission—corresponding to a Royal commission here—regarding the restoration, the laying out and the development of the city of Washington upon the lines and according to the plans, that received the approval of the father of his country, George Washington, more than a hundred years ago. It was thought fit a few years ago to select a body of architects to see if the plan of George Washington could not be brought into effect, and it was owing to the genius of Mr. McKim and his associates on that commission that the movement was successful, which had resulted in a complete restoration, both of the palace itself and of the city, of which they were proud. Moreover, if the choice had been left to President Roosevelt in place of the King, he felt sure that on account of his lifelong friendship and his hearty sympathy with Mr. McKim's success, the President would have joined in the approval of the selection. Their republican palace, the White House, so beautifully simple and wholly unambitious, did not venture to compete with the magnificent palaces of the old world, but notwithstanding this it was venerated by every ingenious true-born American, and every American boy was taught to regard it as his ultimate home. It was also his good fortune to know Richard M. Hunt, whom the Institute honoured ten years ago in the same way, and he thought he might say that in the immense development of their art which had taken place in the United States during the last thirty years both those gentlemen were entitled to a very great

share of the credit of that development. In all quarters of the realm, from Boston to Seattle, on the shores of the Pacific, the advancement was apparent, and buildings were remarkable both for their beauty as for their utility. After the Civil War was over, and it was at last established that the United States was to be a nation, one and inseparable, for ever, there grew up throughout the length and breadth of the land an ambition to improve and adorn the buildings, both public and private, to make them worthy of the wealth and powers, as well as of the municipalities, of the country. This was the universal sentiment, and the result was that America had been, and was now, and was likely to be in the future, a perfect paradise for architects. The attractions of such a paradise were great, and there had not only grown up a school of architecture, but a great many schools of architects connected with the leading universities of the United States, and they were sending forth every year large numbers of young men highly qualified for the pursuit of this profession. These young men were following in the footsteps of Hunt and McKim, on whom the Royal Institute had conferred this highly honourable and distinguished medal, and if he was not mistaken the result would be that in future years they would have added to their fraternity of architects—for he considered the profession were one great fraternity throughout the world—a noble contribution from the United States, of whom he believed, as of the recipient of the gold medal, they would have great reason to be proud.

Sir L. ALMA-TADEMA, R.A., expressed his admiration for American art, and said that at the Academy they welcomed American works, and they felt there was a feeling of kinship. He had been reproached for not visiting America. His only excuse was that he could not do everything, but he always regretted he was not better acquainted with his many friends on the other side. He believed that no one could write a true history of the art of the century without going to America.

Mr. E. A. ABBEY, R.A., spoke and bore testimony to the great part Mr. McKim had taken in the development of modern architecture, making special reference to the great scheme of the American School in Rome. It was the beginning of a sort of new renaissance—a wedding, so to speak, of the three arts of architecture, painting and sculpture, which had been separated too long. To this school, which added so much to the fame of Mr. McKim in Rome, he hoped to see English students going as to a Mecca or university of the combined arts.

In response to the President's request and invitation, Mr. McKim said he would be glad to be associated with the Institute, and would be happy to become an honorary corresponding member.

PALESTINE EXPLORATION.

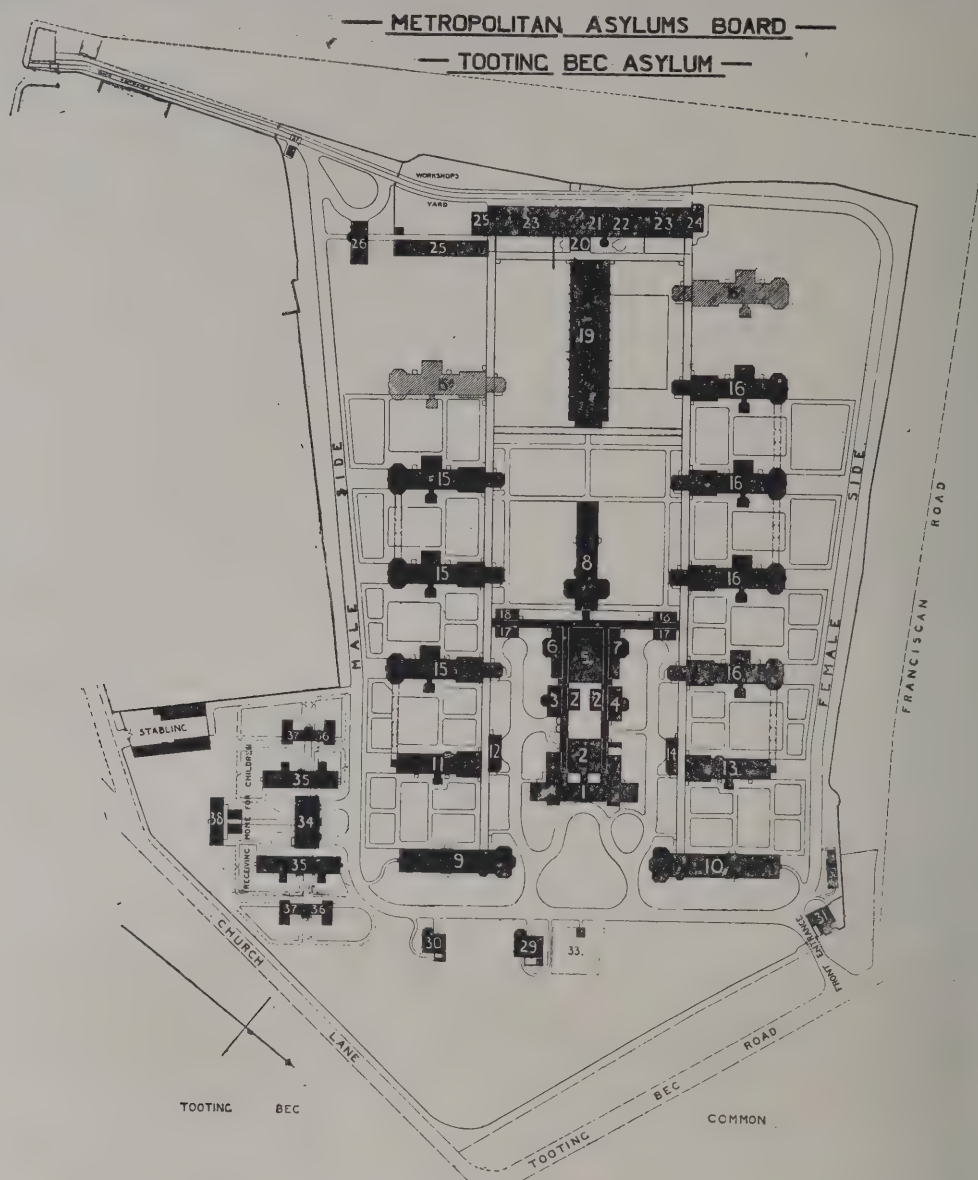
THE annual report of the Palestine Exploration Fund states that the principal work of the Fund during 1902 was the partial excavation of Gezer. Mr. Macalister was not able to begin operations until June 14, and in November he was obliged to retire to Jerusalem, in consequence of the outbreak of cholera in the surrounding villages and among his own working parties. He was thus actively employed at Gezer for five months only. The result of the excavations, thus far, had been to show that there are at Gezer seven strata of remains, which carry back the history of the site to the remotest antiquity. In some instances the objects found indicate a continuous history, whilst in others they as clearly show that the continuity has been interrupted either by the advent of a new race, or by some event of which the nature is not clearly known. The two lowest strata belong to a period (the Neolithic Age) when men used no metal and lived in caves or in houses built of mud brick. The people were of slight build, and were not Semites. They cremated their dead in a cave specially prepared for the purpose, and their bones, reduced to ash, or only blackened, were found exactly as they had been left after cremation. From these strata were obtained stone implements, objects in bone, fragments of primitive hand-made pottery, and a few rudely-formed idols in stone. The two next strata supply evidence of the occupation of the site by Semites, who were stronger and larger boned than their predecessors, and were more advanced in the scale of civilisation. They lived in houses with rude walls of mud and stone, and protected them with strong well-built walls of stone. They buried their dead within the walls, either singly or in groups, and for this purpose they utilised the above-mentioned crematorium and a cistern of the cave-dwellers. In the crematorium the remains and the food-vessels deposited with them were found untouched, and in the cistern exceptionally fine bronze weapons had been buried with the bodies. Professor Macalister was fortunately staying with his son when the crematorium and cistern were excavated, and to him the committee were indebted for reports on the bones which were uncovered, and on the physical characteristics of the two races to which they belonged. A large number of objects of the most varied kind was found in the two strata; part of an

inscribed statue, scarabs and impressions of scarab seals of the Egyptian Middle Empire (about B.C. 2500-1500), flint and bronze implements and weapons, fragments of pottery and broken idols in stone and clay. The most characteristic of the pottery types are common to Gezer and Lachish, and almost unknown in the sites lately excavated by the Fund in the Shephelah. In the higher portion of the strata the pottery has been influenced by Ægean styles. The most interesting discovery in connection with these strata is that of a "High Place," which, as far as it has been excavated, consists of a row of eight monoliths standing upright on a stone platform within a walled enclosure open to the air. In the earth beneath the floor of the enclosure a number of large earthenware jars, each containing the remains of a newly born infant, were discovered, and Mr. Macalister makes the suggestion that "we have here to deal with infant sacrifices." The fifth stratum from the bottom supplies evidence of a break in the continuity of the occupation, which apparently coincides with the immigration of the Israelites. Iron appears for the first time, the open area of the "High Place" is encroached upon by dwelling-houses, and the debris is characterised by those lamp and bowl deposits under the foundations of buildings which Mr. Macalister suggests may be connected with some ceremonial custom peculiar to the Hebrews. The next stratum in ascending order may with certainty be assigned to the period of the Jewish monarchy, for it contains the well-known jar handles with "Royal stamps," bearing the legend "To the King" in old Hebrew characters. The lamp and bowl deposits continue, and the size of the city is reduced. There is evidence that the "High Place" retained much of its sanctity during the greater portion of the periods represented by the fifth and sixth strata, and the large accumulation of nude female figures and objects emblematic of nature worship seems to indicate that the place was then sacred to Astarte. The seventh stratum marks a complete interruption in the history. Flint implements and the lamp and bowl deposits disappear; iron is in common use; the bronze objects are only ornamental, and there is no trace of worship at the "High Place." The masonry of the houses and the pottery types are similar to those found at Tell Sandahannah, in the Seleucid or Ptolemaic town of Marisa, and an Egyptian inscription of the fourth century B.C. was found in the debris. The number of broken or whole objects in flint, stone, bone, bronze, iron and clay which have been unearthed by Mr. Macalister is already greater than has been obtained from any previous excavation, and there is every reason to expect that the remaining portions of the mound will be equally productive.

ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

A SPECIAL general meeting was held at the Institute Rooms, 20 Lincoln Place, Dublin, on the 18th inst., Mr. G. C. Ashlin, president, in the chair. There were also present. Messrs. W. J. Gilliland, C. T. McCarthy, C. A. Owen, J. Kelly Freeman, R. M. Butler, J. F. Gilchrist, J. W. Donnelly, Frederick Hayes, Harry Allberry, A. G. Miller, F. G. Hicks, G. P. Sheridan, C. H. Ashworth, Sir Thomas Drew and Mr. W. Kaye Parry, hon. sec. The adoption of the report of the professional practice committee, addressed to the Council, recommending the passing of qualifying examinations precedent to admission to membership of the Royal Institute of the Architects of Ireland, was moved by Mr. F. G. Hicks, seconded by Mr. G. P. Sheridan, and carried. Mr. W. J. Gilliland moved the following resolution pursuant to his notice of motion:—"That the absence of restriction of the use of the title 'architect' to those properly qualified to use same is a great injustice to architects who are so qualified, and seriously retards the progress of architecture in Great Britain and Ireland; that it is the duty of the Council of the Royal Institute of British Architects, as representing the profession, to make an immediate and serious effort to obtain statutory powers for the purpose of establishing such restriction." The motion was seconded by the hon. secretary, Mr. W. Kaye Parry, and carried unanimously.

The Committee of the Hertford British Hospital at Levallois Perret, Paris, have put into hand the work of rearranging and reinstalling the existing operating theatre, which, constructed some years ago, no longer comprised the necessities required by modern surgery. The room is being entirely remodelled on the lines of other recently constructed operating rooms, and an annexe added for containing the complete installation for sterilising purposes, and for the supply of sterilised water for the hand-washing basins and sinks. The architect is Mr. Arthur Vye-Parminter, an English architect of Paris, official architect to the British Embassy in that city.



REFERENCES.

- | | | | |
|--------------------------------|--|---|------------------------------|
| 1. Offices and Staff Quarters. | 10. Nurses' Block. | 16A. Female Patients' Future Extension. | 24. Disinfector House. |
| 2. Stores. | 11. Males' Probation Block. | 17. Visitors' Rooms. | 25. Workshops. |
| 3. Dispensary. | 12. Males' Receiving Rooms. | 18. Attendants' Rooms. | 26. Mortuary. |
| 4. Needle Room. | 13. Females' Probation Block. | 19. Laundry. | 27. Weighbridge. |
| 5. Kitchen. | 14. Females' Receiving Rooms. | 20. Gas House. | 28. Meter House. |
| 6. Attendants' Mess Rooms. | 15. Male Patients' Blocks. | 21. Boiler House. | 29. Steward's House. |
| 7. Nurses' Mess Rooms. | 15A. Male Patients' Future Extensions. | 22. Dynamo House. | 30. Foreman of Works' House. |
| 8. Domestics' Block. | 16. Female Patients' Blocks. | 23. Coals. | 31. Porter's Lodge. |
| 9. Attendants' Block. | | | 32. Greenhouse. |
| | | | 33. Ram Water Reservoir. |
- RECEIVING HOME FOR CHILDREN.
- | | | | | |
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| 34. Staff. | 35. Imbecile Blocks. | 36. Ringworm. | 37. Ophthalmia. | 38. Isolation Block. |
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TOOTING BEC ASYLUM.

THE Managers have had the matter of this new asylum for aged, helpless and infirm imbeciles and epileptics under consideration since 1892, and in 1894 purchased upwards of 22 acres of land known as the Tooting Lodge Estate, adjoining Tooting Bec Common, at a cost of 27,000*l*. The house, a dilapidated mansion, has been pulled down, but care has been taken to preserve as many of the trees as possible.

The soil is gravel and loam overlying London clay, and there is a rise in the surface from north to south of about 16 feet.

The accompanying small block plan shows the general arrangement of the several buildings. The asylum forms the principal feature with its central group of administrative buildings, male wards to the left and female wards to the right. The entrance is from Tooting Bec Common, but there is a second entrance from Church Lane for bringing in coal and heavy stores and removing refuse, for which purpose a granite tram-road has been laid through the workshop yard to the several coal stores, and a weighbridge fixed. The detached houses in front are for the steward, foreman of works and gate porter. The group of buildings to the left forms the receiving home for children, and further to the left is the stabling with a separate entrance from Church Lane.

The asylum has been designed to afford accommodation for 996 patients, but for the present two blocks have been omitted, reducing the number to 804. Staff accommodation has been provided for 70 men and 105 women.

The infirmary blocks are three-storey buildings, and on each floor there is a dormitory for twenty-four beds, a smaller dormitory for six beds and two single rooms. The dormitories provide for each patient a lineal wall space of 6 feet, a floor area of 72 feet and a cubic space of 936 feet. At the further end of and separated from the main dormitory by a dwarf partition is a large day-room. Each floor is self-contained and separately approached from the staircase. It forms in fact a flat for thirty-two patients. At the entrance end are two single rooms, linen and day clothing-rooms, broom recess, bath-room and ward kitchen, with inspection window overlooking the large ward. The sanitary annexe is near the centre of the east side of the ward and connected by covered bridges with cross ventilation.

The staircases are formed of concrete, with steps 5 feet wide, in short straight flights encircling a brick centre shaft which contains a hand-power lift for raising coals, &c. At the rear ends the blocks are coupled on the first and second floors by means of bridges formed of concrete and steel, which afford a ready means of escape in case of fire and in suitable weather.

serve as ambulatories for the use of patients. On each floor of the staircase is an enclosed recess for the dirty linen basket, opening direct to the external air.

The floors throughout are of concrete and steel construction without voids of any kind, and the spaces below the ground floors have been solidly filled in. The ward floors are finished with polished oak, with terrazzo margins and curved skirtings. Other floors are finished with terrazzo. The walls are plastered with Barrow selenitic cement and have curved internal angles.

The large dormitories are warmed by Hendry & Pattison's central air-chambered stoves with descending flues, and the day-rooms and small dormitories by similar side stoves. In addition there are hot-water radiating coils and radiators in the smaller rooms and offices. The windows have double-hung sashes and fan sashes with glazed hopper cheeks, and below each ward window is a grating with a valve for the admission of fresh air at a point at which it will impinge upon the hot-water coils. In the smaller rooms the air is admitted to the base of the radiators.

The probation blocks are somewhat similar to the infirmary blocks, but provide on each floor day and night accommodation for twenty patients only. A receiving-room adjoins each of these blocks. Two of the single rooms in each block have been padded by Pocock Bros.

The central group are administrative buildings, and the front portion contains the offices and quarters of the chief officers and the committee-room. From the entrance two side corridors branch right and left to the main corridor and between these are situated the stores and the kitchen departments. The central feature of this group is a glass-covered court, which gives access to the whole of the stores and also to the kitchen court.

rooms and sanitary-rooms are provided on each floor, and lavatory, linen-rooms, box-rooms and cleaning-rooms are provided.

Each block has a staircase at each end, the floors are of concrete and steel construction, and are finished either with terrazzo or oak or fir laid direct on the concrete. The bedrooms have open fireplaces, and the corridors, cubicles, bath-rooms, lavatory, sanitary-rooms, &c., are warmed by steam radiators. The bedroom windows are fitted with specially designed ventilating heads with balanced flaps for admission of fresh air above the blinds, and they have also outlet ventilators into the flues.

The arrangement of the laundry is a new departure initiated by the Managers. It has been customary hitherto to divide the asylum laundries into four separate departments, each practically a complete laundry for male and female patients and male and female staff respectively. This of course involved expense in building and rendered supervision difficult. Acting upon the Managers' instructions the architects have much simplified this building, and it now has but one wash-house and one ironing-room for the whole of the work. There are separate receiving-rooms and packing-rooms for staff and patients, a steeping-room for foul linen and four drying closets. The laundry has been fitted up with the most modern and approved machinery and fittings under the supervision of Mr. W. T. Hatch, M.I.M.E., engineer to the Board. It is electric driven, and the drying-rooms are fitted with horses, the drying being effected by hot air on the Plenum system. The contractors for this work were Messrs. Entwisle & Gass, of Bolton.

The mortuary is near the back entrance and consists of a dead house, fitted with a cabinet, a friends' room, post-mortem



GENERAL VIEW FROM EAST.

The stores consist of a basement and ground floor with a scullery subdivided and fitted in a suitable manner for the several classes of goods. The uncooked meat, fish, milk and vegetable rooms are kept separate and adjoin the kitchen court.

The kitchen, which is 43 feet by 32 feet, immediately adjoins the main corridor and opens into a scullery 43 feet by 22 feet, with vegetable washing-room, cooks' store, larder, &c. Both kitchen and scullery are lit by windows on three sides and by lantern lights, the floors are paved with silex stone and the walls lined with opalite. They are fitted with steam-jacketed boiling pans in central groups, beef-tea and milk pans, steam ovens, gas ovens, hot plates and grillers and a bakers' oven for pastry. The contract for these fittings was undertaken by Messrs. Moorwood, Sons & Co., Ltd., and Messrs. H. Smith & Son built the oven.

On the side corridors adjoining the kitchen are the mess-rooms for nurses and attendants, kitchen staff and stokers, with sculleries and lavatories. On the same corridors are the dispensary with consulting-room and drug store, with fittings by Messrs. Howlett & Son, and the needle-room with matron's office and store. The two front blocks are for nurses and attendants, and provide a separate bedroom for each member of that class, together with bath-rooms, lavatories, cleaning-rooms, linen-rooms, box-rooms, &c. There is also on the ground floor of each block a spacious sitting-room. The assistant matron and head night nurse have rooms in the nurses' block, and the head attendant and head night attendant in the attendants' block.

The domestic staff block occupies a central position on the main cross corridor. On the upper floors are dormitories divided into cubicles, and on the ground floor mess and sitting-rooms, together with rooms for the chief domestics. Bath-

room and pathological room. A disinfectant room is being built at the west end of the boiler-house block, and will be fitted with a steam disinfectant with vacuum apparatus.

At the rear of the laundry is the boiler-house with steam-coal store, gas-house, dynamo-house and cell-room, and in continuation of the same block two large stores for house coal in immediate connection with the side covered ways. All these buildings open into an enclosed workshop yard, where also will be found workshops for smith, engineer, plumber, carpenter, painter, upholsterer and mattress maker, together with a store and office for the foreman of works, and lavatory and w.c.'s for the workmen.

The buildings generally are built of stock bricks faced with Lawrence's red bricks with blue Staffordshire plinths, and they are covered with Bangor slates. The boundary walls are built with pressed Leicester red bricks and blue Staffordshire plinths and capping. Next Tooting Bec Common the land is enclosed by a wrought-iron fence 8 feet 6 inches high, supported by cast standards. The corridors have concrete flat roofs covered with asphalt; the covered ways have glass roofs, on Rendle's system, carried upon iron columns, and the floors which cover the pipe ducts are of concrete asphalted.

The water supply is from the mains of the Lambeth Water Works Company. For fire purposes a 6-inch main is run to and through the main ducts, forming a ring with 6-inch and 4-inch branches. There are twenty-five external hydrants and fifty-five internal fire valves, all fitted with outlets to suit the London Brigade fittings. For the domestic supply, two cast-iron tanks, each upwards of 25,000 gallons capacity, have been erected over the staircases of the two central blocks at a height of 80 feet. These tanks are connected with the fire main so that in case of a temporary stoppage of the Company's supply the water in the tanks will be available, and the pipes are so

arranged that one tank may serve the whole building while the other is being cleaned. The rain-water is collected in an underground reservoir of 120,000 gallons capacity, situated in front of the main building, this being the lowest part of the site. The reservoir has a wash-out pipe and an overflow to the drainage system, and the water is pumped by an electric pump to the laundry-tank for use in the laundry and as feed-water for the boilers, the pump being controlled by a switch in the boiler-house.

There are three steam boilers of the Galloway type, each 20 feet long by 6 feet 6 inches diameter, with Green's economiser and mechanical stoker by the Underfeed Stoker Company, the forced draught for which is furnished by a Sturtevant blower driven by an electric motor. These boilers form the heat centre for the whole building, supplying steam for warming purposes, for heating water, for laundry and kitchen, and steam supply-mains are carried through the several ducts and the water of condensation is brought back to the hot well next boiler-house and reused as feed-water.

The hot-water pipes and radiators in the several blocks are worked by Royle's calorifiers with automatic control attachments which regulate the supply of steam to the quantity necessary to maintain a suitable temperature. The hot water for baths, lavatories, sinks, &c., is heated by means of a similar calorifier in the basement of each building with circulating pipes to the several fittings.

The lighting installation consists of about 2,300 glow-lamps of 8 or 16 candle-power, and 12 arcs for lighting the laundry, and has been carried out on a novel principle devised by the consulting engineers. This system, which may be called the draw-through concentric system, consists in running on the



CONNECTING BRIDGE.

surface of the walls, buried in the plaster, small brass pipes varying from 5-16-inch to 7-16-inch internal diameter, and drawing into them a single (or in the case of a three-wire circuit, two) insulated conductors, the pipe serving at the same time as a channel for, and a protection to, the cable, and as the return conductor for the current; one pole being thus connected to, and at the same pressure as the earth, it is impossible to accidentally obtain a shock, and only half the usual amount of wire is required. The lamps are supplied at 120 volts on the three-wire system, and there being a complete ring main, there are four circuits available for the current, rendering it practically impossible for any breakdown of the main cable to put out more than half the lights at once. Each separate block has its own service-box and main switch by which it can be disconnected at any time from the ring mains, and all the fuses are grouped in distribution fuse-boards in the passages, there being not more than ten lights on a circuit. The electric-generating plant marks a new departure in asylum practice, inasmuch as the motive power employed is power-gas instead of the more usual steam. The engine-room contains three gas-engines, each giving a maximum of 70 b.h.p. at about 210 revolutions per minute, and driving by belt a shunt-wound dynamo giving 140 amperes, 250 volts at 550 revolutions. As a general rule two engines only are in use, one being a stand-by.

The producer gas plant was supplied by Messrs. Paisley Welch, and consists of two of their gas producers with the necessary scrubbers. During the trials made by the engineers on completion of the plant the consumption of anthracite coal per electric unit, measured at the terminals of the dynamo, amounted to only 1.4 lbs., whereas with steam plant this would

have been at least 4 to 5 lbs. In addition to the three dynamos there is a battery of accumulators, consisting of 132 L.B. 9-Tudor cells, capable of discharging at 56 amperes for 10 hours at 240 volts, or in other words, of supplying 1,000 16 candle-power lamps for 10 hours.

The boilers and the electric-generating plant and wiring were carried out by the undermentioned contractors from designs prepared by Messrs. Handcock & Dykes, and under their supervision:—Boilers, Messrs. H. & T. Danks; generating plant, Messrs. Crompton & Co.; wiring and main cables, Messrs. R. Dawson & Co.

Gas is supplied by the Mitcham and Wimbledon District Gas Light Company for cooking purposes and for the plate-warmers and hot-plates in the ward kitchens.

The soil and surface-water drainage discharge into the sewers of the Wandsworth Borough Council. The branch drains are disconnected from the main drains, and these in their turn disconnected from the sewer.

An electric fire-alarm system has been installed with thirty-six call-boxes, ten alarm-bells and two indicator-boards. There is also telephonic communication between the various departments through an "exchange" at the porter's office.

Messrs. W. Johnson & Co., Ltd., carried out the main contract, which included steam mains, hot-water engineering, tanks, &c., together with road making and groundwork. Their contract amount was 204,523/., but owing to saving effected on the laundry building and in other matters, the work was finished for about 2,000/., less.

Mr. J. T. Rees acted as clerk of works. The architects are Messrs. A. & C. Harston, who have, in addition to this work, carried out several other asylums.

THE CELTIC GOLD ORNAMENTS.

ON Saturday last Mr. Justice Farwell gave judgment in the case *Attorney-General v. Trustees of the British Museum*. A report of the arguments and evidence appeared in *The Architect* last week. His Lordship said:—

In the year 1896 two ploughmen were driving a furrow in a field near Lough Foyle, the leader with a 6-inch plough, the second, Nichol, following down the same furrow with a 14-inch American plough. Nichol's plough struck something hard at the bottom of the furrow, and he stopped and went back and found certain gold articles all lying together in a space about 9 inches square. The articles found consisted of the following:—(1) A hollow collar with repoussé ornaments; (2) a model boat with thwarts, and a number of oars, spars, &c.; (3) a bowl with four small rings at the edges; (4) a solid gold torque; (5) one-half of a similar torque; (6) a necklace consisting of three plated chains with fastenings; (7) a single chain. The two last were found inside the hollow collar. The oars were much bent, and were inside the bowl, which was flattened. The boat was crumpled up. Nichol took the articles to his master, and they were sent to the factory of Messrs. Johnson in Grafton Street, Dublin, who restored them to the shape in which they had been shown to the Court. They are articles of great interest and beauty, of Celtic origin. The dates suggested for their manufacture range from 300 B.C. to 600 or 700 A.D. I think that they may fairly be attributed to the second or third century after Christ. Ultimately they were purchased by the Trustees of the British Museum, and they are now claimed by the Crown as treasure trove.

The Trustees set up two defences—first, they deny that the articles are treasure trove; and secondly, if they are, they allege that by a charter of Charles II. the right to treasure trove is vested not in the Crown or themselves, but in the Irish Society. Several definitions of treasure trove have been cited to me, not substantially differing one from another. I will take that cited in Chitty on Prerogative, page 152:—"Treasure trove is where any gold or silver in coin, plate or bullion, is found concealed in a house, or in the earth, or other private place, the owner thereof being unknown, in which case the treasure belongs to the King or his grantee having the franchise of treasure trove; but if he that laid it be known or afterwards discovered, the owner and not the King is entitled to it; this prerogative right only applying in the absence of an owner to claim the property. If the owner, instead of hiding the treasure, casually lost it or purposely parted with it, in such a manner that it is evident he intended to abandon the property altogether and did not purpose to resume it on another occasion, as if he threw it on the ground or other public place or in the sea, the first finder is entitled to the property, as against every one but the owner, and the King's prerogative does not in this respect obtain." So that it is the hiding, and not the abandonment of the property that entitles the King to it. It is clear from the very terms of the definition that no direct evidence can be given of the intention to hide, or the intention to abandon, by a person who is *ex hypothesi* unknown. The direct evidence must necessarily be confined to the discovery of articles in fact concealed, and the Court must presume the in-

tention to hide or to abandon from the relevant surrounding circumstances, and the motives that usually influence persons acting under such circumstances, according to the ordinary dictates of human nature. In the present case the articles were obviously of considerable value, but of a miscellaneous nature, such as might well represent the store of a native chief or the spoils gathered in the raid of some Norse pirate. The articles were all put close together, the chains being actually concealed within the hollow of the collar in the mode which a person hiding them for safety with a view of returning to reclaim them would be likely to adopt. Their value renders it improbable that they would be abandoned except under stress of imminent danger, and the care with which the chains were put inside the collar and all the articles were collected together point to the absence of any such imminent danger as would necessitate abandonment. The inference, therefore, is that they were intentionally concealed for the purpose of security. There is no evidence at all as to the date of concealment, but the state of Ulster from the beginning of its history down to comparatively modern times has been such as to render it highly probable that treasure would have been concealed on many occasions, and in this very district there is record of a great invasion of Norsemen who overran the land comprising this spot about the year 850 A.D. The inference therefore appears irresistible that this was *vetus depositio* unless the defendants can displace it.

Mr. Warrington argued that it would be enough for him to show any other plausible theory. I do not agree with him. The Crown must first prove a *prima-facie* case, but when they have done so the defendants must defeat that title by producing a better title. But, in my opinion, the defendants' theory is not even plausible. I desire to speak with all respect of the gentlemen who have been called as witnesses for the defence, but I must express my opinion that the Court has been occupied for a considerable time in listening to fanciful suggestions more suited to the poem of a Celtic bard than the prose of an English law reporter. The defendants' suggestion is that the articles were thrown into the sea, which, they suggest, then covered the spot in question, as a votive offering by some Irish sea-king or chief to some Irish sea-god at some period between 300 B.C. and 700 A.D., and for this purpose they ask the Court to infer the existence of the sea on the spot in question, the existence of an Irish sea-god, the existence of a custom to make votive offerings in Ireland during the period suggested, and the existence of kings or chiefs who would be likely to make such votive offerings.

The whole of their evidence on these points (if I may so describe it) is of the vaguest description, and I find as follows:—(1) There is no evidence to show that the sea ever flowed over the spot in question within any period during which the articles could have been in existence; it is not disputed that the raised beach on which the spot is situate is of later origin by upheaval than the surrounding land, but there is nothing to show that it was raised at any time since the Iron Age began; and so far as I can see it may have been at any time between 2000 or so B.C. and some time before the beginning of the Christian era. (2) There is nothing to show that votive offerings of the sort suggested were ever made in Ireland. There is no such consensus of expert opinion as would enable me to find that such offerings have ever been made in Europe since the Bronze Age. There is no case known of a votive offering anywhere of a ship coupled with other miscellaneous articles, and there is no case on record of any votive offering having ever been made in Ireland at any time. (3) Notwithstanding the passage in Brash, it is by no means certain that there was any Irish sea-god at all. (4) Or that there were any Irish sea-kings or chiefs who made offerings to a sea-god, if any such god there were. Further, the negative inferences against the defendants' theory are of considerable weight. Votive offerings to a pagan deity would be offered in such a way as to make the most display; no one seeking to propitiate an anthropomorphic deity, who like Baal might be engaged in hunting or sleeping, would be likely to conceal two of his gifts in the hollow of a third; nor (as pointed out by Mr. Coffey in his evidence) would the donor mutilate some only of the objects, as the defendants here allege to be the case. Mutilation would either be essential or an insult, and one would expect therefore to find all or none mutilated. Again, by virtue of what process have all these articles of such different sizes, weights and shapes been kept together during all these years under the whelming tide? What magic bag had the Irish sea-king which would withstand the action of the waves until the ornaments confided to its care found a safe resting-place in the soil formed on the surface of the beach when the sea receded? It was perhaps natural that the defendants should grasp at theories which, in justice to them, I may say were not invented for the purpose of this defence, but it is really little short of extravagant to ask the Court to assume the existence of a votive offering of a sort hitherto unknown in a land where such offerings are hitherto unknown,

in a sea not known to have existed for 2,000 and possibly 4,000 years, to a sea-god by a chieftain both equally unknown, and to prefer this to the commonplace but natural inference that these articles were a hoard hidden for safety in a land disturbed by frequent raids and forgotten by reason of the death or slavery of the depositor. It is perhaps hardly necessary to mention that my observations as to votive offerings are confined to votive offerings of the character suggested by the defendants, and have nothing to do with votive offerings in Christian churches, or with offerings to wells and fountains, of which many instances are collected in Brand's "Popular Antiquities," volume ii., page 259 and onwards.

The view that I have expressed on the facts renders it unnecessary for me to express any opinion on the Attorney-General's further point that votive offerings may be treasure trove.

Mr. Justice Farwell next considered the point raised by the Trustees about the right to treasure trove having passed by the charter of Charles to the Irish Society, and held that treasure trove would have been specified if it was intended to grant it. Finally his lordship said:—I have arrived at the conclusion that treasure trove does not pass by the charters by applying the ordinary rules of construction so far as is compatible with the subject-matter of the grant, and it is therefore unnecessary for me to express any opinion on the contention of the Attorney-General as to the rules by which the Crown is entitled to have its grants construed. It is also unnecessary for me to express any opinion on the last point urged by the Attorney-General, which is of considerable general importance, viz. that in all claims to property the Crown is entitled to treat the defendant as if he were plaintiff, and to insist that he must succeed on the strength of his own title and cannot defeat the Crown merely by showing that the Crown's title is bad. The result is that I will make a declaration that the articles in question are treasure trove belonging to His Majesty by virtue of the prerogative Royal, and order the delivery up of the same accordingly.

SUSSEX ARCHÆOLOGICAL SOCIETY.

ON Tuesday the Sussex Archæological Society met at Ford. The occasion was a district meeting at Ford, Clymping and Arundel. The archæologists, says the *Sussex Daily News*, assembled at Ford shortly after mid-day, coming in by trains from Brighton, Worthing, Portsmouth, Chichester and Horsham. Quite a large party left the station in carriages and brakes.

The first drive was short, being broken near Ford Church. This little church almost on the banks of the Arun received inspection, and Mr. P. M. Johnson, as cicerone to the party, undertook to describe items of interest in the church. Mr. Johnson opened his description with an epitomised history of the church. It was a puzzle whether Ford Church was or was not mentioned in Domesday. Clymping was, and another church was set down as belonging to it, but with no name attached. So far as the nave was concerned, the church was, however, of pre-Conquest date. Two miniature Saxon windows and a plinth also denote an early date. Great interest was displayed in the painting of "The Doom" over the chancel arch, in the mural paintings, the Saxon consecration cross, and other work of the same date in the north wall of the nave. Having examined the outward structure of the church, the party rejoined the conveyances and drove through winding lanes to Clymping Church.

They were met by the vicar. Before entering the church Mr. Johnson drew attention to the beauty of the Transitional Norman tower and its unique buttresses with their zigzag borders and pointed arches. The interior of the church surprised many of the party. Clymping Church is a beautiful and well-lighted building, and stands almost alone of its kind in Sussex. Although of decidedly modern appearance, it is not new. It dates back to the thirteenth century and is supposed to have been preceded by a wooden erection of Saxon origin. The pulpit, font and the pewing, of which about a dozen benches remain, are relics of the Early Perpendicular period. In the restoration the beautiful Early English work in the nave was admirably preserved. An item of exceptional interest, and viewed by all, is the thirteenth-century chest. There is none in England of an earlier date, and only half a dozen contemporary. After a close inspection and a climb to the roof of the tower by the more adventurous, the conveyances were again joined.

The party next drove to what is known as Bailie's Court, Atherington. A wrong turning took them somewhat out of the way, and some distance had to be recovered before the Court was reached. The moated house of the Bailiff of the Abbey of Sees, with its little thirteenth-century chapel, formed not the least enjoyable subject for inspection during the afternoon. The naturalistic foliage on the walls was noted by many. Atherington belonged to an alien priory in early days, but is now in the occupation of Eton College. Before leaving the

Court expressions of thanks were conveyed to the present tenants for their kindness in opening the little chapel for inspection.

Again mounting, the party retraced their ground to Ford, and thence passed to picturesque Tortington Church, almost hidden from sight and passed by unnoticed by the uninitiated. Tortington Church is one of the smallest churches in Sussex, and even the original structure has been added to. A special feature of this diminutive church is the remarkable arch leading to the chancel. This arch is surrounded by beak heads of grotesque shapes. The aisle was tacked on about 1230, and was built almost entirely of chalk—still in a good state of preservation, and a test as to its lasting qualities. One or two of the early windows appear to have been tampered with. The roof is of great antiquity, and is of practically the same date as the walls. Tortington Priory, fragmentary ruins of which alone remain, was next visited. It was during this inspection that Mr. Johnston made a particularly gratifying statement. The Duke of Norfolk, he said, had consented for the whole of the remains of the priory to be, as far as possible, thoroughly excavated and examined. The proposal that this work should be undertaken shortly is to be submitted to the Society's Council for them to consider as to the supply and obtaining of funds necessary for the excavating. The stay at the priory was comparatively brief.

The party next drove to Arundel Castle, and, through the kindness of his Grace, inspected the Fitzalan chapel. Here Mr. Kemp, J.P., was the conductor. He narrated the early history of this chapel, and gave special attention to the splendid series of tombs of the Earls of Arundel. Some time was spent in the chapel examining the tombs and the brasses. From the castle the party proceeded to the parish church, which was scrutinised outside and inside. Of more than average interest were the curious remains of paintings on the walls still distinctly visible.

The excursionists then adjourned to the Norfolk hotel for tea. This concluded, Canon Cooper, on behalf of others, expressed gratitude for the services rendered by Mr. Johnston, and to the excellence of the arrangements made by the hon. secretary, Mr. H. Michell Whitley. He also thanked the local hon. secretary, the Duke of Norfolk, and the Rev. Prebendary Burdon for their assistance towards the enjoyment of the outing. Canon Cooper further expressed pleasure at the forthcoming excavations to be made at Tortington. Mr. Johnston having responded, the party renewed their inspections, visiting the ruins of the Maison Dieu near Arundel Bridge and the remains of the priory of De Calceto or Pynham, near to Arundel station on the Lyminster side. These ruins are exceptionally fragmentary, the only remaining practical evidences being two buttresses, supposed to have been a portion of the tower of the once existent priory. The archaeologists disbanded at the station, after one and all had expressed every satisfaction at the success of the meeting.

MANCHESTER SOCIETY OF ARCHITECTS.

ON the evening of June 16 thirty members visited the new St. Mary's Hospital, Manchester, Messrs. A. Waterhouse & Sons, architects, and were shown with the greatest thoroughness the admirable fittings and arrangements of this excellent modern hospital.

On Saturday, June 20, thirteen members visited Liverpool. Messrs. Norman Shaw & Doyle's White Star Line Offices, and Parr's Bank by Mr. Norman Shaw and Messrs. Willink & Thicknesse, were very much admired, and the excellent design and detail, inside and out, carefully examined. Another treat was in store at Mr. Mountford's new technical school buildings, where Mr. Willink, chairman of the committee, with some of the staff, explained the buildings very fully, giving special attention to the "Plenum" ventilating system, and also most hospitably entertained the party. A visit to the new central fire-station concluded a most enjoyable and instructive afternoon.

GENERAL.

The First of the historical pictures for the decoration of the luncheon-room of the new portion of the Edinburgh City Chambers has now been placed in position. The picture in question is that by Mr. W. Hole, R.S.A., of the Coronation of James II., which was shown in the exhibition of the Royal Scottish Academy. It has now been fixed in the large panel on the south end of the luncheon-room. The subject shows the boy king, the first of the Stewart dynasty who was crowned at Holyrood (1437 A.D.), receiving the homage of the assembled prelates of the Church and nobles.

The Old Church of SS. Peter and Paul, of Swanscombe, Kent, which was almost completely destroyed by lightning last August, has been restored by Messrs. Multon & Wallis, Gravesend, and was opened by the Bishop of Rochester on Tuesday.

Senator William Clark, it is said, proposes to invite competitive designs from architects in London and Paris for the town mansion he is about to erect in Washington.

Mr. G. Macmillan, hon. treasurer of the Cretan Exploration Fund, has announced the receipt of 1,000*l.* from an anonymous donor towards the completion of Mr. Arthur Evans's work at Knossos. A further sum of 2,000*l.* is asked for.

The Bridge House Estates Committee have under consideration a scheme for the lowering of the crown of Southwark Bridge by several feet in order that the gradients on the City side may be reduced to such an extent that vehicles will have no difficulty in making use of it.

M. Besnard has received a commission to paint a ceiling-piece for the Comédie Française. The subject shows Apollo in his chariot passing before a temple having statues of Corneille, Racine, Molière and Victor Hugo. The god is accompanied by the Hours and Muses.

A Conference of members of Parliament and others interested in the iron, steel, engineering and electrical manufacturing trades was held in one of the committee-rooms of the House of Commons on Thursday for the purpose of instituting a fund for the vigorous promotion of Mr. Chamberlain's preferential tariff proposals.

The Bishop of Oxford opened on Saturday the chapel at Bradfield College, which has been enlarged. The new chapel in its finished state consists of a nave with aisles and a chancel, with a transept on the south side and an organ-chamber on the north. The style of the chapel is Early Flowing Decorated, and the tracery has been treated with considerable richness. The work was carried out after the design of Mr. J. Oldrid Scott, the diocesan architect.

The National Gilchrist Scholarship for Art of 50*l.* per annum, tenable for two years, has been awarded by Sir Edward Poynter, P.R.A., to Miss Anne Seaton, a student of the Royal Female School of Art.

M. Quentin-Bauchart has nearly completed his report on the reorganisation of the Fine Arts in the municipality of Paris. The work will include a complete historical account of the department of *beaux-arts* and of the museums of the city. The main suggestion will be the creation of a "Direction des Beaux-Arts."

An Exhibition of works in ivory has been opened in the Musée Galliera, Paris. A great part of the collection comes from Dieppe, where the art is followed on a commercial basis. Some statuettes by Parisian artists are of a higher quality.

The London County Council are unable to sanction the borrowing by the Marylebone Borough Council of 1,274,000*l.* for the purchase of that portion of the undertaking of the Metropolitan Electric Supply Company, Limited, which was within the borough and which the borough was authorised to purchase by the Electric Lighting Order Confirmation Act of 1901, and for costs in connection with the purchase.

Dr. Paul F. Moline, hon. secretary British Committee, 42 Walton Street, Chelsea, S.W., will furnish particulars of the eleventh International Congress of Hygiene and Demography, to be held in Brussels from September 2 to 8, 1903, with the travelling and hotel arrangements.

Mr. J. J. Burnet, architect, Glasgow, has received 500*l.* from a correspondent to be expended on the purchase of a picture for the Corporation of the City of Glasgow, to be selected from the exhibition of the Royal Glasgow Institute of the Fine Arts, to be held in their new premises in 1904, by a committee of gentlemen elected by the Corporation, the Glasgow Institute of the Fine Arts and the Glasgow Art Club.

The Free Exhibition of works by Dutch painters in the Guildhall Art Gallery has been already visited by over 100,000 visitors.

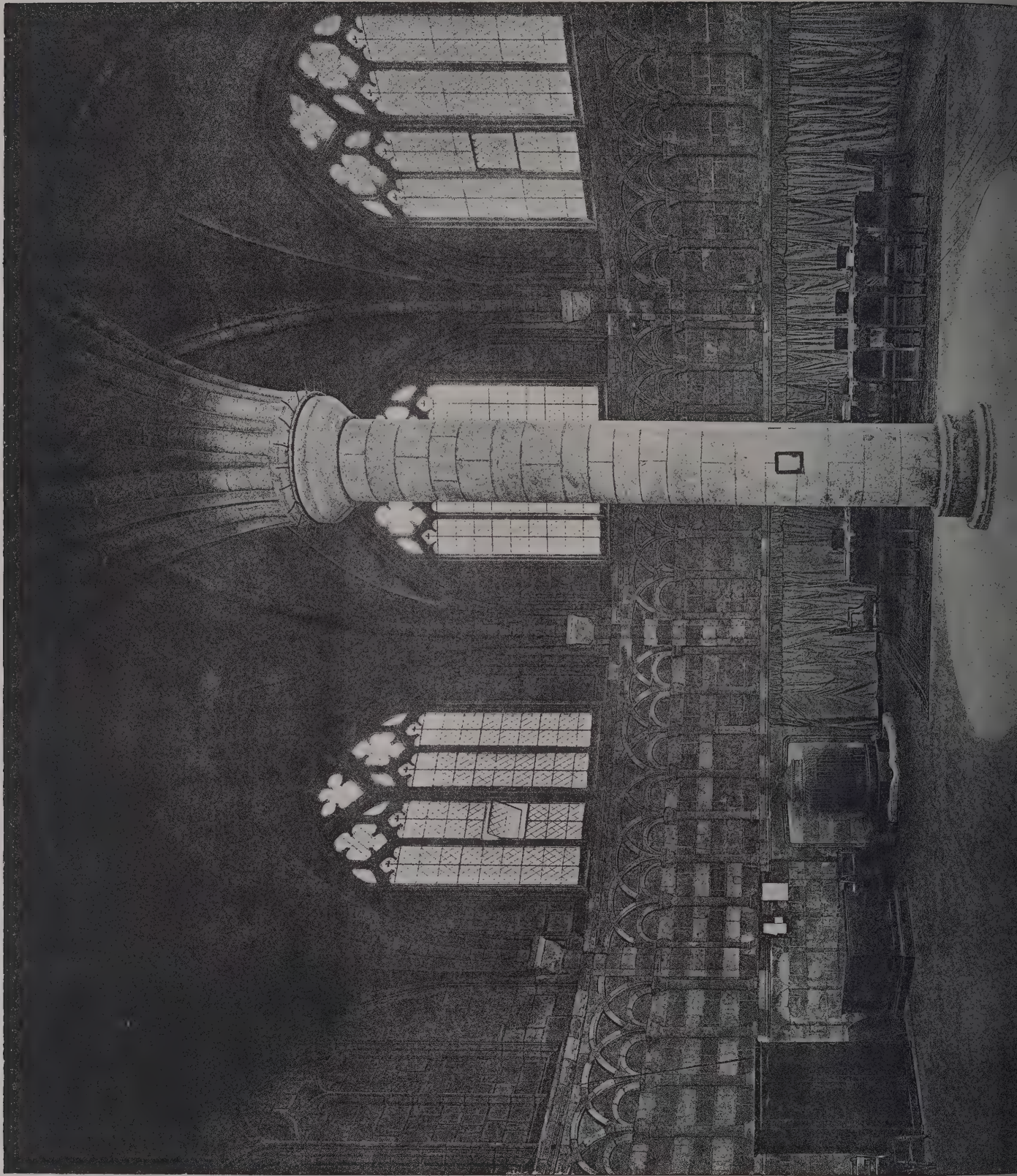
Lord Iveagh has offered to give 34,000*l.* to Trinity College, Dublin, in order to erect laboratories and lecture-rooms for physical science, electrical and mechanical engineering, botany and zoology. Other subscribers are expected to contribute a sum sufficient to pay the estimated expenses, or 2,730*l.* a year.

A Mosaic Floor or pavement from the excavations of the Roman city at Caerwent (Mon.) has just been placed in the Corporation Museum at Newport, and another is being prepared for removal. The latter is stated to be one of the best examples of Roman mosaic work yet found in England. It is decorative in character, bearing figures of animals and what are believed to be Cupids. Both floors were found in the same Roman house (which has been denominated "No. 7"), one above the other, and they represent different periods of Roman domestic art.

The Ancient Cloth Hall in the corn wharf at Newbury, which was purchased of a local body of charity trustees and restored at a cost of about 2,000*l.*, was on Tuesday accepted by the Corporation as a free gift from the committee. The work was carried out as a town memorial to Queen Victoria. The building is likely to be used as a museum and fine art gallery.

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OF THE
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The Architect, June 26th 1903.



The Architect, June 26th 1903.



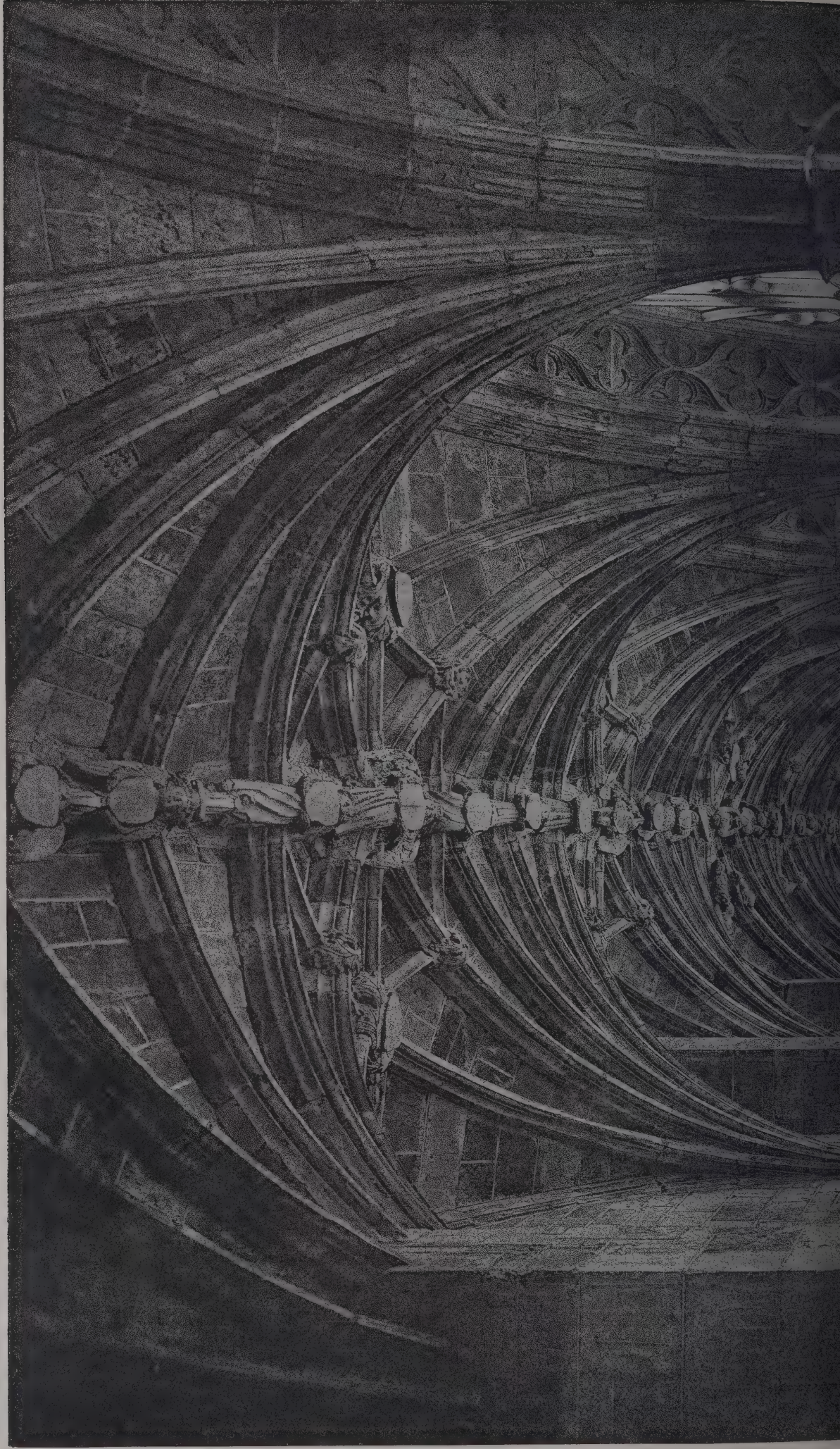
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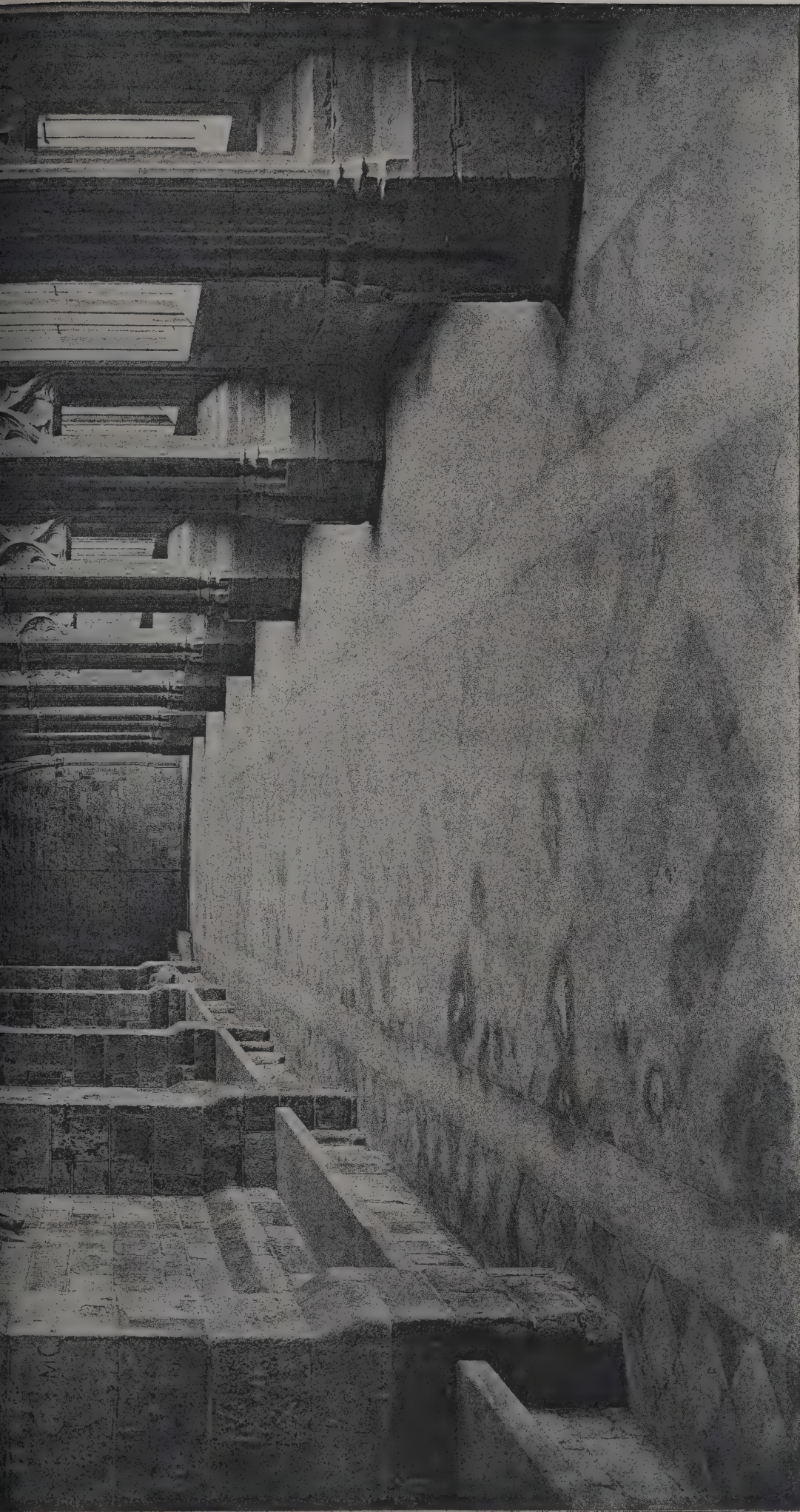
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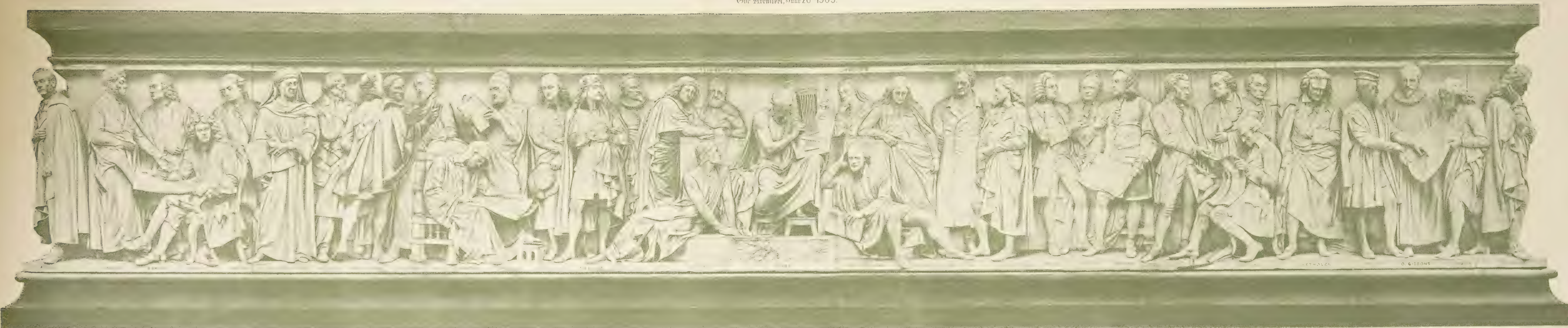
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THE MASTERS OF ART: POETS & COMPOSERS.

BY THE ARCHITECT, HYDE PARK
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INDEX.

icles:—

ethylene, 133
Hallows Church, 102
Iars in English Churches, 351
merican Institute of Architects, 19
rbroath Abbey, 387
rchaeology in Durham, 294
rchaeology in Norfolk, 327
rchaeology in South Tyne Valley, 405
rchitects and Surveyors, Legal Rights
and Liabilities of, 93
rchitects' Fees, 54, 68
rchitects, Registration of, 353

ARCHITECTURAL ASSOCIATION—

Ancient and Modern Town Houses, 209
Architects' Attitude towards the Crafts, 81
Architecture and the Public, 305, 321
Competitions, 177, 194
House List, 209
New Premises Fund, 51
Palladio, Andrea, 241, 257
Stained Glass of the Future, 145, 162
Whitehall and Strand, 51

Architectural Association of Ireland, 40, 71, 88, 143, 295
Architecture and the Age, 159
Architecture at the Glasgow Institute, 278
Architecture at the Scottish Academy, 230
Art a Necessity, 84
Art for Schools Association, 398
Art Frauds in London, 230, 237
Art in Scotland, 101
Artistic Fans, 291
Bateman, the late J. J., 457
Bede Memorial, the, 270
Beni Hassan, Discoveries at, 370
Birmingham, Art Gifts to, 312
Birmingham Municipal School of Art, 351
Birmingham University, 406
Book Plates, 68
Brahmanabad, 367
British School at Rome, 261
Cambrian Archaeological Association, 206
Campanile Bricks, 252
Carpenters' Company, 86
Celtic Gold Ornaments, 403, 422
Charnwood Forest, 181
Chester Archaeological Society, 389
Chesterfield, New School Board Offices, 247
Church Building Society, 340
Cooper's Hill College, 341
Cork Exhibition, 79
Coronation Stands, 191
Crannog or Fish Bothy? 245
Crete, Discoveries in, 19, 70, 86, 100, 307
Crosses and Holy Wells of Lancashire, 279
Culross Abbey, 143, 158, 263
Cumberland and Westmoreland Anti-quarian Society, 303
Design, a Talk about, 371

Articles—continued.

Devon and Exeter Architectural Society, 260
Dublin National Gallery, the, 213
Dunstaffnage Castle, 19
Edinburgh Architectural Association, 10, 47, 79, 199, 223, 254, 287, 370
Edinburgh City Chambers, 102
Egyptian Excavations, 150
Exeter Cathedral, 111, 127, 150, 179, 198
Fitzwilliam Museum, 199
Gaiety Theatre, 289
Geological Society, 143
Gilbert Lecture on Sculpture, the, 85, 118
Glasgow Archaeological Society, 207
Glasgow Architectural Association, 255, 270
Glasgow Royal Infirmary, 374
Glasgow School of Art, 398
Glasgow Technical College, 335
Gothic Revival, the, 85
Hamilton Bruce Pictures, the, 342
Hampton Court Palace, 191
Heraldry in Decoration, 165
Historic Society of Lancashire and Cheshire, 136
Historical Buildings, Preservation of, 333
Historical Congress, Rome, 70, 330
Hollingbury Camp, 311
Imperial Institute, 22
Institute of British Decorators, 247
International Society of Art, 11
Iona Restoration, 354
Irish Archaeology, 302
Irish Building Stone, 104, 319
Jesuit, a, on Building Workmen, 37
King's Sanatorium, the, 36
Knossos Excavations, 255, 388
Landscape, Relation of Natural to Artificial Beauty in, 20
Leeds and Yorkshire Architectural Society, 70, 92, 135, 158, 232
Lightning Research, 215
Liverpool Architectural Society, 191, 237
Liverpool Building By-laws, 63
Liverpool Cathedral, 340, 405
Lombard Street Signs, the, 38
Manchester City Surveyors, 354
Manchester Infirmary Site, 198
Manchester Society of Architects, 55, 175, 191, 424
Metz Cathedral, 331
Monks' Lavatory, Durham, 264
Mosaic Construction, 115
Mud Bricks in Egypt, 390
National Gallery, the, 95, 398
New Roads, Construction of, 22
Nippur Excavations, 369
Norfolk Archeological Society, 310, 376
Northern Architectural Association, 101
Old Glasgow, 47
O'Malley v. Walsh, 322
Painting in Ireland, 303
Palestine Exploration, 419
Playing Card Designs, 303
Prehistoric Dwellings in Scotland, 341
Princep's, Mr., Addresses, 69, 85
Principles for the Applied Arts, 66
Rhind Lecturer, the, 228, 246

Articles—continued.

Roman Forum, the, 278
Roman Kilns, 356
Roman Remains at Caerwent, 287
Roman Wall, the, 351
Rome, Ancient, in 1903, 149
Romney and his Works, 111
Rossetti, Art of Dante Gabriel, 86
Royal Academy and Engravers, 259
Royal Academy Banquet, 337
Royal Academy, the, 231
Royal Institutⁿ Architects of Ireland, 31, 71, 104, 159, 181, 3 0, 419

ROYAL INSTITUTE OF BRITISH ARCHITECTS—
Address to Students, 97
Collegiate Buildings, Planning of, 129
Designs and Drawings, 98
Egyptian Style, 339
Fire Prevention, 225
Four Modern Hospitals, 276
General Meetings, 168, 391
Gold Medal, 97, 417
Greek Work, 113
Prize Awards, 65
Report, 306
Science Workshops, 65
Smith, the late T. R., 193
Wellington Monument, 97
Westminster Cathedral, 193
Royal Scottish Academy, 207
Ruskin Museum, 407
Rylstone House, Bournemouth, 165
St. Bartholomew's Hospital, 311
St. Bartholomew the Great, 207
St. Louis Exhibition, 223
St. Mary's Abbey, York, 341
St. Paul's, Decoration of, 179
St. Stephen's, Caen, 383
Salona, City of, 406
Scottish Abbeys, Seals of, 127
Shaftesbury Excavations, 147
Silchester Excavations, 391
Society of Antiquaries of Scotland, 47, 263
SOCIETY OF ARCHITECTS, 38, 337, 350
South Africa, Art in, 356
Stratford-on-Avon Library, 215, 312
Surrey Archaeological Society, 223, 255
Sussex Archaeological Society, 423
Sussex "Mint" House, a, 103
Tara, Hill of, 62
Technical Education, 39
Temple Church Restoration, 326
Terra-Cotta, Constructional Faience, &c. 273
Thebes, Discovery at, 174
Tooting Bec Asylum, 420
Transvaal Architecture, 103
Twentieth-Century Art, 85
Ventilation and Warming, 212, 226
Walworth, 341
Warnham Court and Christ's Hospital, 401
Washington's Building Laws, 37
Wellington Monument, 83
Welsh Museum, a, 413
Yorkshire Surveyors and Architects, 197
Zimbabwe Ruins, the, 385

Contract Reporter:—

Aberdeen Electric Lighting, Jan. 30
American Builder on Foreign Labour, Jan. 16
American Competition in the Iron Trade, April 3
American High Buildings, Feb. 20
Anaglypta and Salamander Decorations, March 20
Architectural Society of Ireland, Feb. 27
Artificial Marble in Denmark, Jan. 2
Assouan Reservoir, the, Feb. 6, April 3
Athens Exhibition, May 22
Auctioneers' Institute, Jan. 16, Feb. 20, March 20, May 15
Australian Contract Case, Jan. 2, Jan. 30
Automatic Sprinklers, Feb. 6
Bangalore Church Tower, Feb. 27
Bangour Asylum, Fireproof Buildings, Feb. 20
Barnet Church, Jan. 9
Belfast Building Trade, Jan. 16
Belfast Harbour, March 20
Berkefeld Filter, the, April 3
Birkenhead Public School, April 10
Birkenhead Town Hall, April 24
Birmingham Tenement Dwellings, Jan. 16
Blackpool Tower, April 10
Bostel Fire, the, March 13
Bournemouth Master Builders, March 13
Bradford Municipal Works, Jan. 30
Bradford Town Hall, April 17
Bridge Construction at Workington, April 24
British Forestry, Feb. 13
Brookwood New Asylum Buildings, Jan. 2
Builders' Association Handbook, Feb. 20
Building Acts Amendment, March 6
Building By-Laws Reform, May 22
Building Trades Exhibition, June 12, 19, 26
Buxton Opera House, May 1
Cambridge Baptist Church, May 22
"Carlton" Manhole Cover, Feb. 13
Central London Railway, Feb. 20
Certificate, Preventing Grant of, March 20
Chatham Dockyard, Jan. 9
Oil-rest Casement, the, May 15
City and Guilds Institute, May 22
City Improvements, May 15
Cloisonné Mosaic, May 8
Colinton Hospital, May 15
Colour, Ideas in, Feb. 13
Columbian Fireproofing Company, June
Contractor's Home, a, Jan. 2
Corporation Contracts, April 17
Crewe Municipal Buildings, Jan. 23
Cromer Church, Jan. 9
Crystal Palace School of Engineering April 17
Deep-well Bores, Jan. 9
De Laval Turbines, Feb. 6
Delta Metal, March 6
Differdange Beams, May 15
Dublin Electric-lighting Station, Jan. 1
Dublin Harbour Work, May 29

Contract Reporter—continued.

Dunfermline Cottage Hospital, Feb. 13
 Easingwold Waterworks, April 21
 East Sussex Asylum, May 1
 Edinburgh, Housing Question, Feb. 6
 Edinburgh U. F. O. Assembly Hall, May 22
 Edinburgh, new Washhouses, Jan. 16
 Egyptian Works, April 17
 Electric Light at Maidenhead, Jan. 2
 Electric Light Stations, June 12
 Electric Power Distribution, April 17
 Electric Power Scheme, May 15
 Electrical Engineers, March 13
 Electrical Tramways, Cost of, May 15
 Employers and Labour Registration, Feb. 27
 Enamelling and Metalwork, March 13
 Engineering and Scientific Society of Ireland, March 27
 Engineers, Education of, May 1
 Engineers' Trip to the Orient, June 5
 English Roads, March 27
 Epping Forest, Jan. 30
 Fair Contracts Clause, March 27
 Fenton Sewerage Scheme, Feb. 13
 Fire Appliances in the City, Jan. 16
 Fire Exhibition, May 8
 Fire in an Iron and Steel Frame Building, April 24
 Fire Prevention, Feb. 13
 Fire, Provision Against, March 20
 Ford's Silicate of Limestone, Jan. 30, March 6
 Foreshore Protection, May 15
 Gas from Chalk, May 29
 Glasgow Housing, Jan. 16, 30, Feb. 27, March 20, 27, April 3
 Glass Making in Germany and Austria, Jan. 16
 Hampstead Road Widening, Feb. 20
 Harrogate Kursaal, June 5
 "Heaped Valley" Fires, June 28
 Heat Resistance of Building Materials, Jan. 9
 High Building Limits, May 29
 Horton Asylum, March 20, April 10
 Hospital Sites in London, March 6
 Housing in Chester, March 13
 Hyde Park Corner, Value of Houses, Jan. 30
 Hull Industry, a, Feb. 27
 Industrial Partnership, April 3
 Insecure Tarpaulin, an, Jan. 16
 Institution of Civil Engineers, Feb. 6, March 6, 20
 Institution of Civil Engineers of Ireland, March 20
 Institution of Electrical Engineers, June 5
 International Fire Congress, Jan. 16, Feb. 20, May 22, June 3
 Irish Inlaying, April 10
 Irish Master Builders' Association, Feb. 20
 Johannesburg Stock Exchange, May 8
 Johannesburg, the New, March 6
 Labourers' Dwellings, Liverpool, March 6
 Lambeth Bridge, April 3
 Laxton's Price Book, Feb. 20
 Lead Poisoning, a Preventative of, March 27
 Leicestershire County Asylum, Jan. 30
 Linacre New Church, May 22
 Linoleum Industry, the, May 1
 Liverpool Cotton Exchange, June 26
 Liverpool, Electric Light in, June 5
 Liverpool Housing Question, June 5
 Liverpool Infirmary, Jan. 23
 London Board Schools, Cost of, Feb. 6
 London County Council Art Scholarships, March 27
 London Hospital, June 12
 "Making Good," March 27
 Manchester Association of Engineers, Jan. 23
 Manchester Builders and Fair Contracts, Jan. 23, March 27
 Manchester Dock Extension, March 13
 Manchester, Growth of, Jan. 9
 Marmonte, May 1
 Master Plumbers' Association, March 13
 Matter-of-fact Manchester, Jan. 30
 Metals, Decay of, May 1
 Metropolitan Asylums, May 8
 Military Barracks, Improvements in, Feb. 20
 Municipal Trading, April 10
 New "Baltic," April 24
 New Midland Manchester Hotel, Jan. 2
 Nicaraguan Labour Law, Jan. 9
 Northallerton County Hall, May 22
 Northampton Sewerage Works, May 22
 Northern Industry, a, May 8
 Norwich Master Builders, April 3
 Nottingham Industrial Exhibition, March 13

Contract Reporter continued.

Nottingham Master Builders' Association, Feb. 20
 Nottingham Workhouse, March 27
 Oban Electric Light, Jan. 9
 Palmday Ruler, the, May 29
 Phalanx Blinds, April 24
 Piccadilly Widening, May 15
 Plastering in Canada, April 10
 Plumbers and the Public Health, March 13
 Plumbers' Registration, Jan. 9, March 20, April 10, May 8
 Plumbers' Rules in Liverpool, Feb. 27
 Premium System in Workshops, March 27
 Protactor, a New, June 12
 Railway Level, a New, June 26
 Rating a Roman Canal, April 10
 Retempering Cement Mortar, Jan. 30
 Royal Hibernian Society, Feb. 27
 Royal Hospital for Sick Children, Glasgow, June 12
 Rural Drainage, Jan. 16, 30
 St. Bride's, Kelvinside, May 29
 St. Mark's Tower, Bangalore, Feb. 20
 Salford, New Fire Station, Jan. 16
 Salford's Electric Supply, May 8
 Scaffolding, the Meaning of, May 8
 School of Art Needlework, May 1
 Simplex Steel Conduits, March 20
 Skyscraper, the Construction of a, April 24
 Society of Engineers, Feb. 6, March 13, April 17
 Stanley Hall, Norwood, Feb. 6, April 10
 Steam Pipes, Feb. 20
 Steel and Iron, Protection of, March 27
 Storm-Felled Timber in Ireland, April 17
 Strand-Holborn Improvement, Jan. 23, May 8
 Streets, Paving of, Jan. 23
 Surveying by Photography, Feb. 6
 Surveying Instruments, May 22
 Surveyors' Institution, Feb. 27, May 8
 Surveyors' Institution, Ireland, April 24
 Technical Education in Holland, March 20
 Transvaal Forestry, March 20
 Trees in Streets and Roads, Jan. 9
 Trestle, an Improved, May 15
 Uralite, Jan. 30, March 20, May 22
 "Velure," Feb. 27
 Wages in Glasgow, June 5
 Wall's Automatic Burglar Proof Sash Locks, May 8
 Warrington Water Supply, Jan. 9
 Water Supply at a Public Institution, Feb. 6
 Wavertree New Library, May 15
 Wentworth Sewerage Scheme, Jan. 2
 Wood Pavement, May 22
 Worcester Master Builders' Association, Feb. 27
 Worcester new County Asylum, Jan. 16
 Worthing Electricity Contract, May 15
 Year's Building in the North, a, Jan. 2
 York and the Electric Light, March 13
 Yorkshire Builders' Federation, Jan. 23

Correspondence:—

Architects, Statutory Registration of, 328
 Brussels Hygienic Congress, 407
 Chepping Wycombe Competition, 71, 88, 168
 Colney Hatch Fire, 88
 Engineering Standards, 248
 Housing Problem, the, 183
 Lead Joints, 296
 Marlborough House, 184
 Quantity Surveyors' Association, 199
 Registration and Institute Election, 358
 Registration of Architects, 344
 Royal Institute of British Architects, 407
 Stained Glass of the Future, 183, 215
 Surbiton Clock Tower Competition, 56
 Watkins v. Brook, 71

General:—

24, 40, 56, 72, 88, 104, 120, 136, 152, 168, 184, 200, 216, 232, 248, 264, 280, 296, 312, 328, 344, 360, 376, 392, 408, 424

Illustrations in Text:—

Agriculture, 58
 Ancient Egypt, 106
 Architectural Design, 14, 15, 33, 34, 35, 49, 50, 60, 61, 76, 77, 78, 108, 109, 110, 136, 137, 140, 141, 142, 143, 188, 189, 204, 205, 219, 220, 236, 268, 270, 302, 317, 350
 Asia, Africa, 26
 Astronomy, 42
 Betchworth, Cottage at, 11
 Camberwell Housing Scheme, 30
 Cardiff Castle, Tower, 15
 Cardiff Infirmary, 349
 Christ's Hospital, 402
 Cobbold Road Board School, 15
 Costume, Types of, 186, 202, 218, 234, 250, 266, 282, 298, 314, 346, 362
 Ealing Parish Church, 15
 Economy with Effect, 49
 Europe, America, 2
 Glasgow Technical College, 335
 Great Northern Railway Terminus, King's Cross, 14
 Greece, the Arts in, 122
 Harwell Parish Church, 15
 Market House, Bolton, 34
 Mee Hall, 252
 Music, 90
 Nancy, Screens in, 8, 9
 Newgate, 15
 Paddington Vestry Hall, 35
 Parthenon, Slab from, 154
 Prison, Façade for, 34, 35
 Rochester Cathedral Tower, 50
 Shipton Hall, 253
 Smith, the late Professor T. R., 187
 Society of Architects' Dinner, 337
 Tooting Bec Asylum, 420, 421, 422
 Treago Castle, 253
 Warehouse, 33
 Warnham Court, 401
 Wellington Memorial, 59
 Westminster Palace Hotel, 33
 Worcester Cathedral, 414, 415
 Yorkshire Banking Co., 33

Leading Articles:—

Academy Winter Exhibition, 26, 42
 Arbitration Clause, the, 90
 Archaeology and Treasure Trove, 412
 Architectural Design, Principles of, 13, 33, 49, 60, 75, 108, 124, 140, 155, 173, 188, 203, 219, 235, 267, 301, 317, 331, 349, 364, 396
 Architecture at the Building Exhibition, 394
 Architecture at the Royal Academy, 282
 Architecture in 1902, 3
 Augsburg, 157
 Blackie, Professor, and Architecture, 6
 Bridges, Improvement of, 18
 British Standard Sections, 172
 Choiseul-Gouffier, J. A., 154
 Dismissal of an Architect, the, 218
 Earl's Court Exhibition, 363
 Early Roman Archaeology, 250
 Electric Lighting of Flats, Offices, &c., 16
 Elizabethan Tercentenary, the, 202
 Eltham Palace, 161
 Emerson Centenary, 346
 Engraving in England, 266
 Fire Protection and Legislation, 189
 Foulis Academy, the, 348
 German Technical Schools, 380
 Guildhall Exhibition, 286
 Hampton Court, 91
 Industrialism in America and England, 282
 Local Authorities and the Amenity of England, 106
 Masters of Art, 9, 171, 378, 410
 Moorland Water and Lead Pipes, 138
 Nancy, the Screens in, 7
 New Books, 205
 New Gallery Exhibition, 284
 Oil-Painters, Society of, 28
 Painting at the Royal Academy, 296, 314
 Penrose, Francis Cranmer, 122
 St. Mark's, Venice, Optical Refinements in, 234
 Sculpture at the Royal Academy, 330
 Smith, Thomas Roger, 186
 Water Supply from Deep Wells, 381
 Wellington Monument, the, 58
 Worcester Cathedral 2

Legal:—

Aldington Sewage Case, 169
 Bermondsey v. Commercial Docks, 409
 Dandridge v. Hayles, 57
 Davey v. Gravesend, 201
 Dawson v. Great Northern and City Railway Co., 105
 Donnelly v. Omagh, 153
 Earl v. Pattenden, 191
 Goodchild v. Mathews, 336
 Hope v. Hardley, 80
 Hubbard v. Mullis, 320
 Lawford v. Billericay Council, 185
 McLarnon v. Carrickfergus Council, 288
 Martin v. Arnott, 393
 O'Malley v. Walsh, 322
 Toller v. Spiers & Pond, 73
 Tomlinson v. Sussex Brick Co., 352
 Wolff v. Plimpton, 313
 Wright v. Berry, 137
 Wright v. Lawson, 89

Notes and Comments:—

Abydos, 336
 American Architects, 352
 American Institute of Architects, 12, 128, 384
 Archaeological Explorations, 12
 Architectural Scholarships in America, 48
 Balls Bridge, 400
 Bench Marks, 64
 Birmingham School of Art, Master, 160
 Birmingham Slums, 416
 Bodleian Library, 12
 Bonnat, Léon, 416
 Brighton Technical School, 224
 Bright, Henry van, 288
 Builders' Accident Insurance, 192
 Building Act Amendment, 160
 Carnegie Buildings, New York, 384
 Castleford Free Library, Designs, 288
 Cavallini, Pietro, 144
 Chapelle Expiatoire, the, 96
 Churches, Closing of, 80
 Clifford's Inn Sale, 336
 Coins, 176
 Corsican Explorations, 192
 Cretan Explorations, 320
 Dean of Guild, 48
 Drains and Sewers, 416
 Duty on Works of Art, 144
 East Sussex School Buildings, 384
 Electricity at the Louvre, 160
 Façades Competition, 144
 Fagan, Mr. Louis, 32
 Fitzgerald, Mr. Percy, 384
 Forged Antiquities, 208
 "Forrest, James," Lecture, the, 400
 Frémiet, Emmanuel, 80
 Gambetta Statue, 112
 Garner Memorial, the, 64, 416
 German Archaeologists, 256
 Gibraltar Building Charges, 368
 Goodchild v. Mathews, 336
 Hansom, the late Charles, 240
 Hartley, Sir Charles A., 368
 Hermant, the late Achille, 304
 Herzog's (Dr.) Excavations, 176
 Hope v. Hardley, 80
 Hubbard v. Mullis, 320
 Institution of Electrical Engineers, Contracts, 112
 Iowa Engineering Society, 176
 Laeken Palace, 112
 L'Art, 32, 208, 304
 Liverpool Housing, 96
 Machinery and the Factories Act, 208
 Marcus Aurelius, Statue, 160
 Menzel, Adolphe, 320
 McLarnon v. Carrickfergus Council, 288
 Mercier, Antonin, 400
 Montaigne, Michel, 64
 Mycene, 272
 Ordained Surveyors, Meeting, 224
 Overbeck's "Seven Sacraments," 368
 Paris Building Exhibition, 128
 Paris, Exhibitions in, 144
 Patent Office Library, 334
 Patras Competition, 272
 Pecht, Friedrich, 288
 Perrot & Chipiez, 32
 Photographs of MSS., 192
 Piccadilly Colonnade, 352
 Prince's Tavern, Manchester, 64
 Prix de Rome, 256
 Prix National, the, 416
 Queensferry, 176
 Raffaelli's Process, 144
 Roman Capitals, 128
 Roux, Léon-Jean, 192
 Royal Academy, Date of Reception, 80
 Royal Academy Election, 64

Notes and Comments—continued.

Royal College of Science, Dublin, 238
 St. Andrew's Tower, 128
 St. Mark's Library, 80
 St. Thomas of Canterbury, Salisbury, 12
 Sanitary Institute Congress, 176
 Sausse's House, 96
 Sculpture, 256
 Sittings in Churches, 128
 S.C.A.P. A., 352
 Society for the Encouragement of the
 Fine Arts, 48
 Society for the Protection of Ancient
 Buildings, 240
 Society of Antiquaries, 48
 Society of Architects' Dinner, 320
 Solona Statue, 240
 Strand Improvement, Names, 112
 Structural Alterations, 400
 Tara Hill, 144
 Tegea, 224
 The Kaiser and Sculpture, 384
 Tiara of Saitapharnes, 368
 Tomlinson v. Sussex Brick Company, 352
 Tortington, 12
 Verona, 304
 Vierge Consolatrice, 208
 Waterhouse's, Mr., Retirement, 400
 West Sussex School Buildings, 400

Reviews :—

Architectural Association Sketch Book
 by W. G. B. Lewis and W. A. Pite, 366
 Architecture of Greece and Rome, by the
 late W. J. Anderson and R. Phené
 Spiers, 43
 Arts in Early England. Vol. I.—The
 Life of Saxon England in its Relation
 to the Arts. Vol. II.—Ecclesiastical
 Architecture in England from the
 Conversion of the Saxons to the Nor-
 man Conquest, by G. Baldwin
 Brown, M.A., 318
 Biographic Clinics, by George M. Gould,
 M.D., 125
 Discussion of Composition Especially as
 Applied to Architecture, by John
 Vredenburg van Pelt, 61
 Encyclopædia Britannica, new volumes
 of the, 45
 Encyclopædia Britannica, index to the,
 300
 Georgian Period, the, by E. Eldon
 Deane, E. P. Morrill, O. M. Bell. Part
 XI., 110
 Modern School Buildings, Elementary
 and Secondary, by Felix Olaj, B.A.,
 139
 Pilgrimages to Old Homes, mostly on
 the Welsh Border, by Fletcher Moss
 252
 Ruskin on Pictures. A Collection of
 Criticisms by John Ruskin, 74
 Sculptures of the Parthenon, by A. S.
 Murray, LL.D., F.S.A., 221
 Spirals in Nature and Art, by Theodore
 Andrea Cook, M.A., F.S.A., with a
 Preface by Professor E. Ray Lankester,
 F.R.S., 78

Reviews—continued.

Travels in Southern Europe and the
 Levant, 1810-17; the Journal of C. R.
 Cockerell, R.A., by Samuel Pepys
 Cockerell, 395

Tesseræ:—

Acropolis, the, at Athens, 296
 Ancestral Images of the Romans, 31
 Ancient Painting and John Bellini, 181
 Angevin Churches, 327
 Anglo-Saxon Masonry, 399
 Apsidal Chapels, 152
 Araceli, the Church of, 23
 Architectural Qualities, 56
 Architecture, Proportions in, 375
 Art, Purposes of, 327
 Babylonian Sixties, 87
 Basilicas, Influence of, 119
 Belgian Carillons, 23
 Border Peel Towers, 152
 Brick Churches of North Italy, 120
 Bristol High Cross, 392
 Building Easements in Roman Law, 358
 Byzantine and Roman Follage, 151
 Byzantine Painting, 357
 Carracci, the, and Eclecticism, 238
 Catania, 257
 Colchester, the Walls of, 181
 Da Vinci and Raphael, 357
 Detail and General Effect, 238
 Drawing and Painting, 119
 Disseldorf School of Painting, 358
 Egyptian Art, Types in, 327
 Epicurus's Garden, 271
 Exeter Cathedral, Fabric Accounts, 238
 Fifteenth-Century Stained Glass, 151
 Gardens of the Philosophers, 181
 Gavel or Gable Pennies, 343
 Gothic Renaissance, 181
 Gothic String-courses, 167
 Greek Architecture and Greek Tragedy,
 23
 Greek Art, Precision in, 31
 Greek Painting, 376
 Greek Vases, 181
 Guatemala Cathedral, 399
 Illusions of Intersecting Lines, 239
 Irish Hermitage Settlement, 399
 Mason and Chambers, 119
 Nature and Art, 271
 Old Churches in Ireland, 343
 Originality in Art, 271
 Picturesque in Art, the, 343
 Portrait Statues and Buildings, 343
 Portrait Statues in Greece, 392
 Post-Alexandrian Sculpture, 119
 Remains in Herefordshire, 87
 Restorations, Medieval and Modern, 356
 Reynolds's Historical and Imaginative
 Works, 399
 Roman Foot, the, 375
 Roman Influence in France and England,
 295
 Sculpture and Painting, 87, 167
 Sculpture, Texture on, 23

Tesseræ—continued.

Stained Glass Preserved by Le Noir, 239
 Tempera, Painting in, 271
 Timber Churches in Britain, 55
 Trent Cathedral, 31
 Twelfth-Century Building in France, 87
 Twelfth-Century French Castle, 344
 Uniformity in Architecture, 238
 Wells Cathedral, Sculpture of, 55

The Week :—

Abney, Sir Wm., 217
 Aldington Sewage Case, 169, 201
 All Souls Church, Accident, 409
 American Builders, 329
 Arbitrator's Fees, 249, 265
 Architects' Agreements, 185
 Architecture of Ancient India, 121
 Art Forgeries, 133, 217
 Begas, Reinhold, 233
 Berlin Cathedral, 377
 Bermondsey v. Surrey Commercial Docks
 Company, 409
 Bessemer Memorial, 297
 Bexhill By-laws, 265
 Bligny Sanatorium, 25
 Bosco Reale Frescoes, 393
 Bouguereau's *La Vierge Consolatrice*, 313
 Bradley, the late Dr., 185
 Brighton and Hove Litigation, 297
 Brussels New Church, 377
 Building Line, the, 73
 Burlington Club, 329
Burlington Magazine, 249, 320
 By-laws, 281
 Campanile, the, Venice 121, 201
 Cape of Good Hope University, 329
 Capper, Stewart Henbest, 201
 Carlisle Water Supply, 377
 Celtic Ornament, 73
 Census Return of Houses, 361
 Chavannes Monument, 25
 Colney Hatch Fire, 73
 Contractor's Right to Old Materials, 121
 Cooper's Hill College, 217
 Dandridge v. Hayles, 57
 Davey v. Gravesend, 201
 Dawson v. Great Northern and City
 Railway Company, 105
 Demosthenes' Statue, 361
 Donnelly v. Omagh, 153
 Dublin Winter Exhibition, 41
 Duffy, Sir Charles Gavan, 105
 Durban Town Hall Competition, 265
 Dürer's *Nativity*, 137
 Engravers and Etchers' Exhibition, 313
 Eton Fire, 361
 Exhibition Reports, 393
 Folies Marigny, the, 329
 François Vase, the, 185
 Fulham Electricity Accident, 25
 Galliera Pictures, 153
 German Archaeologists in Athens, 265
 Gerôme, M., 57
 Giffard, Henri, 57
 Glasgow and the Postmaster-General,
 279

The Week—continued.

Golden Crown, Breslau, 281
 Grenelle, Well at, 121
 Hampton Court Gates, 169
 Heffer, A. E., 73
 High Wycombe Municipal Buildings,
 297
 Hôtel de Ville, Paris, 185
 Housing Handbook, the, 217
 Indian Archaeology, 265
 Indian Workmanship, 1
 Insanitary Portsea, 377
 Irish Farm Buildings, 137
 Irish Gold Ornaments, 89
 Irish Institute of Architects, 249
 Italian Works of Art, 393
 Khartoum, Building at, 265
 King's Sanatorium, the, 345
 Kingstown, 217
 Knossos Excavations, 377, 409
 Legion of Honour, the, 233
 Licensing Act and Plans, 89
 Liverpool Cathedral, 153, 345
 Livre Foncier de Paris, 169
 London Fogs, 153
 London Master Builders' Association,
 169
 Machinery Gallery, Paris, the, 249
 Manchester Infirmary, 201, 217, 233
 Martin v. Arnott, 393
 Martinique, 137
 Médailles d'Honneur, 361
 Mitchell, the late C. W., 153
 Mithra, Worship of, 281
 Nakhon Wat, Temple of, 361
 National Gallery, Edinburgh, 313
 Newspaper Buildings, 297
 Obstruction to Light, 89
 Old Bridewell Burying Ground, 313
 Orchomenos, Tomb at, 281
 Orientation of Christian Churches, 1
 Palais Bourbon, the, 377
 Paris Appartements, 313
 Prix de Rome "Envois," 137
 Procuratie Vecchie, 41
 Ranworth Church, 233
 Restoration in Germany, 25
 Rhind's, John S., Apprentice, 41
 Right of Ownership, 345
 Royal Institute "At Home," 41
 Rue Charles Garnier, 281
 St. Bartholomew's, 57, 153
 Samson, Abbot, 25
 Sandwich, 185
 Sky-signs, 233
 Steyning Infirmary Buildings, 1, 41
 Sutton Trust, the, 105
 Toller v. Spiers & Pond, 73
 Town Surveyors, 169
 Uralite, 89
 Vauxhall Bridge, 329
 Venice Campanile, the, 201
 Visitors to the London Galleries, 249
 Waller, the late S. E., 393
 Wells, the late H. T., 57
 West Malling Stoup, 105
 Wolff v. Plimpton, 313
 Workmen's Compensation, 409
 Works Department, the, 345
 Wright v. Berry, 137
 Wright v. Lawson, 89

INDEX OF ILLUSTRATIONS.

* * * THE LITHOGRAPHED ILLUSTRATIONS WILL BE FOUND OPPOSITE TO THE PAGES QUOTED.

Acton Fire Station, 336
 All Stretton, new Church, 160
 Bailrigg, Entrance, 160
 Beverley Minster, 368
 Birmingham, House near, 160
 Bleak House, Broadstairs, 336
 Bournemouth, House at, 336
 Branksome Park, Bournemouth, 400
 Brewers' Hall, 80
 Broadway Theatre, 272
 Butchers' Hall, 112
 Camberwell Palace of Varieties, 333
 Chicksands Priory, 256, 272, 320
 Colchester Town Hall, 32, 48, 64, 80
 Cordwainers' Hall, 160
 Coronet Theatre, 333
 Country Residences, 96, 192
 Crown Theatre, Peckham, 272
 Danesfield, Great Marlow, 48, 176
 Dormy House Club, 208
 Edinburgh, Sketches in, 12
 Edinburgh, Wesleyan Hall, 96
 Eltham Palace, 160
 Evelyn House, 272

Fawside, Colinton, 128
 Finchley, Higher Elementary School, 288
 Font and Decoration Design, 96
 Frensham Hill, Farnham, 128
 Gaiety Theatre Auditorium, 12
 Grainger Memorial, 48
 Grand Hotel, Charing Cross, the Bridge, 304
 Grand Theatre, Clapham, 336
 Grand Theatre, Fulham, 336
 Great Eastern Hotel, 256
 Grocers' Hall, 192
 Hampton Court Gate, 240
 Harrogate Municipal Buildings, 112
 High Wycombe Proposed House, 400
 Houses, Prince's Street, 384
 Inch House, Bathgate, 80
 Knole House, 224
 Leeds, Queen's Hotel, 48
 Leicester Isolation Hospital, 128
 Leslie Arms, Croydon, 304
 Lindfield Gardens, Hampstead, 368
 London and Provincial Bank, Camberley, 272

London, City and Midland Bank, 240
 Long Acre, New Premises, 144
 Lyceum, the, Sheffield, 352
 Magdalen, the, 352
 Manchester Cathedral, 368
 Masters of Art, 12, 176, 394, 416
 Métropole Theatre, 352
 Monument, Glasnevin Cemetery, 256
 National Mutual Life Association of Australia, 20
 Newspaper Buildings, 224
 North Eastern Railway Co. Offices, 240
 Oakbank, New School, 192
 Picturesque Ipswich, 192
 Pontypridd Town Hall, 288
 Premises, High Street, Kensington, 208
 Premises, Tudor Street, 278
 Pulpit and Screen, Rothbury, 320
 Railway Hotel, Northallerton, 320
 Ravenslea, Clapham, 304
 Redgarth, Cork, 304
 Return from the Durbar, the, 32
 St. Columba Church, 192
 St. George's Garrison Church, Woolwich, 224

St. John's Mission Church, Cobham, 368
 Shaldon Church, 304
 Sheffield Daily Telegraph Office, 224
 Skipton Hospital, 128
 Soldiers' Homes, Kilbride and Ballykinlar, 272
 Staircase, Manchester School of Technology, 32
 Sunderland Police and Fire Buildings, 48
 Sunningdale Golf Club, 208
 Thirkleby Church, 288
 Town Church, Study for a, 208
 University College Hospital, 384, 400
 Wakefield County Buildings, 64
 Watermen's Hall, 144
 Wells Road Board School, Bristol, 112
 White Bear, Portsea, 304
 Wolverhampton, Methodist Chapel, 176
 Woodwork, All Hallows, 64
 Worcester Cathedral, 12, 32, 48, 64, 80, 96, 112, 128, 144, 176, 208, 240, 256, 288, 320, 352, 400, 416
 Workington Public Library, 352
 Wolverle, Olton, 144
 Wychmont, Olton, 144

ARCHITECTS AND ARTISTS.

Armitage, E., 122
 Armstead, H. H., 384, 416
 Belcher, John, 32, 48, 64, 80
 Bell, Wm., 240
 Berney & Sons, 304
 Bignold, Herbert, 304
 Blackwell & Thomson, 128
 Bone, Alfred H., 304
 Bourne, W. H., 320
 Bryan, H. D., 112
 Burr, W. A., 336
 Chalmers, P. M., 48, 192
 Correggio, 352
 Cross, A. W. S., 32
 Crouch & Butler, 160
 Davidson, Gerald, 352
 Davis & Emanuel, 272

Deane, T. M., 256
 Dening, O. F. W., 208
 Dixon, Albert E., 238
 Dunn & Findlay, 96
 Edis, Robt. W., 256
 Elton, Percy Ion, 160
 Emden, Walter, 224
 Fairley, J. Graham, 80, 192
 Fletcher, Banister, & Sons, 208
 Freeman, Albert C., 192
 Gibbs & Flockton, 224
 Gibson & Russell, 64
 Hazell, W. E., 48
 Hill, Arthur, 304
 Homer & Ridler, 368
 Howgate, W. C., 112
 Keirle, Robt., 272
 Lacey, Geo. J. J., 96

Lamb, E. B., 288
 Maidman, C. H., 128
 Marks, H. S., 42, 58
 Marshall, Arthur, 176
 Miles, C. T., 336, 400
 Oswell, A. E. Lloyd, 160
 Philip, J. B., 12, 176
 Pickersgill, F. R., 90
 Plummer, A. B., 320
 Poynter, Sir E. J., 226
 Roome, W. J. W., 272
 Riintz, Ernest, 12, 272
 Sedding, Edmund, 304
 Smith, M. M., 384
 Sprague, W. G. R., 272, 336, 352
 Spurril, H. T., 12, 96, 192
 Tijou, J., 240
 Tinker, H. A., 11

Tombshaw, C., 48
 Treadwell & Martin, 368
 Wakley, H. M., 208
 Walker, Romaine, 48, 176
 Waller, F. W., & Son, 128
 Waterhouse, A., & Son, 384, 400
 Watling, H. Stewart, 96
 Weeks, E. L., 32
 Wilson, W. G., 238
 Wood & Kendrick, 144
 Woodrow, E. A. E., 336
 Woodward, J. T., 144
 Woodward, Wm., 304
 Woolfall & Eccles, 160
 Wornum, R. Selden, 240
 Wright, Reed & Beaver, 32
 Wyatt, T. H., 224
 Yeames, W. F., 112

THE

Architect and Contract Reporter.

EDITORIAL NOTICES.

In view of the many difficulties which are certain to arise in connection with the law, practice rules and procedure under the Workmen's Compensation Act, we have added to our staff A VERY EMINENT BARRISTER, who has made the subject a special study, and will be glad to answer in the columns of this paper any questions relating to the complicated matters arising from the provisions of this difficult Act. Our LEGAL ADVISER will further answer any legal question that may be of interest to our readers. All letters must be addressed "LEGAL ADVISER," Office of "The Architect," Imperial Buildings, Ludgate Circus, London, E.C.

The Editor will be glad to receive from Architects in London and the Provinces results of Competitions and Tenders and other particulars of Works in progress in which they may be interested.

The authors of signed articles and papers read in public must necessarily be held responsible for their contents.

No communication can be inserted unless authenticated by the name and address of the writer—not in every case for publication, but as a guarantee of good faith.

Correspondents are requested to make their communications as brief as possible. The space we can devote to Correspondence will not usually permit our inserting lengthy communications.

TENDERS, ETC.

*** As great disappointment is frequently expressed at the non-appearance of Contracts Open, Tenders, &c., it is particularly requested that information of this description be forwarded to the Office, Imperial Buildings, Ludgate Circus, London, E.C., not later than 2 P.M. on Thursdays.*

COMPETITIONS OPEN.

SCOTLAND.—Sept. 12.—Competitive plans are invited for alterations on and additions to the Stonehaven town hall. Mr. George Murdoch, borough surveyor.

TAUNTON.—July 20.—Competitive designs are invited for a library building to be erected in Corporation Street, at a cost not exceeding 5,000*l.* inclusive. Premiums of 30*l.*, 20*l.*, and 10*l.* will be awarded for designs adjudged of sufficient merit, and placed first, second and third in order respectively. Mr. George H. Kite, town clerk, Municipal Buildings, Taunton.

CONTRACTS OPEN.

ACCRINGTON.—July 14.—For the erection of bank premises, Blackburn Road, Accrington. Mr. Henry Rose, architect, 15 Cannon Street, Accrington.

ASHTON-UNDER-LYNE.—July 2.—For the erection of classroom and cloak-room at St. James's central schools, Ashton-under-Lyne. Messrs. Thos. George & Son, architects, Old Square, Ashton-under-Lyne.

AYSGARTH.—June 29.—For alterations and additions at the workhouse, and the erection of a new block of buildings for receiving wards, laundry, mortuary, &c. Mr. J. P. Kay, 10 St. Paul's Street, Leeds.

BARNLEY.—July 2.—For pulling-down and rebuilding the Wire Trellis hotel, May Day Green, Barnsley. Messrs. R. & W. Dixon, architects, 5 Eastgate, Barnsley.

BARROW-IN-FURNESS.—For the erection of Sunday schools for St. Luke's parish, Barrow. Mr. E. M. Young, architect, 90 Duke Street, Barrow-in-Furness.

BECCLES.—July 2.—For the erection of two cottages at Weston, near Beccles. Mr. Arthur Pells, F.S.I., architect, Beccles.

BELLINGHAM.—June 29.—For alterations to the Bellingham town hall. Mr. J. T. H. Hedley, Bellingham, Northumberland.

BIGGLESWADE.—July 14.—For the erection of vagrants' ward, disinfecting chamber, work-sheds, &c., at the workhouse. Mr. J. Owen Jones, Shortmead Street, Biggleswade.

BINGLEY.—July 2.—For the erection of an operating-room and a mortuary at the Bingley Cottage Hospital. Mr. W. Rhodes Nunn, architect, 13 Market Street, Bingley, Yorks.

BIRMINGHAM.—June 29.—For woodwork fittings for the new buildings at the workhouse, Selly Oak. Mr. Edwin Docker, clerk, 10 Newhall Street, Birmingham.

BOLTON PERCY.—For the erection of a Wesleyan chapel at Bolton Percy, near York. Messrs. Danby & Simpson, architects, 10 Park Row, Leeds.

BRADFORD.—July 3.—For the erection of a new lodge at Harold Park, Low Moor. Mr. F. E. P. Edwards, city architect, Whitaker Buildings, Brewery Street.

BRIDPORT.—July 4.—For the erection of new coastguard buildings at West Bay, near Bridport, consisting of houses for officer and seven men, detached boat-house and watch-room. Particulars may be obtained at the Director of Works Department, Admiralty, Avenue House, Northumberland Avenue, W.C.

BRIERFIELD.—July 14.—For the erection of a police station and courtroom at Brierfield, Lancs. Mr. Henry Littler, architect, County Offices, Preston.

BRIGHTON.—June 30.—For the erection of eight five-roomed artisans' dwellings in Elm Grove, Brighton. Mr. Francis J. C. May, surveyor, Town Hall, Brighton.

CHESTER.—July 1.—For the demolition of the buildings known as The Jam Works, Roodee, Chester, and for the purchase and removal of the materials. Mr. F. A. Pye, general manager, Gas Offices, Cuppin Street, Chester.

CONONLEY.—For the erection of engine-house and bed at Aireside Mills, Cononley, Yorks. Messrs. John Haggas & Sons, architects, North Street, Keighley.

CRESWELL.—For the erection of a Wesleyan chapel at Creswell. Messrs. W. J. Morley & Son, architects, 269 Swan Arcade, Bradford.

CROYDON.—June 30.—For the erection of fifteen rows of cottage dwellings (146 cottages) for the working classes on the Norbury Estate, London Road, Croydon. Particulars may be obtained at the Housing Section of the Architect's Department, L.C.C., 19 Charing Cross Road, W.C.

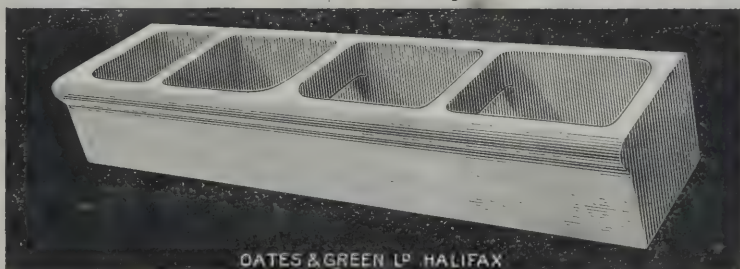
DARTMOUTH.—July 6.—For the erection of four houses in Victoria Road, Dartmouth. Mr. E. H. Back, architect, Dartmouth.

DORSET.—July 15.—For repairing and painting the exteriors of the following police stations throughout the county, viz. Blandford, Beaminster, Bridport, Cerne Abbas, Cranborne, Dorchester, Gillingham, Lyme Regis, Portland, Shaftesbury, Sherborne, Swanage, Wareham, Wimborne, and additions to Dorchester station. Mr. Walter J. Fletcher, county surveyor, Wimborne.

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ELLAND.—June 30.—For the erection of a square brick chimney in connection with the refuse destructor and electric-light and power station at Low Fields, Elland, Yorks. Mr. James Clarkson, clerk to the Urban District Council, Elland.

FALMOUTH.—July 6.—For the erection of public sanitary conveniences adjoining the town hall. Mr. E. E. Armitage, town clerk, Municipal Offices, Falmouth.

FELIXSTOWE.—For the erection of a gentleman's cottage at Felixstowe. Mr. George Wm. Leighton, architect, Orwell Road, Felixstowe.

FLASS HALL.—July 4.—For the erection of a timber foot-bridge near Flass Hall, Durham. Mr. J. McKenzie, surveyor, Langley Moor.

GOLCAR.—For alteration and reseating to gallery at St. John's Church, Golcar, Yorks. Mr. Arthur Shaw, architect, Golcar.

GOLCAR.—June 29.—For the erection of dwelling-houses and additions to building at Golcar, Yorks. Mr. Arthur Shaw, architect, Golcar.

GREAT CROSBY.—July 3.—For additions and alterations to the offices, College Road, Great Crosby, for the Great Crosby Urban District Council Messrs. Andersson & Crawford, architects, 36 Dale Street, Liverpool.

HORBURY BRIDGE.—July 2.—For the erection of a branch store at Horbury Bridge, Yorks. Messrs. W. & D. Thornton, architects, Oates Street, Dewsbury.

HORNCASTLE.—July 6.—For taking-down and rebuilding a culvert in Moor Lane, Horsington, Lincs. Mr. Henry White, surveyor, 4 Church Lane, Horncastle.

HULL.—June 30.—For additions to and alterations and improvements of the Osborne Street Board school. Messrs. Brodrick, Lowther & Walker, architects, Lowgate, Hull.

ILKLEY.—For the erection of semi-detached houses at Grove Road, Ilkley. Mr. Fredk. Musto, A.R.I.B.A., Greek Street Chambers, Leeds.

IRELAND.—For the erection of a combined meter-house and valve-room at gasworks, Waterford. Mr. R. Bruce Anderson, 35A Great George Street, Westminster.

IRELAND.—June 29.—For the erection of six shops in English Street and Scotch Street, Armagh. Mr. W. S. Jervois, architect, Armagh.

IRELAND.—July 4.—For the erection of an auxiliary dispensary depôt at Carrigeens, Sligo. Mr. Kilgallen, architect, Abbeyville, Sligo.

IRELAND.—July 6.—For alterations to Castledawson Presbyterian church, Belfast. Mr. Thomas Houston, architect, &c., King's Court, Wellington Place, Belfast.

IRELAND.—July 6.—For the extension of the premises of the Nantymoel Industrial Co-operative Society. The Secretary, Nantymoel.

IRELAND.—July 6.—For the erection of two labourers' cottages in the townland of Navenny, and one in Sessiaghoneill, Stranorlar. Mr. G. McLaughlin, clerk, Stranorlar.

IRELAND.—July 13.—For the erection of a creamery near Lismore railway station. Mr. William Hartnett, secretary, Chapel Street, Lismore.

KENDAL.—July 1.—For enlarging Messrs. Bateman & Hewitson's printing works, &c., Finkle Street, Kendal. Mr. Stephen Shaw, architect, 45 Highgate, Kendal.

KING'S LYNN.—For scraping, repointing and painting the walls of the kitchen and bread store, for the Guardians of King's Lynn Union. Mr. R. C. Coulton, clerk, King Street, Lynn.

KIRDFORD.—June 30.—For removing and rebuilding the east wall, and the erection of a new wall in continuation of and in keeping with the present north wall at the churchyard, Kirdford, Sussex. The Vicar, Kirdford, Billingshurst.

LANGLEY BRIDGE.—July 11.—For widening Langley Bridge, situated on the main road between Eastbourne and Pevensey, Sussex. Mr. F. J. Wood, county surveyor, County Hall, Lewes.

LEICESTER.—July 10.—For the erection of tram-car sheds, workshops, stores, caretaker's house, offices, stables and all other buildings and works in connection therewith. Mr. E. George Mawbey, engineer, Town Hall, Leicester.

LONDON.—July 1.—For re-forming pipe trenches and repairing corridors at the South-Western Hospital, Landor Road, Stockwell, S.W. Mr. W. T. Hatch, engineer, Metropolitan Asylums Board, Embankment, E.C.

LONDON.—July 4.—For the erection of two-storey building, Ravensbourne Works, Bromley Road, Catford, S.E. Messrs. Thos. George & Son, architects, Old Square, Ashton-under-Lyne.

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LONDON.—July 4.—For the erection of an orphanage for the St. Pancras Female Orphanage and Charity School, 108 Hampstead Road, N.W. Mr. Goss, 3 Broad Street Buildings, Liverpool Street, E.C.

LONDON, N.—July 6.—For additions to and the erection of foreman's cottage at Highgate depôt; additions to sanitary depôt, Hornsey; Muswell Hill sub-depôt, and Western Park sub-depôt. Mr. E. J. Lovegrove, engineer to the Hornsey Urban District Council, 99 Southwood Lane, Highgate, N.

LONDON.—July 8.—For the erection of a block of tenement dwellings in John Street, Edgware Road, Marylebone. Mr. Harry B. Measures, 16 Great George Street, Westminster, S.W.

LOUTH.—July 4.—For the erection of the science buildings for the Governors of the Louth Grammar school (Lincs). Mr. E. E. Bentley, architect, 1 Pelham Chambers, Old Market Place, Grimsby.

LOWER BEBINGTON.—July 1.—For alterations to the Council Offices, Lower Bebington. Mr. H. W. Corrie, surveyor, Lower Bebington.

MORLEY.—July 2.—For bakers' fittings and painters' work at the Morley Industrial Co-operative Society's Bakery. Messrs. R. Castle & Son, architects, London City and Midland Bank Chambers, Cleckheaton.

NEWARK.—June 29.—For the erection of a chapel and school at Barnby. Messrs. Sheppard & Harrison, architects, Bargate, Newark.

PADDINGTON.—July 6.—For construction of a retaining-wall on land abutting on Ashworth Road and the Paddington recreation-ground and the supply and erection of railings thereon. Mr. E. B. B. Newton, borough surveyor, Town Hall, Paddington, W.

POLGLAZE.—June 29.—For the erection of two houses at Polglaze, near Hewaswater, Cornwall. Capt. T. D. Collins, Pothole, St. Austell.

PORTSMOUTH.—July 7.—For the enlargement of the post office at Portsmouth, for the Commissioners of H.M. Works and Public Buildings. Bills of quantities and forms of tender may be obtained at H.M. Office of Works, &c., Storey's Gate, S.W.

PRESTON.—July 6.—For setting one Lancashire steam-boiler, covering the top and connections thereto with non-conducting composition, &c. Mr. James Clarke, clerk, Union Offices, Preston, Lancs.

PUDSEY.—July 1.—For the erection of new wool warehouse, staircase and stable in connection with Priestley Mill, Pudsey, Yorks. Mr. C. S. Nelson, architect, Sun Buildings, 15 Park Row, Leeds.

ROMSEY.—July 4.—For the erection of cottage and sundry alterations and additions at Romsey police-station. Mr. W. J. Taylor, county surveyor, The Castle, Winchester.

ROTHERHAM.—June 30.—For extensions to the electric-tramcar sheds in Rawmarsh Road, Rotherham. Mr. J. Platts, Corporation architect, High Street, Rotherham.

ROTHERHITHE.—July 14.—For erection of four blocks of dwellings for the working classes on the Fulford Street area site, Rotherhithe. Mr. Fredk. Ryall, town clerk, Town Hall, Spa Road, S.E.

SCOTLAND.—July 1.—For alterations and additions to the steading at Cairnpark, Fintray, Aberdeen. Messrs. Alexander Stronach, jun., & Son, advocates, 25 Belmont Street, Aberdeen.

SCOTLAND.—July 1.—For additions to the cottage hospital, Coldstream. Mr. A. M. Porteous, Coldstream.

SCOTLAND.—July 4.—For the erection of Maryhill District library. Mr. James R. Rhind, architect, Inverness.

SCOTLAND.—July 6.—For the erection of a building for natural philosophy, and a building for physiology, materia medica, forensic medicine and public health, Glasgow. Mr. James Miller, architect, 15 Blythwood Square, Glasgow.

SCOTLAND.—July 6.—For the construction of the goods and minerals stations' buildings on the new Leith lines, for the Caledonian Railway Company. Mr. J. Blackburn, secretary, 322 Buchanan Street, Glasgow.

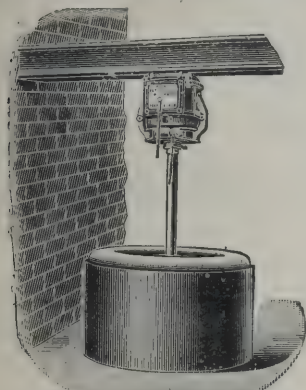
SHEFFIELD.—June 30.—For the superstructure of engine-room, pump-room and boiler-house above ground floor level at the new electric-power station, Club Mill Lane, Neepsend. Mr. S. E. Fedden, general manager and engineer, Corporation Electric Supply Department, Commercial Street, Sheffield.

SHIBDEN.—June 29.—For the erection of two houses, Green Lane, Shibden, Yorks. Messrs. Walsh & Nicholas, architects, Museum Chambers, Halifax.

STOCKTON-ON-TEES.—June 29.—For the construction of underground conveniences in High Street. Mr. Arthur B. Crosby, town clerk, Borough Hall, Stockton-on-Tees.

STOCKTON-ON-TEES.—June 29.—For the construction of a bridge over Lustring Beck in Bishopton Road. Mr. Arthur B. Crosby, town clerk, Borough Hall, Stockton-on-Tees.

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TROWBRIDGE.—June 29.—For repairing, painting, &c., the market hall. Mr. H. G. Nicholson-Lailey, town surveyor, Town Hall, Trowbridge, Wilts.

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WALES.—June 30.—For the erection of a villa at Llantwit Vardre. Mr. Alfred Bryant, architect, Midland Bank Buildings, Pontypridd.

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WALES.—July 6.—For the enlargement of the Abergele county school. Mr. Frank Bellis, architect, 204 High Street, Bangor.

WALES.—July 11.—For alteration and addition to Victoria Wesleyan chapel, Garndiffaith. Messrs. Fisher & Sons, architects, Club Chambers, Pontypool.

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WALES.—July 13.—For the erection of a new physical laboratory to the school buildings in Bush Street East, Pembroke Dock. Mr. D. Edward Thomas, architect, Victoria Place, Haverfordwest.

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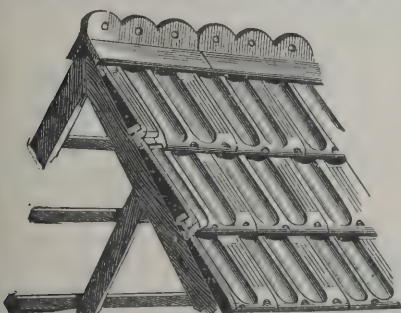
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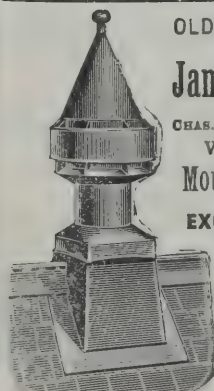
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ROTHWELL.

For painting, varnishing and colouring the interior and exterior of Rothwell Haigh schools, Yorks, during the holidays, commencing July 30.

A. & G. BARKER, Rothwell, near Leeds (*accepted*) £88 0 0

SCOTLAND.

For the construction of relief outfall sewers and storm overflows, North Berwick. Mr. G. SOMERVEL CARFRAE, engineer, 1 Erskine Place, Edinburgh.

J. Walker	£755	10	4
J. Martin	687	5	7
R. C. Brebner & Co.	591	5	4
D. & J. Stratton	578	8	11
A. Waddell & Son	573	16	7
J. Elliott	571	5	7
G. Mackay & Son	549	10	10
J. Lumsden	544	13	8
W. MORRIS, Duff Street, Edinburgh (<i>accepted</i>)	532	0	0

For the erection of a dwelling-house at Dunphail. Mr. JOHN FORREST, architect, Forres.

Accepted tenders.

Ross & Murray, Forres, builder.
W. Black, Forres, carpenter.
A. Davidson & Son, Forres, slater.
Angus & Ross, Forres, plasterer.
W. Munro & Son, Forres, plumber.
J. Robertson, Forres, painter and glazier.

For electric lighting at the Cupar asylum.

LOWDON BROS., Dundee (*accepted*) . . . £2,987 0 0

SOUTHAMPTON.

For reconstructing part of the town quay. Mr. E. COOPER POOLE, engineer.

Pedrette & Co.	£30,141	6	10
E. H. Page	24,432	7	4
C. J. Leather	21,713	0	0
W. Rigby & Co.	18,419	0	0
A. Fasey & Son	17,733	12	11
T. Rickard	16,360	0	0
F. Grace	15,682	0	0
PLAYFAIR & TOOLE, Southampton (<i>accepted</i>)	15,337	0	0

STOCKPORT.

For the erection of an infirmary at Stepping Hill, near Stockport. Mr. W. H. WARD, architect, Paradise Street, Birmingham

Moss & Sons	£45,110	0	0
Smith & Pitts	45,774	0	0
Robinson & Sons	44,699	0	0
Byrom	44,600	0	0
S. & J. Whitehead	44,500	0	0
Hoe	43,788	0	0
Longden & Son	43,450	0	0
Meadows	43,113	0	0
Willcock & Co.	42,775	0	0
Briggs	41,696	0	0
Gibbs	40,875	0	0
Pownall	40,160	0	0
EADIE, Stockport (<i>accepted</i>)	39,980	0	0

TEWKESBURY.

For the construction of chambers, manholes, &c., in connection with the erection of an Adams patent sewage lift, and the laying of about 240 feet of sewer in Cotteswold Road. Mr. WALTER RIDLER, borough surveyor.

Collins & Godfrey	£270	0	0
T. Walker	265	0	0
J. W. HOWELL, Tewkesbury (<i>accepted</i>)	217	0	0

WALES.

For improvements and alterations to the Union workhouse, Pwllheli. Mr. R. G. THOMAS, architect, Menai Bridge.

I. Evans	£1,315	0	0
J. H. Roberts	1,300	0	0
J. J. Jones	1,297	0	0
J. & R. W. Jones	1,270	0	0
O. D. Jones	1,213	0	0
J. Summers	1,191	0	0
Jones, Roberts & Thomas	1,172	0	0
P. Edwards	1,145	0	0
W. Owen	1,143	0	0
W. G. EVANS, Criccieth, North Wales (<i>accepted</i>)	1,067	0	0

For the erection of a wooden bridge with stone abutments over the river Ebbw at Crumlin, Abercarn.

C. F. MORGAN, Newbridge, Mon (*accepted*) . . . £111 0 0

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WALES—continued.

For new shop-front and fittings, Wind Street, Swansea. Mr. CHARLES T. RUTHEN, architect, Bank Chambers, Heathfield Street, Swansea.

F. Sage & Co.	£749	0	0
Harris & Sheldon	563	0	0
T. Richards	540	0	0
Hill & Egginton	529	0	0
Jones, Price & Rees	480	0	0
Parnall & Co.	468	15	0
E. Pollard & Co.	448	0	0
Couzens & Co.	397	10	0
D. JENKINS, Swansea (accepted)	396	10	0
J. Marles & Sons	395	0	0
M. A. Shepherd	365	0	0

WEDNESBURY.

For electricity supply, Wednesbury Corporation. Mr. F. J. WARDEN-STEVENS, consulting engineer, Westminster.

Accepted tenders.

Phoenix Dynamo Manufacturing Co., Bradford, motor generators.
British Westinghouse Electric and Manufacturing Co., Ltd., Manchester, battery boosters.
British Accumulator Co., Westminster, battery of accumulators.
W. Sanders, Wednesbury, switchboards.
W. T. Glover & Co., Ltd., Manchester, cables.

WILLINGTON.

For the construction of sewage-disposal works at Willington, near Durham. Mr. J. E. PARKER, engineer, Post Office Chambers, Newcastle-on-Tyne.

G. Wells	£2,102	19	11
G. Hetherington	1,931	2	0
Hardy & Atkinson	1,909	16	2
G. H. Bell	1,844	16	8
J. Carrick	1,808	10	9
J. G. Kirtley	1,775	0	0
T. A. Turnbull	1,740	0	0
P. Frater	1,650	0	0
W. & J. LANT, Dixon Terrace, Darlington (accepted)	1,500	0	0

WOOLWICH.

For the erection of a public library in High Street, Plumstead. Mr. FRANK SUMNER, borough engineer.

H. LOVATT, Fitzgeorge Avenue, West Kensington (accepted) £11,429 7 6

WORKINGTON.

For the erection of a shop, hall and dwelling-house at Clifton. Messrs. W. G. SCOTT & Co, Victoria Buildings, Workington.

Accepted tenders.

G. Mann, mason	£450	0	0
G. H. Chambers, joiner	409	0	0
J. Lawson, plasterer	180	0	0
E. Burrow, slater	63	0	0
G. Davies, glazier and painter	56	2	8
J. A. Pope, plumber	53	0	0

For the erection of an office in Washington Street, Workington. Mr. J. S. MOFFAT, architect, 53 Church Street, Whitehaven.

Accepted tenders.

Bowman Hyde, Workington, masonwork, cementing and plastering.
J. Lythgoe, Workington, slating.
L. C. Harding, Whitehaven, joiner and painter.
J. W. Hodgson & Co, Workington, plumber, glazier and gasfitter.

YARDLEY.

For raising Greet Hill, Warwick Road, Yardley, Worcestershire. Mr. J. H. GARRETT, surveyor, Shire Hall, Worcester.

Kellett & Sons	£1,475	1	8
G. Trentham	1,201	0	0
J. White, jun.	1,145	10	0
R. W. Fitzmaurice & Co.	1,100	8	4
Currall, Lewis & Co.	1,041	6	8
W. H. Jones	1,020	0	0
CRUWYS & HOBROUGH, Birmingham (accepted)	995	0	0

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ELECTRIC NOTES.

THE York City Council have obtained sanction to the loan for 50,000*l.* for extensions at the works, to be repaid during a period of twenty years. A discussion ensued on the relative merits of street lighting by electricity and by gas, a circular having been issued to the members by the Gas Company alleging that nearly 700*l.* annually was lost to the town by the substitution of electric light for gas. Mr. Scott (chairman of the committee) controverted the statement, maintained that the cost per candle-power was less for the electric, but if even the latter was more costly it was a better light.

MR. KING, engineer to the Glasgow Corporation electrical department, carried out last Friday an interesting experiment. At the crossing of the tram rails there is a renewable piece of cast steel bedded with white metal spelter into a larger piece of metal. This renewable piece up to the present has been chipped out, taking eight or nine hours. The time between the stoppage of the cars at night and starting in the morning being limited, Mr. King aimed at melting out this metal by means of a large blow-lamp. This has been accomplished by the adoption of a lamp made by the Scottish Oil Gas Lamp and Furnace Company, of Govan, one hour being sufficient to melt the white metal. The Waterworks Department were also represented at this experiment.

THE engineer to the Stirling Town Council has presented his annual report on the electrical undertaking. The estimated deficit balance on the year's working, as compared with the estimate, was about 48*l.*, the revenue having fallen short by 195*l.*, and the expenditure being 147*l.* less than the sum calculated. The average price received from private supply had been 4*68d.* per unit, as compared with 5*27d.* last year, being a reduction of rather more than $\frac{1}{2}$ *d.* per unit, owing partly to the more extended use of the maximum demand system, and partly to the introduction of the Nernst lamp. The cost of production per unit has this year been reduced from 1*98d.* to 1*51d.*, or nearly $\frac{1}{2}$ *d.* per unit. The total costs have decreased from 2*77d.* last year to 2*05d.* this year, showing a reduction of nearly $\frac{3}{4}$ *d.* per unit sold.

"ELECTRICITY" for June 19 commences the publication of a short serial upon "Some Practical Aspects of Electric Traction." The serial is written by Mr. A. P. Haslam, A.M.I.E.E., who is an expert in the subject, and deals with the conditions which must be fulfilled if an electric tramway is to succeed

where a horse-equipped line has failed. The cost of electrical equipment, the relative costs of working, the influence of electric traction upon traffic receipts and the possible effect of heavy sinking fund and depreciation charges, are all dealt with. The present forms one of a series of articles upon various phases of electrical engineering work, in which the commercial problems involved will be considered from a technical standpoint.

At a meeting of the Redditch Urban District Council a discussion took place upon the proposed extension of the engine-house at the electric-light works to accommodate the new engine. The committee strongly urged that the extension should be made, and the Chairman pointed out that if they had not the house ready the contractors would not be able to meet their engagement as to the date. Mr. Harbon urged that the resolution passed at the town's meeting, "that no further capital expenditure be incurred upon the undertaking until the opinion of an expert had been obtained" stood in the way. He moved as an amendment that before proceeding with the extensions it was desirable to obtain the opinion of the expert upon the plans. On being put to the meeting the recommendation of the committee was adopted.

THE Bo'ness Town Council have decided to sign the agreement with the National Wiring Company, London, to take over and work the provisional order when obtained for electric lighting and power in the burgh. By the agreement the Town Council find the capital, estimated at 26,000*l.*, and the company lay down the plant and work the same on a twenty years' lease, with breaks at ten, fourteen and seventeen years. The town pay the company a premium of 7 per cent. on the cost, and the company pay as interest and sinking fund on the Council's loan 6 per cent. If at the end of ten years the Council take over the scheme the company pay over any excess of profit over 3 per cent. per annum they have made during these years. The rates charged to be not more than $5\frac{1}{2}$ *d.* per unit for lighting, 3*d.* and 2*d.* for power and heating, and $2\frac{1}{2}$ *d.* for streets and public buildings.

At a meeting of Dumfries Town Council the electric-light committee reported that they had before them proposals by the National Electric Wiring Company and by Messrs. Frank Suter & Co. to carry out the electric installation in the town, and recommended that the Council enter into negotiations with Messrs. Suter & Co. with a view to arriving at an agreement. Under the firm's offer the Town Council are to provide the

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CATHEDRAL SERIES: WORCESTER.—NORTH CLOISTER.  
THE CHAPTER-HOUSE. SOUTH DOOR IN CLOISTERS.

the gas department which, it is affirmed, show conclusively that the mains in other parts of the city are being subjected to similar damage.

## BUILDING AND BUILDERS.

THE memorial-stone of South Rutherglen United Free Church has been laid. The church will cost a sum of 3,500*l*.

THE foundation-stone of the new Roman Catholic church at Eccleshall was laid on the 17th inst.

THE tender of Messrs. Stirling & Kay, Glasgow, for the erection of the sewage purification works at Dumfries at 21,007*l*. has been accepted.

PLANS have been prepared by Mr. Talbot Brown for the erection at Higham Ferrers of schools, classrooms, &c., at a cost of 2,000*l*.

THE Wesleyan Methodists of Brockholes, near Huddersfield, have begun operations for the building of a chapel, with a school to follow, to seat about 200 persons and to cost, including land, about 2,000*l*.

THE memorial-stone of St. Andrew's, Alexandra Parade, Glasgow, has been laid. It is estimated that the new church and hall will cost 7,000*l*., and there will be 850 sittings in the church, while the hall will accommodate about 150.

THE Wesleyans have just secured a site in Chester Road, Gorse Hill, Stretford, for the building of a large chapel. The foundation-stones were recently laid. It is intended eventually to build a large chapel, which will cost between 5,000*l*. and 6,000*l*. The school chapel, which will at once be proceeded with, will cost 1,250*l*.

THE foundation-stones of a new schoolroom connected with the Southbank Road Wesleyan church, Southport, were laid on the 20th inst. in the presence of a large company. The building is to replace one which had become too small, and is to cost 5,000*l*.; it will afford accommodation for between 300 and 400 scholars, and in addition to a large schoolroom and a lecture hall it will have a ladies' room, classrooms, a library and a social club-room.

THE Wellington Markets Company have decided to erect a new public hall, with spacious banqueting-room and theatre for Wellington. The new building will be in Market Street, in proximity to the Market Hall. The Urban Council having

capital, and Messrs Suter & Co. undertake to pay the interest and sinking fund, and to divide profits equally with the Council, loss occurring in any year to be debited against the profit of subsequent years. The Council are to have the option of taking over the undertaking without payment of any premium at any time on giving twelve months notice. They roughly estimate the capital expenditure of 15,000*l*. to 20,000*l*., but undertake to make a survey and then send in a given tender. Dean M'Lachlan moved the adoption of the committee's recommendation, and Mr. Lennox seconded. Mr. O'Brien moved that it be remitted to the whole Council in committee to enter into negotiations with all the firms who had submitted offers. This was seconded by Mr. Thomson. Dean M'Lachlan's motion was carried by 11 votes to 9.

A DISCOVERY has been made by the Leeds Corporation of the utmost importance to all places where electric tramways are in use. It is that the gas and water mains and the electric-light cables are being eaten through by the electric current which escapes through the rails into the earth after serving the cars. The discovery was made by the gas department. An escape of gas occurred in Kirkgate, and digging operations ensued. A leak was found in a pipe of an inch diameter, which could only be accounted for on the assumption that the electricity from the tramway overhead had eaten its way through the metal. This alarming theory led to further examinations, with the result that in the space of 6 inches on a 12-inch main no fewer than seven holes were discovered, which were evidently to be ascribed to the same cause. None of the perforations were quite complete. They varied from one-sixteenth to five-eighths of an inch in depth, and as the thickness of a new 12-inch main is only a little more than five-eighths the damage is in some cases almost complete. The gas main in question, it is stated, was a comparatively new one. The evidence as to the cause of the holes was supported by the electric-lighting department, by whom similar discoveries were made as to the injurious effects of the escaping fluid upon the electric-lighting cables. Moreover, tests have been made in

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adopted the Free Libraries Act, a free library and reading-room has been erected in Walker Street. It is rapidly approaching completion, and will probably be opened in July.

THE tender submitted by Messrs. Battley, Sons & Holness, 21 Old Kent Road, London, S.E., has been accepted for the new Baptist church and schools, Gloucester Place, Brighton, the contract amount being 5,381*l.* 10*s.* 1*d.* The accommodation provided in church is 725 adults. A bold square tower terminating with a quaint spirelet forms a prominent feature at one side. The architects are Messrs. G. & R. P. Baines, 5 Clement's Inn, Strand, W.C.

THE Leith Dock Commission have been informed by the assistant engineer that at the present rate of progress the excavation of the rock by the General Works Construction Company, Ltd., at the entrance to the new Imperial Dock would not be completed earlier than six months hence. With reference to the erection of "dolphins" for the working and protection of vessels entering the basin, the engineers reported that in consequence of the discovery of rock in the substratum the scheme of timber piling must be abandoned. The engineers advised that the alternatives would be four caissons or a continuous concrete wall, the comparative costs, broadly estimated, being for the four caissons and connecting gangways, 22,000*l.*, and for the continuous wall 18,000*l.* to 20,000*l.* The special committee were empowered to proceed in either way after receiving detailed reports.

THE third annual tour of the Edinburgh and Leith Master Builders' Association and the Building Trades Exchange of the city and district of Edinburgh took place on Tuesday to St. Mary's Loch. A company of over eighty gentlemen travelled to Selkirk, where they breakfasted. The weather, unfortunately, was of a disagreeable kind, heavy rain falling when the company drove off to Tushielaw. Fortunately, after lunch the sun broke through the dull sky, and the drive to St. Mary's Loch was made under much pleasanter circumstances. The company having been photographed at the Loch, they drove back by the Dowie Dens of Yarrow to Selkirk, where dinner was served. Mr. Neil M'Leod, president of the Association, occupied the chair, and was supported on his right by Mr. Graham Yooll, president of the Exchange, Mr. Patrick Knox and Mr. James Morris, and on his left by Mr. James Forrest, Mr. Alexander Drysdale and Mr. Cameron, the secretary. After spending a most enjoyable day, the return journey was made to Edinburgh.

## VARIETIES.

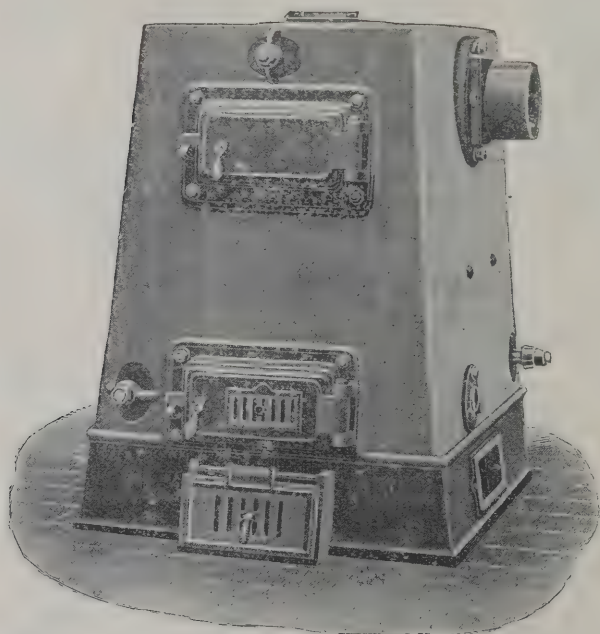
THE massive stone parapet on the Glasgow and South-Western Railway near Thornhill, over 100 feet high, has collapsed at one end. The engineers will remove the structure and replace it with an iron one.

THE parish church of Houndwood, Berwickshire, is now open for public worship, after having been closed for seven months, during which it has undergone extensive structural alterations. A new chancel, in neo-Corinthian style, with a three-light east window and a new porch with moulded doorway, have been added, and the interior of the church has been entirely rearranged and reseated, the work costing 700*l.*

A BOY aged eight was killed and two women badly hurt by the fall of a verandah at 32 Barnsbury Road, Islington, on Monday evening. The deceased, James Roberts, and Emma and Rose Roberts, aged thirty-two and thirty-three respectively, were standing on the verandah watching some sheep being driven to the cattle market when, without any warning, the structure collapsed.

FOUNDER'S day at Dulwich College proved an even more interesting anniversary than usual last Saturday, as on that day the new library which has been erected in memory of the Old Alleyneans who served in the South African war was formally opened. It is English Renaissance in style, of red brick and Portland stone, and covered with tiles. The floors are of polished teak, the bookcases and panelling being of fumigated oak. The whole effect is quite admirable. There is accommodation for 7,000 volumes, with facilities for increasing to almost any extent. All the material is of the best, and the library situated, detached, at the north or Dulwich Common end of the college, is a very worthy memorial. The gate is flanked on each side by a statue, one of Minerva and another of Mars. The prefect's room, at the south end, has externally four buttresses, each to be terminated by a statue. Mr. Edwin T. Hall, F.R.I.B.A., is the architect, and the cost was about 3,600*l.*

AN open-air theatre, which has been erected by Lever Brothers, Ltd., in their model village of Port Sunlight, was, on the 20th inst., formally opened by the Mayor of Bolton. The building is the first of its kind which has been established in this country, and is situated in a delightfully wooded vale, part of the village grounds. It is intended for theatrical performances, concerts and athletic displays during the summer months. The permanent building contains the stage, 50 feet



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wide by 35 feet deep, which is framed towards the front by a beautiful proscenium arch of terra-cotta, fitted with a revolving steel curtain. The auditorium is 158 feet in length by 95 feet wide, and is formed of concrete, with a large central area, rising gradually to the back, and with stepped galleries all round, which will seat nearly 3,000 people. The audience are sheltered from the weather and sun by a steel-framed roof carried upon iron columns, over which is stretched strong waterproof canvas, the sides being closed in with the same material.

### NEW CATALOGUE.

THE Fram Fireproof Flooring Company have issued an illustrated description of their "fireproof boards," of which we spoke in connection with the Earl's Court Exhibition. The long list of works already carried out or in progress is a striking testimony in favour of the invention.

### TRADE NOTES.

MESSRS. E. H. SHORLAND & BROTHER, of Manchester, have just supplied some of their patent warm-air ventilating Manchester grates to the infectious hospital, Warrington.

THE mayor of Accrington (Alderman Thos. Broughton, J.P.) set the new clock in motion at Great Harwood, Lancs, erected to the memory of John Mercer, who was born at Great Harwood 100 years ago, and the inventor of the Mercerised cloth and other valuable inventions. The tower was designed by Mr. Dunkin, borough surveyor, and erected by Messrs. Lewis Bros, builders. The clock and bell were supplied by Messrs. Wm. Potts & Sons, clock manufacturers, Leeds.

### A NEW RAILWAY LEVEL.

MESSRS. W. F. STANLEY & CO., LTD., of Great Turnstile, W.C., have just perfected a new railway level which should prove of the greatest utility to railway and other engineers. In this level the centre is cast in one piece with, and directly upon, the telescope body and object end. The cast telescope body is cored out to a suitable thickness, so that although of vastly greater strength and rigidity, it does not weigh as much

as the old form of tubular body, collars and stage, while it does away with many separate pieces which are usually soldered and screwed together, and thus forms the strongest and most compact level yet made. The rack is fixed under the draw tube, and the pinion is fitted from side to side of the outer cast body and spindled at each end, so that the pinion has a double bearing in the cast body, which adds greatly to its strength. The level is fitted with clamp and tangent adjustment, tribrach levelling and patent locking plate, so that it can be used on a wall or masonry as well as on the tripod. The diaphragm is fitted, at the option of the purchaser, with (a) webs, (b) platinum-iridium points, or (c) lines on glass. The two latter are set for stadia reading, 1:100, so that the distance of the staff is read in the telescope without other measurement. The points do not cover up the divisions of the staff, are permanent in all climates, may be dusted with a brush, and are strongly recommended. This principle of construction gives greater strength and rigidity combined at the same time with less weight. Messrs. Stanley & Co. believe that the level is unexcelled for strength and compactness, and is particularly adapted for hard wear as by contractors, &c.

### CORRESPONDENCE.

SIR,—It having been brought to our notice that a report is being circulated to the effect that this company's business has been transferred to some other centre, or has been amalgamated with that of some other firm (the report appears to have assumed both these forms), we beg to inform our customers and friends that, in whatever form circulated, the statement is without the slightest shadow of foundation. The company's business is carried on now, as hitherto, at Albert Works, Newbury, and at that address only, and is not connected in any way whatever, directly or indirectly, with any other business.

We have an exceptionally fine stock of thoroughly seasoned timber, and the same staff of competent workmen who have been trained for so many years in the class of work for which we have obtained, and we venture to think deservedly obtained, so high a reputation. We shall therefore be glad to hear from our friends as hitherto, and to give to all orders entrusted to us the same care and attention, both as regards material and workmanship, that have made our goods so valuable in the trade.

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## THE BUILDING EXHIBITION.

(Concluded from last week.)

In the Minor Hall the central position was occupied by the very interesting and instructive exhibit of Irish stones lent by the Department of Agriculture of Ireland. These are numerous and varied, among them being marbles of beautiful grain and colours in columns and slabs, while a handsome revolving statuary pedestal in Connemara Green marble formed a conspicuous object in the collection. A variety of Irish granites, slates of large size and excellent quality, "Shamrock stone" (a very hard sandstone which, we believe, is being used in considerable quantities in the construction of the new War Office), and samples of a hard white limestone. Among the examples of terra-cotta were two large panels in red ware of very bold design and artistic treatment, Kingscourt bricks, roof and ridge tiles, finials, &c.

Messrs. F. Merrick & Son, Glastonbury, showed some excellent examples of high-class joinery, of which a handsomely panelled dado in oak is a fine piece of work. Their registered fixing brick for securing joinery will, we should think, be found of great utility, obviating as it does the need for plugging, the brick being of a tough nature, and affording a perfect hold for nails. It is besides very light. Messrs. Merrick also showed samples of their continuous nib plain roof tiles.

In the next position Mr. R. Trower, Redhill, had arranged samples of red-facing bricks, ornamental bricks, washed building sand, his next neighbours being Messrs. Leverstock & Acorn Red Brick Co., Ltd., Hemel Hempstead, showing key bricks, swags, Gothic string-courses, date panel, beaded jamb brick, mouldings and angles, wall copings, &c.

Messrs. Broad & Co., Ltd., Paddington, were worthily represented by a numerous assortment of their well-known sanitary specialties, consisting of white enamelled channel bends in various sections, with manhole cover and chamber complete urinal and trough channels, gully traps, interceptors, patent and other sinks, manhole covers, stable gully, cream Bristolware channels and gully traps, channel shoe and reversible gully trap, brownware traps, stoneware drain pipes and connections, improved channel interceptors and gullies, Armstrong's improved inspection openings for drains; also a new patent interceptor for testing inspection chambers, white and coloured glazed bricks, building bricks, cast-iron drain pipes and connections, a cast-iron inspection chamber, samples of

stable paving and channels in adamantine clinkers, and laid specimens of various designs for floor and hearth, wall and mosaic tiling, dados, friezes, skirtings and mouldings.

The principal exhibit at Stands B and C, 21, Gallery, Messrs. B. J. Hall & Co., 39 Victoria St., was Hall's patent electric copier for reproducing tracings. An antiquarian size machine was shown at work. This machine makes two blue prints in two minutes, two black line prints in six minutes. It has a special arc lamp made to the inventor's specification, which will burn with 85 to 90 volts at lamp terminals on a 100-volt circuit, and 160 volts on a 200-volt circuit. These lamps are largely used for process engravers' work. Upwards of 500 sets of the complete apparatus are now in use, and the demand is, we are informed, increasing. A new vertical or horizontal balanced drawing-desk by Messrs. B. & S. Massey, of Manchester, for which Messrs. B. J. Hall & Co. have the sole London agency, is of unique design, perfect in every detail, and is coming largely into use in the high-class drawing offices. Folding writing-desks were also shown, and students' drawing-tables, inexpensive and substantially constructed articles, which can be used for a variety of purposes, and when not in use occupy a very limited space. The boards, if fitted with magnetic tee squares, can be worked in a vertical position. The tables are most useful as an auxiliary to a roll-top desk, and can easily be brought out to accommodate a temporary surplus of papers. Messrs. Hall & Co. showed a 10 feet by 3 feet photo print in one sheet without joint, and a large number of samples of British photographic papers prepared at their own works, also drawing instruments, colours and the like.

At Stand No. 9, Gallery, was an exhibit of metalwork by Messrs. Waltham & Co., of 46 York Street, Buckingham Gate, S.W., from the designs of their artist, Mr. Robert Evans. In these days of swirls and curls it is interesting to find a firm who so steadfastly cling to the traditions of their craft, their work having that restraint and sincerity of purpose which is rare in any but old work. A fine example of light smithing is their altar crucifix in bright iron, with its delicate lacework ends, and a clock in hammered and repoussé brass is also worthy of mention. Architectural metalwork was well represented by the photographs of the covered verandah and balcony, 105 feet long, and the two covered porches made for the Bath and Cheltenham Hotel (Messrs. Treadwell & Martin, architects). Messrs. Waltham & Co. had also some interesting portfolios illustrating the lighting of town and country mansions, all of which go to prove to what an extent

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the traditional treatment of metalwork may be preserved, even with the most modern methods of lighting by electricity.

*Incorporations, Ltd.*, of 33 St. Swithin's Lane, E.C., showed (Stand 11, North Gallery) John's patent windows. These are so made that the whole of the glass, both inside and outside, can be readily cleaned from the inside of the room. There is nothing of a complicated nature in their construction, and their appearance is not impaired by cumbersome fittings of any kind.

*The Newellite Glass Co., Ltd.*, 139 Cannon Street, were worthily represented by a prominently-placed pavilion, the walls of which were effectively decorated with their glass tiles. These tiles, as most of our readers are aware, have been specified in connection with many public works, and, *inter alia*, have been supplied to H.M. War Office, for lavatories, Sobraon Barracks, Colchester; sergeants' mess, baths, Wellington Barracks, S.W.; New War Office, Horse Guards Avenue, S.W.; H.M. Admiralty, for tiling vaults, Greenwich Hospital, S.E.; H.M. Home Office, for Cannon Row Police Station, S.W.; Highgate Police Station, N.W.; H.M. India Office, for Civil Secretariat, Simla; Walker Hospital, Simla; General Hospital, Madras; Law Courts, Rangoon; and the Borough Councils of Bermondsey, Camberwell, Chelsea, Croydon, Fulham, Poplar, Westminster, &c., in London, and to numerous public bodies in the United Kingdom, India, Australia and the Continent. They make an excellent decoration with a clear impervious surface, unaffected by frost or weather, and owing to the special nature of the backing, which is elastic, do not crack or craze.

*Mr. H. Hart*, 29 Settles Street, Commercial Road, E., showed drain-cleansing machines, with various forms of improved brass couplings. Also apparatus for use with them, stout ash sewer rods, with shovels and scoops to connect with them.

The "Offa" ventilator, exhibited by *The Offa Ventilating Co.*, 64 Basinghall Street, is an inlet ventilator so arranged that it admits clean, diffused air without draught; it is noiseless, can be easily cleaned, contains an air filter, and can be decorated in accordance with its surroundings.

Cooper's patent "Champion" drain clearer was shown by *Mr. A. T. Cooper*, of 92 Moray Road, N.

*Messrs. O'Brien, Thomas & Co.*, Upper Thames Street, were represented by the Coburn patent sliding-door hangers, roller and ball-bearing carriers for warehouse, and parallel folding partitions and fire doors, lateral and vertical adjustment.

*Messrs. H. G. Goodwin & Son*, 16 Charles Street, Hatton Garden, had a good display of useful joinery, staircase, doors,

sashes and frames, turnery, closet seats, hand-rails, carved mouldings and overdoors, front gates, wood fireplace fronts, newels and balusters and compo-board.

*Mr. Walter Edwards*, of Mitford, Surrey, brought his patent ventilator, which works automatically to carry off impure air. This apparatus is invented to fix in ceilings to carry off impure or vitiated air without any down-draught, thereby causing a supply of pure air to take its place. It is fitted with mica valves which hanging perpendicular in its normal position are always open, and the slightest down-draught striking the curved plate in the interior of the ventilator cause it to deflect and impinge on the valves, thereby closing them. It is also fitted with an apparatus to close the valves completely, if desired, by turning a knob or handle, and has an index plate to show the position of the valves.

An ingenious and very useful scaffold fixer was shown, and its working explained, by *Mr. James Hunt*, 86 Herbert Street, N.

The exhibits contributed by *Messrs. J. Bonsor & Co.*, Barrington Road, Brixton, comprised a variety of expansion sockets for lead soil-pipes and waste pipes, copper-strengthened lead sockets and closet-connecting cones.

Non-slipping metallic woven stair treads, Banner's sanitary fittings, for which twelve medals have been awarded at exhibitions, drain-testing appliances for scent, smoke, air and water tests were shown by *Lyte's Metallic Woven Stair-Tread Co., Ltd.*, and *Banner Sanitation Co.*, 24 Craven Street, Charing Cross, London, W.C.

*Mr. James Oates*, Huddersfield, explained the working of his "Empire" wall-paper trimmer, trimming all classes of wall-papers at a speed equal to the labour of ten men.

Some extremely effective decoration was to be seen at the Stand of *The Crystalline Co., Ltd.*, Stourbridge, consisting of crystalline patent glass tiles, with "key" back for wall facings, "Verre-sur-Verre" window decorations, "Verre-sur-Verre" vases and tiles, devitrified glass mosaic flooring, and crystalline elastic cement.

Granite silicon plaster, which, we understand, is largely used by H.M. Government, both by the War and Postal Departments, also in many public buildings, hospitals, asylums, &c., was shown by *The Granite Silicon Plaster Co., Ltd.*, 36 King's Road, N.W.

*The Hockley Hall and Whateley Collieries and Brickworks, Ltd.*, Tamworth, were represented by a comprehensive collection of their Staffordshire vitrified blue and red bricks,

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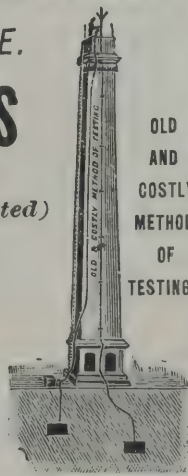
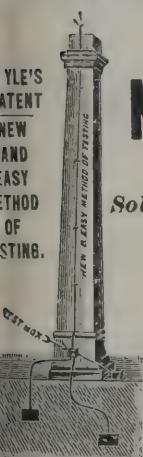
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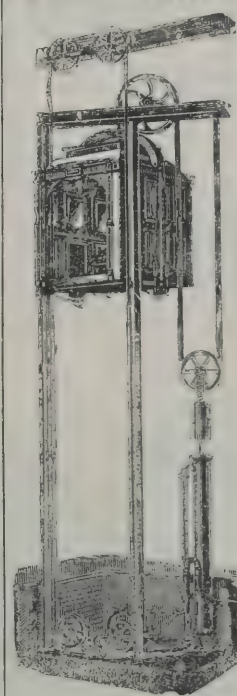
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Birmingham—W. J. A. Kerr, 43 Church Street.

Scotland—W. Regan, 2 Doune Terrace, Gourrock.

Dublin—Booth Bros., Upper Stephen Street.

Holland—Hausmann Bros., Wynstraat 46, Wijnhaven 37 Rotterdam.

For Index of Advertisers, see page x.

VOLUME LXVIII OF THE ARCHITECT  
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copings, plinths, quarries, ridges, roofing and garden-border tiles, ornamental string-courses, mouldings, mural tiles, &c., in various colours, kerbs for footpaths, various kinds of terra-metallic pavings, &c.

*The Mosaic Manufacturing Co.*, King's Road, N.W., had on view some excellent samples of Roman and Venetian marble mosaic, Venetian glass and gold mosaic, opus sextile mosaic, ceramic mosaic, parqueting and wood-block flooring.

A Stand which attracted a large amount of attention was that of *The Marmart Co., Ltd.*, where were seen specimens of a new material composed of glass and metal of a highly decorative character, and eminently suited for decorative panels, advertising tablets, shop fascias, pilasters, &c., the effect of highly ornamental marble being obtained at a very appreciable saving in cost.

*Messrs. Moule's Patent Earth Closet Co., Ltd.*, were as usual represented by a range of their patent closets, which are too well known to need description.

Some pleasing designs in gas-fittings were displayed by *Messrs. S. P. Catterson's, Ltd.*, Newington Causeway, conspicuous among these being pendants and branches for the inverted incandescent gas-burners.

Stoniflex roofing felt, tarred felts, inodorous felts, &c., for roofing and lining; circular wooden lattice girder felted roofs; silicate cotton or slag wool in various forms, showing its application for sound and fireproofing buildings, and insulating cold-air stores; silicate pipe cloth, for covering steam and other pipes; Anderson's patent hair fabric, for covering hot and cold-water pipes, and to prevent freezing, &c., also for covering brine and ammonia pipes; dry hair felt and sheets in long lengths; clean-washed cow hair; plasterers' hair, &c., were shown by *Messrs. D. Anderson & Son, Ltd.*

*The British Compo-board Co., Ltd.*, 18 Roscoe Street, E. exhibited specimens of their compo-board, as suitably applied to buildings, structures, partitions, walls and ceilings, in panels, and showing in a general way its application to building purposes. This material was shown also in sections, demonstrating its use for showcards and signs, veneered wood, furniture, drawing-boards, dark-rooms, blackboards, screens and similar articles, where a large smooth surface is of advantage.

Among the many interesting specimens of their work shown by *The Crittall Manufacturing Co., Ltd.*, Braintree, was a piece of iron window frame forming portion of one of a range of windows which the firm are making for the Yerkes electricity-

generating station at Neasden; these windows are each 60 feet in height, and are probably unique. Other exhibits comprised, among many others, reversible casements to facilitate the cleaning of windows from the inside. Doors fire and thiefproof, sliding roofs, lantern, sky and dome lights, puttyless glazing, opening gearing for lanterns, fanlights, &c, constructional ironwork, lattice and compound girders, stanchions, coal bunkers, footbridges and gangways, overhead trolley-ways, fire-escape staircases, &c.

One each 36-inch, 30-inch and 24-inch sanitary pipes, in 3 feet lengths, one 18-inch street gully, 4 feet deep, and sample 6-inch interceptors and yard gullies were here to represent *Darwen Sanitary Pipes, Ltd.*, Darwen.

*Mr. W. Höfler*, Soho Square, had a very pretty little show of quaint and artistic furniture, wall-papers and other mural decoration, metalwork, a portion of a handsome and massive carved oak staircase, electric-light fittings, paving and mural tiles, &c.

*Messrs. C. Faust & Co.*, 2 The Crescent, Tower Hill, E.C., and *Clemons, Marshall & Carbert*, Leeds, showed work treated with their magnite cold-water paint, of which they distributed samples, specimens of their Flintkote roofing, and samples of metal covered with their Lustrogen aluminium.

*Messrs. Dawson & Co., Ltd.*, Battersea, did justice to their wares with their extensive display of sanitary ware, including, amongst other specialties, their new designs of stable gully trap, with reversible top and intercepting bucket; the "Mendip Gully;" the "Glasarm" interceptor, a new design to facilitate the releasing of sewage in a manhole; "Ephos" ware, a new brown glazed ware, adapted for the manufacture of gully traps, interceptors, channel bends, &c.; white enamelled channels, interceptors, gully traps; white enamelled and cream glazed sinks; white and coloured glazed bricks; brown stone-ware pipes, traps, &c.

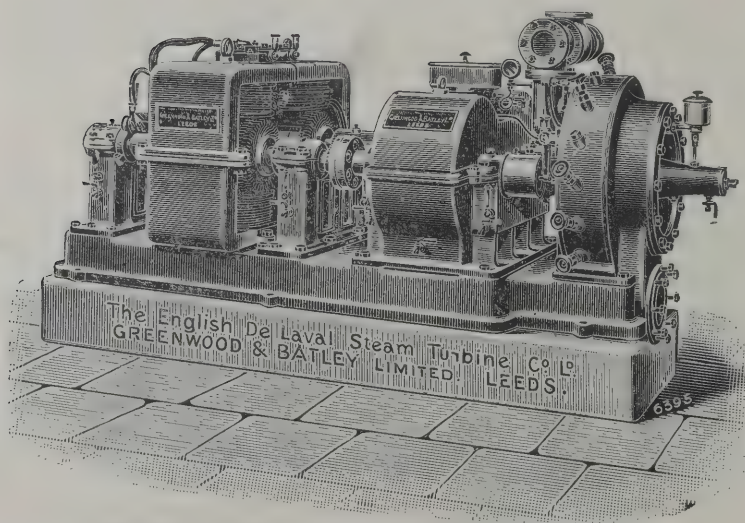
*Messrs. John Knowles & Co.*, King's Road, N.W., were represented by samples of glazed stoneware, "Vitrifine" pipes and sanitary fittings; patent "B.P." stoppers, fitted to junction-arms and to interceptors; "Brighton" interceptor, with "B.P." stopper; reversible gullies and gully-extendors; improved "Bellman's" gullies, used largely in asylums and all public buildings; channel bends, with examples of "Lustrine" glaze; improved access pipe; their latest specialty being Turner's patent "locking-grid" gully.

*Messrs. Watson Nelson, Ltd.*, Napton, near Rugby, showed some excellent samples of the dark red roofing tiles of which

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## ELECTRICAL AND GENERAL ENGINEERS.



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Small Space Occupied.  
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No Special Foundations Required.  
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they are justly proud. These tiles, which have a hard, durable surface and a good metallic ring, have undergone, we understand, the severe test of being subjected to 20 degrees of frost in a freezing-room for six consecutive nights, being thawed each day in a temperature of 75 degrees, and coming out perfectly sound. Another specialty of this firm is their patent fluted-face tile, of which they also showed specimens.

Their usual attractive display was made by *Messrs. S. & E. Collier, Ltd.*, of Reading, who showed some capital machine-made terra-cotta of effective design especially adapted for use in the erection of small villa property. This comprises door and window heads, sills and lintels, string-courses, pier caps, ridge tiles, finials, &c. As specimens of their productions to architects' specifications were photographs of Reading Town Hall and Municipal Buildings, an imposing block of business premises in Queen Victoria Street, Reading. Some excellent samples were to be seen here of their well-known roofing and wall tiles—red smooth-faced, plain, dun-coloured, strawberry-coloured, sand-faced (hand-made), with and without nibs, patent sand-faced (machine-made), with and without nibs, patent rough-faced for weathering quickly; ornamental tiles in various patterns for vertical work, eaves and header tiles, gable or one-and-a-half tiles, hip, valley, angle and sprocket tiles, small tiles for bays, porches, &c. Bricks, chimneypots, drain-pipes and ornamental red pottery (vases, &c.) were also *en evidence*.

*Messrs. Perrett Bros.*, Sutton, showed red ridge tiles in 18-inch lengths, finials, chimney-pots, ordinary and moulded red bricks, terra-cotta, garden edgings, &c.

A new combined gas-cooker and hot-water circulating boiler (L. Rasch's patent), by which hot water is supplied throughout the house in fifteen minutes at an average expense of 1d. per hour, was shown by *Messrs. Beaven & Sons*, 27 Victoria Street, S.W.

*Messrs. J. Halden & Co.*, Manchester, exhibited engineers' photo-copying processes, electric copying frame, arc photo process, giving intense black line; surveyors' levels, theodolites; planning instruments, mining dials; drawing instruments, drawing-office materials.

A goodly show of radiators of various descriptions for gas and oil, gas and oil conservatory boilers, geysers, &c., were shown by *Messrs. Fenlon & Co.*, Whitefriars.

*Messrs. Moore's Patents Co., Ltd.*, Edmonton, showed and explained their various kinds of window fittings, door springs and hinges, fanlight and skylight openers, check springs, &c.

*Messrs. Carter & Co.*, Poole, showed some charming examples of lustre glaze applied to tiles and decorative art objects, as vases, beakers, &c. This glaze, which, we understand, is a specialty, gives some extremely pleasing effects, and was greatly admired. The firm's other exhibits comprised tiles for floors, walls and hearths, ceramic mosaic, constructional faience and terra-cotta.

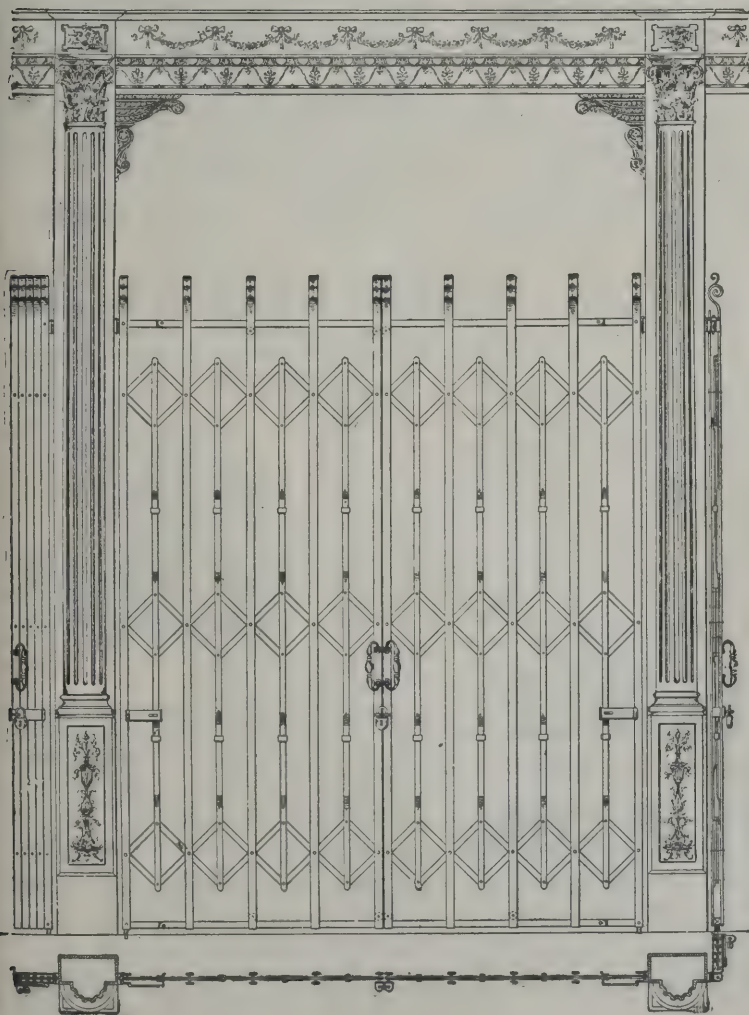
A very peculiar building brick was exhibited by *Mr. Cecil Nathan*, 39 Victoria Street. It is an interlocking brick. These can be laid with perfect accuracy by unskilled labour. By this system no pointing is required, and the bricks can be set up temporarily to form walls without mortar.

*Messrs. Powers & Deane, Ransomes, Ltd.*, had a section of the patent "M.P." fire and soundproof floor and ceiling, with rolled steel joists, patent tiles, coke breeze concrete, and finished with granolithic paving complete. Patent fireproof doors made of two steel stampings only. Samples of steel compound girderwork, stanchions and roof trusses, showing various methods of construction, connection, &c., and a compound girder section, showing simplicity of construction combined with extraordinary carrying power.

A small roof covered with the Somerset tiles showed that these tiles can be laid without nails; they are lighter than pantiles and are rain and snowdrift proof. The exhibitors, *The Somerset Trading Co., Ltd.*, also invited attention to their improved plain roofing tiles, patent "Rainbar" plain tiles, interlocking triple angular tiles, ridge tiles, "Lockjaw" tiles, triple and double Roman tiles, &c.

*Messrs. Cobbetts*, Virginia Road, Bethnal Green, had their Stand quite at the entrance to the main hall, where they showed a large variety of "Marbut" machine-carved mouldings, which attracted a great deal of attention. These mouldings are actually machine-carved by gauges and chisels by an English patented machine; there is no planing, stamping or turning about these goods, and the designs are remarkably clean and sharp. The assortment is also a very useful one, comprising mouldings for dados, cornices, panels, picture hanging, picture frames, &c. *Messrs. Cobbetts* also showed a very fine selection of newels and balusters in square and round turning, the workmanship being of a very high order.

*Messrs. Thos. Pascal & Sons*, Norwood, were represented by samples of their Wrotham P.W. 2½ inches by 2 inches hand-made sand-faced red facing bricks and sand-faced red moulded bricks, their Wrotham hand-made sand-faced red, plain and ornamental roofing tiles, hips, valleys, angles, &c.,



# B. & S. Patent FOLDING = = GATES and = KINNEAR = = Patent = = = STEEL = = = ROLLING = = DOORS = = =

Are in use on the Best Buildings  
in all parts of the world.

The B. & S. Folding Gate Co.

19, 20 & 21, TOWER STREET,  
Upper Saint Martin's Lane, LONDON, W.C.



expanding ridge tiles in ordinary widths, also extra wide to weather 14-inch wall, ornamental and plain-crested fixed pitch ridge, red chimney-pots, &c.

The *Cloisonné Mosaic Co.*, 76 Newman Street, showed a very elegant and, so far as we know, distinctive decorative effect in their cloisonné mosaic, the design of which is formed in apparently specially made cubes of various coloured glass contained within metallic divisions or cloisons. Notable among these were the surround for grate and hearth *en suite*, the design a garland in blue on a white ground, the effect being very chaste and elegant. Among the several very pleasing panels one representing a pair of flying storks was particularly successful. At this Stand were also shown some excellent panels in *Marmorite artistique*, a very attractive material which we described fully a few weeks since as having been exhibited at the Trocadéro restaurant. Among the notable samples of this material was the fascia of the Stand in pale green with gold letters, which fully demonstrated the extreme applicability of the material to this and cognate uses.

Faija's patent cement-testing plant, including testing machines, moulds for briquettes, gaugers, steamers, sieves, Vicat needles, scales, &c., were shown by *Messrs. R. H. Mudd & Co.*, Chiswick.

The *North Devon Clay Company*, Torrington, had some good impervious buff facing bricks, vitreous paving bricks, and some engineering and sewer bricks on view.

The *clou* of *Messrs. Yates, Hayward & Co.*'s exhibit, which occupied its accustomed position under the east Gallery, was a monumental kitchener for hotel use, which, being a combination for the use of coal and gas, possesses the advantage that when the fires have been shut down, the day's work being presumably over, the smaller or gas portion can be lighted in an emergency, and a meal for an unexpected party expeditiously prepared. The other numerous exhibits at this Stand comprise varieties of their well-known high-grade grates and mantels, many of them being of beautiful design and all of good workmanship.

*Messrs. Richard Hornsby & Sons, Ltd.*, Grantham, showed an oil-engine (fixed), the "Hornsby-Ackroyd," R.A.S.E., first prize; made for working with either ordinary oil or "liquid fuel."

*Messrs. Ashton & Green*, who were also in their usual position, showed a variety of kitchen ranges, including their specialty, the "Sine qua Non," a large and choice selection of chimney-pieces in wood, iron, marble and slate; stoves and

interiors of the latest improved designs, including the new well-fire; tile surrounds, panels and hearths; baths in porcelain and other enamels, lavatory stands, &c.

The patent "Emperor" brickmaking machine, in operation, attracted a good deal of attention. This was shown by *Messrs. Sutton, Speakman & Co., Ltd.*, Leigh, Lancs, who also sent specimens of their patent stiff plastic brickmaking and pressing machine; flags made on their patent process from slag, granite, sand, destructor clinker, limestone chippings, &c.; lime-sand bricks, made from all classes of sand, slag bricks made from several varieties of slag, destructor clinker bricks, made from a mixture of clinker and lime, gas lime and clinker bricks, made by their special process, and special sandstone facing bricks.

Another crowd was attracted at the neighbouring Stand of *Messrs. Sagar & Co.*, Halifax, who showed a variety of wood-working machines, all of the utmost ingenuity and utility; among others we noticed a new pattern builders' mortising and boring machine, with crank shaft in base of machine for running at a very high speed; and an automatic reversing chisel, which takes timber 11-inch by 4½-inch stroke, with self-coring chisels.

The *Glendon Engine Works Co.*, Kettering, showed a new design "Century" mortar-mill combined with engine and boiler, a 12-feet by 5-feet patent brick-breaker, an improved friction winding hoist, and a first process clay pan, 7 feet in diameter.

The Kielberg machine shown by *Mr. Paul Fernau*, 63 Quintin Avenue, W., is used for making drain-pipes of every dimension from Portland cement and sand or other materials. Hitherto such pipes, which are largely used on the Continent, have generally been made by hand.

Saw-benches and other wood-working machines, also in motion, with engines of various descriptions, formed the attraction at the Stand of *Messrs. Easton & Bessemer, Ltd.*, Taunton.

*Mr. Joseph Hamblet's*, West Bromwich, exhibit consisted of Barnes's patent direct-acting steam pump, brick machine, rolls and presses, and *Messrs. Herbert Alexander & Co., Ltd.*, Leeds, showed sand and clinker concrete brick and stiff plastic machinery. That of *Messrs. J. B. Stone & Co.*, Finsbury Pavement, showed a large variety of wood-working machines and tools.

*Messrs. Jas. B. Petter & Sons, Ltd.*, showed some handsome patterns in their patent "Nautilus" grates. The "Nautilus"

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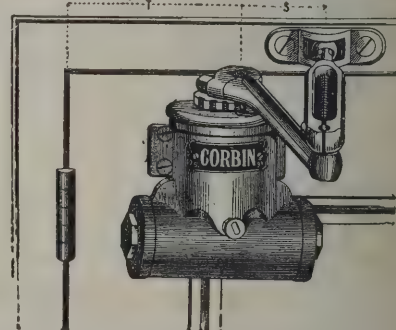
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grate is so constructed that there is no inlet to the chimney above the grate. The grate is in the form of a shell, and the heated gases pass around the hood or volute before escaping into the chimney. They also showed the patent "sou-wester roof" plate for carrying smoke pipes through roofs of buildings, providing a safe watertight joint; the patent "Mermaid" boiler for kitchen ranges; the "Petter" engine, an oil-engine burning common paraffin oil, and the "Handy" stable loft crane for hoisting all kinds of materials for building and other purposes.

Mr. T. Potterton had his familiar Stand, at which were to be seen his patent zigzag range boilers, independent boilers, radiators, towel dryers and an acetylene gas generator.

The "Stott" electric ventilating fan for removing smoke and foul air from smoke-rooms, bars, restaurants, &c., ventilating hotels, theatres, churches, &c. The "Stott" patent instantaneous and silent water-heater and circulator, for swimming-baths, and other useful appliances were shown by Messrs. James Stott & Co., Queen Victoria Street.

Some very useful fittings and appliances, consisting of adjustable steel bookstacks for libraries, cabinets and cards for card-indexing system for architects and builders, their vertical filing system, which is a new method of filing correspondence, catalogues, &c., office furniture, &c., were shown in the Arcade by The Library Supply Co., Queen Victoria Street, E.C.

In the Arcade were also to be found Messrs. Pryke & Palmer's exhibit of steam radiators, lead closet connections, jumpers, slate clips, &c. (The Exeter Gasteam radiator, it was explained to us, is a complete steam-heating apparatus in itself; no separate boiler or steam-pipe is required, the only connection needed to work it is to a 3-inch gas pipe, which supplies the fuel for producing the steam). That of Messrs. Crewe & Co., consisted of trucks, bogies, barrows, handcars, hay-racks, &c.

Mr. John Coppard, of 189 Copenhagen Street, Islington, N., displayed in operation at Stand No. 27, in the North Gallery, a couple of his patent self-sustaining swing scaffolds, with the aid of which one man can raise and lower himself and fellow-workmen with safety to all concerned by simply turning the handle. A great advantage of the scaffold is that it can be packed for storage or transport, so as to occupy a space of only a few inches in thickness.

The flagging shown in Gallery by The Basaltine Stone Co., 45 Parliament Street, is made of materials different to any other in the market, and it is claimed that it is extremely

durable, is also non-slippery, and possesses a tread superior to the natural York paving. Armoured kerbing and channelling. Sewer and water conduits in circular form in sizes varying from 4 inches to 40 inches, and in egg-shape in sizes varying from 12 inches by 8 inches internal section to 60 inches by 40 inches internal section. This company also exhibit copings, checkered paving, slabs, steps, window-sills, &c.

Mr. Geo. Riches, Cromer, in adjoining space showed red facing common building bricks and red moulded bricks.

The Oliver standard visible typewriter, a variety of desks, typewriter furniture, supplies for the various makes of machines, duplicators, &c., were shown by The Oliver Typewriter Co., Ltd., 75 Queen Victoria Street, E.C.

The Shannon, Ltd., had an extensive display of writing tables and roll-top desks, letter-filing and card index and other cabinets, chairs, and a number of their labour-saving office appliances.

Messrs. Colledge & Bridgen, Wolverhampton, showed and explained the action of Fisher's patent window attachment for the prevention of accidents to window cleaners.

Flat or garden roofs, and samples of their plastic roofing and damp-course felts occupied the Stand of The "Coolmore" Durable and Asphalte Co., of Belfast.

Mr. Vernon Parker, 20 Victoria Street, S.W., had a very comprehensive exhibit of the various goods for which he is agent; among these were specimens of Hamblet's building; and stable bricks, kerbs, channels, plinths, bull-nose copings, blue "ironware" pipes and invert blocks for ovoid sewers, &c.; Hassall's improved safety-pipe joint, specially designed to enable engineers to make thoroughly water-tight sewers in water-logged districts; Preston Concrete Granite Co.'s artificial paving flags, steps, &c., made of Penmaenmawr granite chip-pings and Medway cement; Prismatic Wood Paving Co.'s wood-blocks consisting of squares or prisms of oak, with iron tongues inserted; Shone's system of drain and sewer ventilation, and E. P. Hooley's patent tar macadam.

The British Felt Co., 92 Tooley Street, had a collection of their specialties in inodorous asphalte roofing and other felts, glue, concentrated size, scaffold cords, &c.

The Patent Automatic Sewage Distributors, Ltd., Westminster Palace Gardens, showed their latest devices in patent automatic, mercury-sealed revolving sprinklers for the bacterial treatment of sewage; patent floated or buoyant sprinklers and travelling sprinklers for bacteria beds; rotating sewage-feed apparatus; automatic feed valves; automatic sewage screen, &c.

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*The British Paving and Granite Co*, Great George Street, S.W., showed a sample of paving and other granites, as Norwegian non-slipping (interior rock) granite setts, open grey Norwegian granite setts, close texture Norwegian granite setts, pink Swedish (interior rock) granite setts, open pink Swedish granite setts, best blue Welsh setts, best grey Irish setts; samples of dock coping, curbing, edging, &c.; 2-inch Myddleton granite macadam, Myddleton chippings, 2-inch best Welsh Ceiriog granite macadam, Rostrevor and Norwegian granite macadam, &c.

*The Sanitary Block and Tile Paving Co., Ltd.*, 17 Victoria Street, showed a section of pavement blocks laid *in situ*, together with samples of the paving blocks of various sizes. These blocks are composed of steam-refined Trinidad Lake asphalt, with finely broken trap-rock, hard limestone, or other suitable material mixed in carefully ascertained proportions. A wood fibre block, granulated wood or wood fibre being substituted for the stone. Sample block made from dust destructor refuse, mixed with Trinidad Lake asphalt, &c.

A model of Meldrum's simplex regenerative refuse-destructor, front hand-fed type, four-grate unit size, with Lancashire boiler, regenerator, &c.; a model of Meldrum's simplex regenerative refuse-destructor, improved top-fed type, three-grate unit size, with Babcock & Wilcox boiler, regenerator, &c.; an interesting collection of curios from high-grade destructors, &c., formed the staple of *Messrs. Meldrum Bros., Ltd.* (Victoria Street), exhibit.

The Heenan patent refuse-destructor, centrifugal fans, forced-draught plant, smokeless chimneys and coal-saving appliances, &c., were shown by *Messrs. Heenan & Froude, Ltd.*, Manchester.

*Messrs. John Wainwright & Co., Ltd.*, of Shepton Mallet, sent a number of samples of asphalt for various purposes. These comprised specimens of Seyssel, mastic and British asphalt, asphaltic paving, basalt stone, limestone for dressing, for mixing with cement and for tar paving, Kentish rag-stone for macadam tar-paving, &c.

*Messrs. Mackay & Daviss*, Pontypridd, showed varieties of blue Pennant stone, self-faced flagging, self-faced Keil, self-faced channel setts, &c.

*Messrs. Sutton & Co.*, Overseal, near Ashby-de-la-Zouch, were represented by an extensive array of their impermeable stoneware sewerage pipes, 2 inches to 18 inches diameter, with junctions, bends, inspection and access pipes, syphons, traps, interceptors, yard and street gullies, pipe and block traps,

Henman's channel gully and trap, Stanford jointed pipes, their patent flush joint, single and double seal pipes, Smith's patent iron-jointed pipes, Green's patent Wyvurst channels, &c.

*The Hopton Stone Co., Ltd.*, Wirksworth, made an attractive Stand by arranging *in situ* their specimens of paving and dressed work, balustrade steps, kerbs, gutters, footways and material for town carriage-ways and road metalling.

*Messrs. Chalmers & Co.*, Redhill, had a capital ambulance carriage or two, and we noticed an ingenious automatic tilting sanitary refuse-cart, disinfecting vans, carts, hand trucks, &c.

*The Phoenix Engineering Co., Ltd.*, Chard, showed a variety of boilers and pumps, a road-scraper, hose, &c.

Samples of granite paving setts, channels, kerbs, crossings, macadam and chippings, from the Minfordd and Gimlet Rock, Pwllheli, Quarries were shown by *The Pwllheli Granite Co., Ltd.*, Runcorn. The special features claimed for the paving materials produced at these quarries are freedom from slipperiness and comparative noiselessness.

*Messrs. J. A. Reynolds & Co.'s*, Birmingham, exhibit consisted of an extensive display of tachometers, theodolites, dumpy levels, builders' levels, levelling staves, ranging poles, mining dials, circumferentors, cross staves, box sextants, prismatic compasses, optical squares, Abney's levels, reflecting levels, protractors, parallel rules, anemometers, air meters, aneroid barometers, drawing instruments, planimeters, eidographs, surveyors' rods, land chains, scales, engineers' photographic apparatus, drawing boards, squares, drawing and tracing papers, tracing linens, mounted paper and all other drawing materials used by architects and surveyors.

*The Rowley Regis Granite Quarries, Ltd.*, Rowley Regis, had installed a short length of tramway line and a length of 10 by 5 Rowley kerb, with 4 by 4 sett channel, besides showing sample setts of various sizes, various sizes of macadam, coarse and fine chippings, &c.

A drawing and model of non-septic sewage disposal—Goodridge's patent—was exhibited by *Mr. Alfred S. Goodridge*, Bath, showing plan and sections of an installation by which the solid is preserved for its material value, being removed weekly by a barrow with dry earth, on an inclined plane, and cleared by rake out of the straining channel into it.

Drain rods, fitted with the "Ferrett" patent lockfast brass joints and specially-selected Malacca canes, were shown by *Messrs. Cakebread, Robey & Co.*, Stoke Newington, with fittings and appliances for use with above, and tube-clearing rods for telephone and electric cablework.

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*The Nevile Engineering Co., Ltd.*, Worcester, showed specimens of Caink's patent jets and sprinklers for street watering-carts, complete with valves and strainers ready for attaching to watering-waggons or carts. Caink's sewer ventilators for ventilating sewers without permitting the sewer-gas to escape freely into the air, by which the dampness is abstracted and the gas is filtered and allowed to escape gently. A direction post for country roads was also shown.

*Mr. James Runnalls*, Penzance, showed specimens of Penlee stone. This stone is a basalt, and, we believe, has been on the market for thirty years, being supplied to numerous corporations, vestries and public bodies throughout the United Kingdom.

*The North London Ballast and Sand Co., Ltd.*, Hamilton House, Bishopsgate Without, showed samples of washed gravel and sand, limes, cements, concrete, screens, &c.

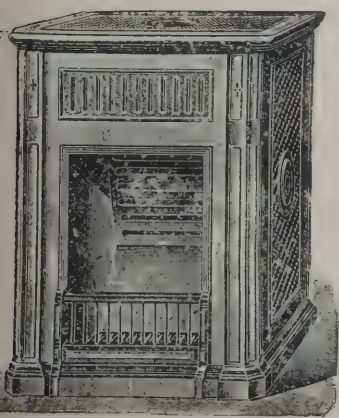
*The Glenfield Premier Brick and Terra-cotta Co., Ltd.*, Glenfield, near Leicester, showed red hand-pressed facing bricks, tapped wire-cut for seconds facing, moulded and ornamental brick; *The Staunton Colliery and Sanitary Pipe Co., Ltd.*, Worthington, stoneware drain-pipes and fittings; *Messrs. S. Barnett & Sons, Ltd.*, Dudley Port, Staffordshire, red, brown, brindled and blue wire-cut bricks, Staffs blue vitrified pressed building bricks and paviors, terra-metallic imperishable copings for walls and platforms; *The Down Mill (Bracknell) Brick Co., Ltd.*, Berks, machine-made bricks, hand-made bricks, moulded bricks, roofing tiles, ridge tiles, finials, &c.; *Messrs. Gunton Bros.*, specimens of ornamental and moulded bricks; *Plaster Brick & Stone Co., Ltd.*, Hanley, plaster-of-Paris (coarse, builder's, fine, superfine, &c.), Keene's and Parian cements, alabaster in blocks, gypsum stone for rockeries, red facing bricks, ridge-tiles, wall-coping, cill-bricks, garden-edge, terra-cotta, &c., limestone for highways, carriage-drives, footpaths, &c.; *Mr. H. C. Slingsby*, Old Street, E.C., patent trucks and trucks of all kinds; *Mr. G. Featherby*, Holborn Viaduct, E.C., red facing and moulded bricks and ornamental work, and *Messrs. Peter Wood, Ltd.*, West Bromwich, culvert, facing, paving and kerbs, channels, stable bricks, &c.

### A NEW COTTON EXCHANGE FOR LIVERPOOL.

THE directors of the Liverpool Cotton Association, in accordance with the resolution passed at the general meeting of April 1 last, have purchased the land as a site for the proposed new Exchange for a sum of about 87,000*l.*, and have settled the questions of lights and leases in a manner which they consider satisfactory. As a great many technical points arose during the negotiations the directors found it necessary to engage Mr. Frank G. Briggs as an advisory architect, and they have been guided by his and other expert opinions in regard to the agreements for lights. The maximum sum which the Association under existing agreements may be called upon to pay amounts to 8,090*l.* for rights of light (building up to 90 feet), 8,000*l.* for buying out an existing lease, total 16,090*l.* The above sum of 8,090*l.* includes a strip of land bought at the further side of Edmund Street, which is to be used for setting back the buildings on that side, thereby widening the street and thus improving the property. The total amount will, in all probability, be considerably reduced, but the directors do not consider it advisable to divulge all the details of the agreements at the present moment, and therefore ask the Association to be content with this statement:—The directors have bought Lombard Chambers for 12,000*l.* and hold an option to buy City Buildings for 26,500*l.*, total 38,500*l.*, which latter they recommend the Association to exercise. If on resale these two investments should show a loss, that loss will have to be added to the sum put down for compensation.

At an extraordinary general meeting of the above-named Association held at the City Hall, Eberle Street, the following resolutions of the board of directors were carried:—(1) That the report as printed above be adopted. (2) That the directors be and are hereby instructed to exercise the option of purchase of City Buildings and to resell this property and Lombard Chambers at their discretion. (3) That the directors be and are hereby instructed to proceed with all the preliminaries for the building of a new cotton exchange in general agreement with the terms of scheme D. (4) That for this purpose the directors, with the assistance of the advisory architect, be and are hereby instructed to prepare the details of the conditions which are to serve as a basis for the competing architects. (5) That the directors be and are hereby authorised to raise money by the issue of debentures for the purpose of paying for the property and of defraying the expenses connected with the purchase thereof, in general agreement with the original scheme, and in such manner as may become necessary.

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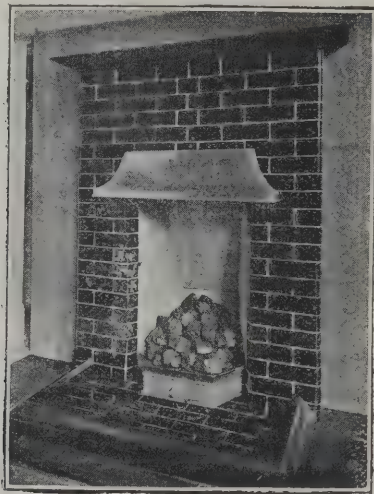
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**THE "HEAPED" AND "VALLEY" FIRES.**

We referred last week in our account of the exhibits at The Building Trades Exhibition to the "Heaped" and "Valley" fire-grates shown by Messrs. Bratt, Colbran & Co., of 10 Mortimer Street, W., but the demand upon our space forbade our giving the detailed description of these grates which their merits warrant, and we therefore propose to take this, the earliest opportunity, to supply the omission. The "Heaped" fire is a very attractive innovation whereby the fuel is very effectually consumed by slow combustion at a very small elevation—some



two inches or so—above the hearth. Bars either vertical or horizontal are dispensed with, and the utmost cleanliness and neatness obtained. It is, moreover, the very material advantage of cheapness; we understand it can be supplied with solid brass or copper hood and all complete at from between 3*l.* or 4*l.* upwards.

As can be seen from illustration, the back and sides of the grate are formed of fireclay, the upper portion coming well forward over the fire and the cheeks well splayed in order to utilise to the utmost the heat generated by the fuel, the metallic

portion consisting only of bars similar to those which constitute the bottom of an ordinary grate, and the ash-pan, both of which can be entirely removed for cleaning or other purposes. Simplicity, effectiveness and economy may be said to be the strong points of these excellent grates, which can be fixed in any fireplace and with unskilled labour, if necessary, and they are a valuable specific against smoky chimneys. The "Valley" fire depicted in second illustration is a modification of that just described, which, although it also has no bars, has a little more iron in front, in order to satisfy those who might entertain an entirely



groundless fear that the others are unsafe; so far, however, from this being the case, we are assured that they are even safer than grates constructed on the old-fashioned plan. The "Valley" fire is, we believe, even slower in combustion than the "Heaped." We may add that a number of these stoves have been fixed at Charing Cross Hospital, the Brompton Hospital for Consumption, the hospital at Carshalton, Buchanan's handsome new building in Holborn, and have been used in private houses by architects who have signified their approval.

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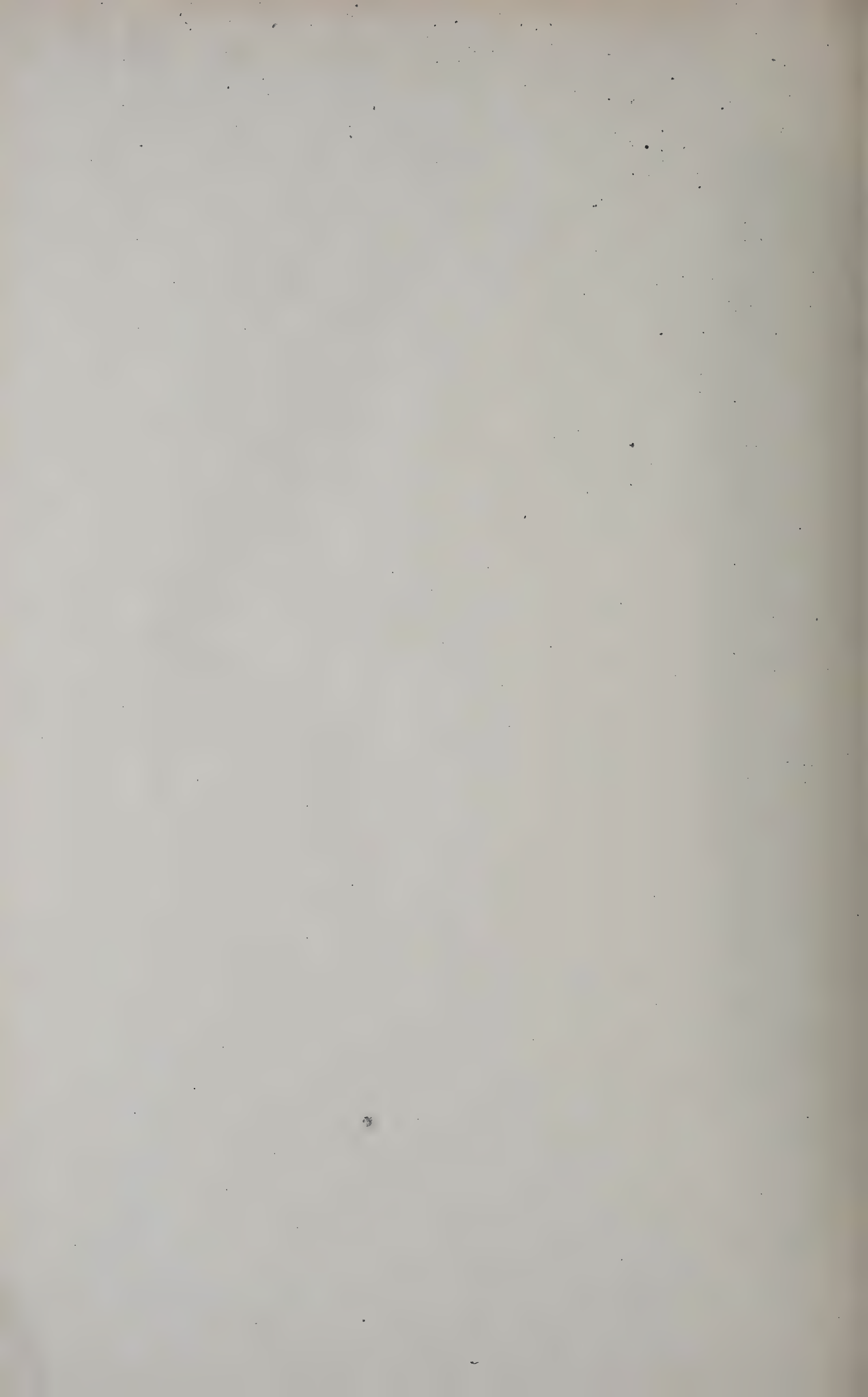
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